

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 1, Schedule 1, Table 3 Exhibit 5, Tab 2, Schedule 1, Table 1 OEB letter announcing 2023 Cost of Capital Parameters, issued October 20, 2022

Question(s):

On October 20, 2022, the OEB issued is letter announcing the 2023 cost of capital parameters for rates effective in the 2023 rate year. In light of current macroeconomic conditions, the 2023 parameters are based on more current socioeconomic data and are likely more representative of what the parameters may be for 2024, for Enbridge Gas's rebased rates.

- a) Please update Table 3 of Exhibit 5/Tab 1/Schedule 1 to reflect the OEB-issued return on equity (ROE) of 9.36% for 2023, for the 2024 test year.
- b) Please update Table 1 of Exhibit 5/Tab 2/Schedule 1 to reflect the OEB-issued 2023 ROE of 9.36% for the 2024 test year.

Response:

- a) Please see a revised Table 3 of Exhibit 5, Tab 1, Schedule 1 that provides an updated 2024 Cost of Capital, assuming the 2023 OEB-approved formula return on equity of 9.36%.

Table 3 (5.1.1)
Utility Cost of Capital – EGI

Line No.	Particulars	<u>2019</u> Actual (a)	<u>2020</u> Actual (b)	<u>2021</u> Actual (c)	<u>2022</u> Estimate (d)	<u>2023</u> Bridge Year (e)	<u>2024</u> Test Year @ 9.36% (f)
	<u>Principal (\$ millions)</u>						
	Long and Medium Term Debt	8,002.0	8,568.5	8,505.3	9,079.6	9,628.8	10,028.1
1	Debt	8,002.0	8,568.5	8,505.3	9,079.6	9,628.8	10,028.1
2	Short Term Debt	407.0	111.1	596.5	585.3	380.9	66.2
3	Common Equity	4,730.0	4,882.3	5,119.8	5,436.5	5,630.4	6,186.8
4	Total	13,139.0	13,561.9	14,221.6	15,101.3	15,640.1	16,281.1
	<u>Capital Structure (%)</u>						
	Long and Medium Term Debt	60.90	63.18	59.81	60.12	61.56	61.59
5	Debt	60.90	63.18	59.81	60.12	61.56	61.59
6	Short Term Debt	3.10	0.82	4.19	3.88	2.44	0.41
7	Common Equity	36.00	36.00	36.00	36.00	36.00	38.00
8	Total	100.00	100.00	100.00	100.00	100.00	100.00
	<u>Cost Rate (%)</u>						
	Long and Medium Term Debt	4.45	4.38	4.37	4.24	4.18	4.17
9	Debt	4.45	4.38	4.37	4.24	4.18	4.17
10	Short Term Debt	2.04	0.94	0.31	2.40	3.00	3.00
11	Common Equity	8.98	8.52	8.34	8.66	8.66	9.36
	<u>Cost (\$ millions)</u>						
	Long and Medium Term Debt	356.1	375.3	371.3	385.0	402.5	418.0
12	Debt	356.1	375.3	371.3	385.0	402.5	418.0
13	Short Term Debt	8.3	1.0	1.9	14.0	11.4	2.0
14	Common Equity	424.8	416.0	427.0	470.8	487.6	579.1
15	Total	789.1	792.3	800.2	869.8	901.5	999.0

b) Please see a revised Table 1 of Exhibit 5, Tab 2, Schedule 1 that provides an updated 2024 Cost of Capital, assuming the 2023 OEB-approved formula return on equity of 9.36%.

Table 1 (5.2.1)
Utility Cost of Capital - EGD, Union and EGI

Line No.	Particulars	<u>2013</u> OEB- Approved EGD (a)	<u>2013</u> OEB- Approved Union (b)	<u>2013</u> OEB- Approved Combined (c)	<u>2024</u> Test Year EGI (d)
	<u>Principal (\$ millions)</u>				
1	Long and Medium Term Debt	2,507.0	2,289.1	4,796.1	10,028.1
2	Short Term Debt	56.7	(1.3)	55.4	66.2
3	Preferred Shares (1)	100.0	102.3	202.3	0.0
4	Common Equity	1,498.3	1,344.4	2,842.7	6,186.8
5	Total	4,162.0	3,734.5	7,896.5	16,281.1
	<u>Capital Structure (%)</u>				
6	Long and Medium Term Debt	60.24	61.30	60.74	61.59
7	Short Term Debt	1.36	(0.03)	0.70	0.41
8	Preferred Shares (1)	2.40	2.74	2.56	0.00
9	Common Equity	36.00	36.00	36.00	38.00
10	Total	100.00	100.01	100.00	100.00
	<u>Cost Rate (%)</u>				
11	Long and Medium Term Debt	5.79	6.53	6.14	4.17
12	Short Term Debt	2.00	1.31	2.05	3.00
13	Preferred Shares (1)	3.20	3.05	3.11	0.00
14	Common Equity	8.92	8.93	8.92	9.36
	<u>Cost (\$ millions)</u>				
15	Long and Medium Term Debt	145.2	149.5	294.7	418.0
16	Short Term Debt	1.1	0.0	1.1	2.0
17	Preferred Shares (1)	3.2	3.1	6.3	0.0
18	Common Equity	133.7	120.0	253.7	579.1
19	Total	283.1	272.6	555.7	999.0

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 1, Schedule 1, Page 4 of 5

Question(s):

Assuming a capital structure comprising 38% common equity and an ROE of 8.66%, Enbridge Gas has requested the OEB to approve a cost of capital compensation of \$950.7 million for the 2024 test year. The OEB has approved an ROE of 9.36% for rates effective from January 1, 2023.¹ The ROE effective from January 1, 2024 is expected to be closer to the 2023 approved ROE of 9.36% than to the 2022 ROE of 8.66%, based on current and forecasted macroeconomic indicators for inflation and interest rates. Assuming a capital structure comprising the currently approved 36% common equity and an ROE of 9.36%, the cost of capital compensation works out to approximately \$977 million for the 2024 test year, which is higher than the cost of capital increase being sought by Enbridge Gas.²

As the approved ROE already leads to higher than forecasted cost of capital compensation (in \$) relative to what has been requested in the application, please explain further why OEB should consider increasing Enbridge Gas's equity thickness.

Response:

The OEB formula ROE is established to meet the fair return standard for all rate-regulated utilities in Ontario and the annual updates are designed to reflect changes in overall market indicators, economic conditions, and the utility industry in general. The OEB formula does not differentiate between gas and electric utilities or different risks faced by each industry, as evidenced by the fact that the formula ROE is applicable to

¹ OEB. Cost of Capital Parameter Updates. Last revised: October 20, 2022.

² Assumptions used to calculate revised cost of capital compensation for 2024: capital structure of 36% common equity, 63.96% long-term debt and 0.04% short-term debt; cost of long-term debt – 4.17% (same as Enbridge Gas' assumption), cost of short-term debt – 3.00% (same as Enbridge Gas's assumption) and ROE of 9.36%.

electric utilities with a 40% equity thickness and gas utilities with a 36% equity thickness. Given that the OEB Formula is utilized to derive an ROE applicable to all rate regulated utilities, it is also clear that it does not address risks faced by specific utilities, such as Enbridge Gas. Enbridge Gas's requested increase in equity thickness is intended to address the increased risk it faces, as compared to the last time its equity thickness was reviewed.

As noted in the OEB's Cost of Capital Report in 2009 page 50, "for electricity transmitters, generators, and gas utilities, the deemed capital structure is determined on a case-by-case basis. The OEB's draft guidelines assume that the base capital structure will remain relatively constant over time and that a full reassessment of a gas utility's capital structure will only be undertaken in the event of significant changes in the company's business and/or financial risk".

Enbridge Gas believes that there have been significant changes in the environment in which it operates, and the company's risk profile has increased since it was last examined by the OEB as part of EGD and Union's 2013 Rate Applications. Therefore, an increase in equity thickness is warranted independent of the OEB approved ROE.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Consumers Council of Canada (CCC)

Interrogatory

Reference:

Ex. 5/T1/S1/p. 4

Question(s):

For each year since 2013 please provide the ROE embedded in rates and the actual ROE for EGD, Union and EGI. Please include dollar amounts of overearning for each year.

Response:

Please see response at Exhibit I.5.3-IGUA-30.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit 5, Tab 1, Sch. 1

Question(s):

- a) When available, please update Table 3 to reflect actual data for 2022 and any changes for 2023 based on the most recent information available.
- b) Please add a column to Table 3 for 2024 that maintains a 36% common equity ratio, along with corresponding changes to the level of debt.
- c) Please explain the rationale for the significant reduction in and near elimination of short term debt in the proposed capital structure for 2024.
- d) Please provide a version of Table 3 that reflect a return on equity of 9.36% (as approved by the OEB for 2023 rate applications) applied to 2024.

Response:

a-b) Please see Table 3 for the requested update and additional column.

Table 3
Utility Cost of Capital – EGI

Line No.	Particulars	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2024</u>
		Actual (a)	Actual (b)	Actual (c)	Actual (d)	Bridge Year (e)	Test Year @ 38% (f)	Test Year @ 36% (g)
	<u>Principal (\$ millions)</u>							
1	Long and Medium-Term Debt	8,002.0	8,568.5	8,505.3	9,049.8	9,628.8	10,028.1	10,206.0
2	Short Term Debt	407.0	111.1	596.5	794.2	380.9	66.2	213.9
3	Common Equity	4,730.0	4,882.3	5,119.8	5,537.3	5,630.4	6,186.8	5,861.2
4	Total	13,139.0	13,561.9	14,221.6	15,381.3	15,640.1	16,281.1	16,281.1
	<u>Capital Structure (%)</u>							
5	Long and Medium-Term Debt	60.90	63.18	59.81	58.84	61.56	61.59	62.69
6	Short Term Debt	3.10	0.82	4.19	5.16	2.44	0.41	1.31
7	Common Equity	36.00	36.00	36.00	36.00	36.00	38.00	36.00
8	Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	<u>Cost Rate (%)</u>							
9	Long and Medium-Term Debt	4.45	4.38	4.37	4.25	4.21	4.17	4.17
10	Short Term Debt	2.04	0.94	0.31	2.31	3.00	3.00	3.00
11	Common Equity	8.98	8.52	8.34	8.66	9.36	8.66	8.66
	<u>Cost (\$ millions)</u>							
12	Long and Medium-Term Debt	356.1	375.3	371.3	384.9	405.8	418.0	425.6
13	Short Term Debt	8.3	1.0	1.9	18.4	11.4	2.0	6.4
14	Common Equity	424.8	416.0	427.0	479.5	527.0	535.8	507.6
15	Total	789.1	792.3	800.2	882.8	944.2	955.7	939.6

The inclusion of the 2024 Test Year impacts at a 36 % common equity ratio noted in the above table were also provided at Exhibit 5, Tab 3, Schedule 1, Table 2.

- c) As a result of Enbridge Gas’s proposal to increase common equity to 38% as of January 1, 2024, short term debt will take the decrease as a deemed amount of total

debt until future long term debt issuances can be adjusted down and/or there is growth in rate base in 2024. If common equity remained at a 36% the Company would require additional short-term and long-term debt as noted in the revised Table 3 above.

- d) Please see a revised Table 3 below that provides an updated 2024 Cost of Capital assuming the 2023 OEB-approved formula return on equity of 9.36%. The table below incorporates the changes in part a) above:

Table 3
Utility Cost of Capital – EGI

Line No.	Particulars	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
		Actual (a)	Actual (b)	Actual (c)	Actual (d)	Bridge Year (e)	Test Year @ 9.36% (f)
	<u>Principal (\$ millions)</u>						
1	Long and Medium Term Debt	8,002.0	8,568.5	8,505.3	9,049.8	9,628.8	10,028.1
2	Short Term Debt	407.0	111.1	596.5	794.2	380.9	66.2
3	Common Equity	4,730.0	4,882.3	5,119.8	5,537.3	5,630.4	6,186.8
4	Total	13,139.0	13,561.9	14,221.6	15,381.3	15,640.1	16,281.1
	<u>Capital Structure (%)</u>						
5	Long and Medium Term Debt	60.90	63.18	59.81	58.84	61.56	61.59
6	Short Term Debt	3.10	0.82	4.19	5.16	2.44	0.41
7	Common Equity	36.00	36.00	36.00	36.00	36.00	38.00
8	Total	100.00	100.00	100.00	100.00	100.00	100.00
	<u>Cost Rate (%)</u>						
9	Long and Medium Term Debt	4.45	4.38	4.37	4.25	4.21	4.17
10	Short Term Debt	2.04	0.94	0.31	2.31	3.00	3.00
11	Common Equity	8.98	8.52	8.34	8.66	9.36	9.36
	<u>Cost (\$ millions)</u>						
12	Long and Medium Term Debt	356.1	375.3	371.3	384.9	405.8	418.0
13	Short Term Debt	8.3	1.0	1.9	18.4	11.4	2.0
14	Common Equity	424.8	416.0	427.0	479.5	527.0	579.1
15	Total	789.1	792.3	800.2	882.8	944.2	999.0

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 2, Schedule 1, page 4
Exhibit 5, Tab 1, Schedule 1, page 4, Table 3
Exhibit 5, Tab 2, Schedule 1, page 3, Table 1
Investment Industry Regulatory Organization of Canada (IIROC) Canadian Bankers' Acceptance Rates (<https://www.iroc.ca/markets/canadian-bankers-acceptance-rates>)

Question(s):

On page 4 of Exhibit 5, Tab 2, Schedule 1, Enbridge Gas documents its methodology for forecasting its short-term debt rate, stating:

The cost of short-term debt used in the cost of capital calculation reflects the projected Canadian Dealer Offered Rate (CDOR) which represents the 3-month bankers' acceptances plus a spread of 0.10% (based on historical trends and current market trading levels).

In Table 3 of Exhibit 5, Tab 1, Schedule 1 and Table 1 of Exhibit 5, Tab 2, Schedule 1, it is seen that Enbridge Gas is forecasting a short-term debt rate of 3.0% for 2024. However, the calculation of this rate, or the data on which is based, are not provided.

1-month and 3-month Canadian Bankers' Acceptance Rates are published by IIROC on a business daily basis up to the most recent actuals.

- a) Can Enbridge Gas provide the data on which the proposed rate is based, and the date or time period of the data used?
- b) Does Enbridge Gas consider that its proposed short-term rate of 3.0% is reasonable in light of current economic conditions and forecasts of economic conditions this year and in 2024? Please explain your response.
- c) Is Enbridge Gas proposing to update the short-term debt rate during the proceeding, up to and including at the Draft Rate Order (DRO) stage? If so, please provide further explanation of when and how Enbridge Gas proposes to do any update.

Response:

a) Enbridge Gas uses bank forecasts of future interest rates.

The actual data published by IIROC daily represents only the current 1-month and 3-month CDOR rates and does not reflect what rates will be in the future.

The use of forward-looking forecasts provides a better representation of where rates are expected to be for a given period as opposed to using actuals, which only reflect rates for the current day; or the use of historic data series, which only reflect where rates have been in the past.

To develop the short-term interest rate forecast used in the budget, Enbridge Gas used the consensus forecast from five banks received in Q2 2022. This data was collected from banks in May 2022, as referenced in the Budget Guidance provided in response at Exhibit I.1.2 SEC-78, Attachment 2. A simple average of the forecasts, rounded to the nearest 5 basis points, was used. Table 1 contains the dataset used to develop the forecast.

Table 1
2024 Short-term Interest Rate Forecast

Bank	Interest Rate (%)
A	2.75
B	2.98
C	2.84
D	2.75
E	3.25
Average	2.90

b) In the context of the budget and this Application, yes.

Canadian interest rates increased significantly during 2022. The Bank of Canada has raised rates multiple times to increase the cost of borrowing in an effort to address very high inflation.

The February 14, 2023 3-month CDOR was 4.9825%. The most recent forecasted 2023 rest-of-year 3-month CDOR rate, from early February 2023, is 4.80%. The consensus forecast for the 2024 3-month CDOR is at 3.90%, or 100 basis points

higher than the rate used in evidence, but below the current market rate and the forecast for the remainder of 2023. Short-term interest rates could continue to increase or as forecasted, start to decrease in late 2023 and 2024.

Although short term interest rates have increased quite significantly since the evidence was prepared, for the reasons outlined in part c). Enbridge Gas is not proposing to update interest rates during this proceeding.

- c) Enbridge Gas is not proposing to update the short-term debt rate during the proceeding. Fluctuations in interest rates are a risk that the Company is prepared to manage through the term of the IRM.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 2, Schedule 1, page 1 Exhibit 5, Tab 3, Schedule 1, page 2 Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 5, 19-28 of 164

Question(s):

Enbridge Gas is proposing an increase in its deemed equity thickness from 36% currently to 42%, to be phased in over the five year period from 2024 to 2025. Enbridge Gas's proposal is supported by the evidence of Concentric Energy Advisors, Inc. (Concentric), and is entitled Enbridge Gas Inc. - Common Equity Ratio Study, dated October 17, 2022 (Concentric Report). Enbridge Gas also has documented Energy Transition as an issue affecting its business environment and operations, and Concentric in its report, discusses energy transition as the most important factor:

In our [Concentric's] assessment, Enbridge Gas' risk profile has increased significantly as compared to its risk profile at the time of EB-2011-0354 and EB-2011-0210. The most material factor contributing to the increase is the Energy Transition – a broad-scale transformation from a primary reliance on fossil fuels to a primary reliance on more renewable fuel sources.

Can Enbridge Gas or Concentric quantify the increase in risk, and the commensurate increase in the deemed equity thickness that would be solely attributable to energy transition as faced by Enbridge Gas? If so, please provide, with supporting discussion and analysis.

Response:

Enbridge Gas notes that it is proposing an increase in its deemed equity thickness from 36% currently to 42%, to be phased in over the five-year period from 2024 to 2028.

The following response was provided by Concentric Energy Advisors, Inc.:

The Energy Transition is a key element of Concentric's risk assessment, but it is not possible to isolate its effects from the overall risk assessment of Enbridge Gas. As

summarized in Concentric's report, the recommended capital structure and associated increase in the equity ratio are based on a number of factors. While Concentric concluded that the Energy Transition makes the Company's business significantly riskier today than it was in 2012 from an investor's perspective, Concentric's study also encompassed other primary aspects of the Company's risk profile, including volumetric risk, financial risk, operational risk, and regulatory risk, as well as a comparison of Enbridge Gas's risk relative to comparable proxy groups of firms with equity ratios ranging from 39.25% to 55.57% (Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 127 of 164).

The following response was provided by Enbridge Gas:

Enbridge Gas has not performed such an analysis.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 2, Schedule 1, page 9, Table 3

Question(s):

Enbridge Gas provides forecasts for 2022, 2023 bridge and 2024 test years for its Fixed Financing Charges.

Please provide an update of Table 3 also showing actuals for each year from 2019 to 2022.

Response:

Table 3 Updated
Actual and Forecast Fixed Financing Charges

Line No.	Particulars (\$ millions)	2019 Actual (a)	2020 Actual (b)	2021 Actual (c)	2022 Actual (d)	2023 Bridge Year (e)	2024 Test Year (f)
1	Debt Issuance and Admin Fees	0.3	0.4	0.7	0.3	0.5	0.5
2	Account Maintenance Fees	0.5	1.0	1.1	1.3	1.5	1.5
3	Standby and Commitment Fees	3.0	3.0	4.5	2.0	2.0	2.0
4	Interest on Security Deposits	0.9	1.0	0.5	1.1	-	-
5	Total	4.7	5.4	6.8	4.6	4.0	4.0

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 2, Schedule 1, Plus Attachments, Page 11 of 11

Question(s):

Enbridge Gas has provided details of forecast issuances of medium-term notes from 2022 to 2024 in Table 4.

- a) Please provide the methodology and assumptions used to estimate the coupon rate (including the details of benchmark Bank of Canada bond used for estimation of coupon rate).
- b) Please provide details of all medium term and long term bond issuances forecasted from 2022 to 2028, including the principal amount, coupon rate, issue date, maturity date and bond term (in MS Excel format).
- c) Please provide details of all medium term and long term bonds outstanding as on December 31, 2021, including the original principal amount, principal amount outstanding, coupon rate, issue date, maturity date and bond term (in MS Excel format).

Response:

- a) Please see Exhibit 5, Tab 2, Schedule 1, paragraphs 13 to 16.

The forecasted GoC benchmark bond interest rates utilized in the Application, referenced in paragraph 14, used bank forecasts from May 2022. Seven banks provided forecasts. Enbridge Gas used a simple average of the bank forecasts, rounded to the nearest 10 bps.

The forecasted GoC benchmark bond rates used in the Application are included in Table 1.

Table 1
May 2022 Interest Rate Forecast

Line No.	Particulars	2022	2023	2024
	(a)	(b)	(c)	(d)
1	10-year GOC Bond	3.0%	3.1%	2.9%
2	30-year GOC Bond	3.0%	3.1%	3.0%

- b) Please see Exhibit 5, Tab 2, Schedule 1, Table 4 for forecasted issuances by year, including coupon rates, tenor and amount for years 2022 to 2024.

Details of planned issuances for 2025 and 2026 are included in Table 2.

An Excel version is included as Attachment 1.

Table 2
Medium Term Note Issuance details

Year	Date (month)	Particulars	Term (years)	Coupon Rate	Issuance (\$ millions)
(a)	(b)	(c)	(d)	(e)	(f)
2022	July	Medium-term notes due July 2032	10	4.00%	650
2023	July	Medium-term notes due July 2033	10	4.20%	450
2023	July	Medium-term notes due July 2053	30	4.60%	450
2024	July	Medium-term notes due July 2034	10	4.00%	200
2024	July	Medium-term notes due July 2054	30	4.50%	200
2025	July	Medium-term notes due July 2035	10	3.90%	500
2025	July	Medium-term notes due July 2055	30	4.40%	500
2026	July	Medium-term notes due July 2036	10	4.35%	300
2026	July	Medium-term notes due July 2056	30	4.55%	300

- c) Please see Attachment 2 for a detailed listing of all medium and long-term bonds outstanding as of December 31, 2021, including the original principal amount, principal amount outstanding, coupon rate, issue date, maturity date and bond term.

Table 2
Medium Term Note Issuance details

Year	Date (month)	Particulars	Term (years)	Coupon Rate	Issuance (\$ millions)
(a)	(b)	(c)	(d)	(e)	(f)
2022	July	Medium-term notes due July 2032	10	4.00%	650
2023	July	Medium-term notes due July 2033	10	4.20%	450
2023	July	Medium-term notes due July 2053	30	4.60%	450
2024	July	Medium-term notes due July 2034	10	4.00%	200
2024	July	Medium-term notes due July 2054	30	4.50%	200
2025	July	Medium-term notes due July 2035	10	3.90%	500
2025	July	Medium-term notes due July 2055	30	4.40%	500
2026	July	Medium-term notes due July 2036	10	4.35%	300
2026	July	Medium-term notes due July 2056	30	4.55%	300

Line No.	Coupon Rate	Issue Date	Maturity Date	Bond Term	(\$Millions)	(\$Millions)
					Original Principal	Principal Outstanding
1	8.85%	October 2, 1995	October 2, 2025	30 years	20.0	20.0
2	7.60%	October 29, 1996	October 29, 2026	30 years	100.0	100.0
3	6.65%	November 3, 1997	November 3, 2027	30 years	100.0	100.0
4	6.10%	May 19, 1998	May 19, 2028	30 years	100.0	100.0
5	6.05%	July 3, 1998	July 5, 2023	25 years	100.0	100.0
6	6.90%	November 15, 2002	November 15, 2032	30 years	150.0	150.0
7	6.16%	December 16, 2003	December 16, 2033	30 years	150.0	150.0
8	5.21%	February 24, 2006	February 25, 2036	30 years	300.0	300.0
9	4.95%	November 22, 2010	November 22, 2050	40 years	200.0	200.0
10	4.95%	September 7, 2050	November 22, 2050	39 years	100.0	100.0
11	4.50%	November 22, 2013	November 23, 2043	30 years	200.0	200.0
12	3.15%	August 22, 2014	August 22, 2024	10 years	215.0	215.0
13	4.00%	August 22, 2014	August 22, 2044	30 years	215.0	215.0
14	4.00%	September 1, 2015	August 22, 2044	30 years	170.0	170.0
15	3.31%	September 11, 2015	September 11, 2025	10 years	400.0	400.0
16	2.50%	August 5, 2016	August 5, 2026	10 years	300.0	300.0
17	3.51%	November 29, 2017	November 29, 2047	30 years	300.0	300.0
18	2.37%	August 9, 2019	August 9, 2029	10 years	400.0	400.0
19	3.01%	August 9, 2019	August 9, 2049	30 years	300.0	300.0
20	2.90%	April 1, 2020	April 1, 2030	10 years	600.0	600.0
21	3.65%	April 1, 2020	April 1, 2050	30 years	600.0	600.0
22	2.35%	September 15, 2021	September 15, 2031	10 years	475.0	475.0
23	3.20%	September 15, 2021	September 15, 2051	30 years	425.0	425.0
24	8.65%	November 10, 1995	November 10, 2025	30 years	125.0	125.0
25	5.46%	September 11, 2006	September 11, 2036	30 years	165.0	165.0
26	4.85%	November 23, 2006	April 25, 2022	15 years 5 months	125.0	125.0
27	6.05%	September 2, 2008	September 2, 2038	30 years	300.0	300.0
28	5.20%	January 23, 2011	July 23, 2040	39 years 6 months	250.0	250.0
29	4.88%	June 21, 2011	June 21, 2041	30 years	300.0	300.0
30	3.79%	July 2, 2013	July 10, 2023	10 years	250.0	250.0
31	4.20%	June 2, 2014	June 2, 2044	30 years	500.0	500.0
32	3.19%	September 17, 2015	September 17, 2025	10 years	200.0	200.0
33	2.81%	May 31, 2016	June 1, 2026	10 years	250.0	250.0
34	3.80%	May 31, 2016	June 1, 2046	30 years	250.0	250.0
35	3.59%	November 22, 2017	November 22, 2047	30 years	250.0	250.0
36	2.88%	November 22, 2017	November 22, 2027	10 years	250.0	250.0
37	9.85%	November 1994	December 2, 2024	30 years	85.0	85.0

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 31.

Preamble:

The cited evidence indicates:

Beginning in 2021, Enbridge's executive and staff compensation is tied to the Company's progress towards its emission targets.

Question(s):

- a) Please explain what emissions targets are referred to in the cited evidence (i.e. legislated, corporate, both and/or other).
- b) Please provide details of how compensation costs included in proposed 2024 rates are tied to progress by EGI or Enbridge Inc. towards emission targets.
- c) To the extent not provided in response to part b., please provide any further details of how compensation to those with responsibilities which include regulated Ontario gas distribution operations is tied to progress towards the emission targets included in response to part a.

Response:

- a) The emissions targets referred to in the cited evidence are those of the corporate parent. Starting in 2021, an emissions reduction metric was included within the Gas Distribution and Storage (GDS) Business Unit Scorecard that is measured and rewarded through the Short-Term Incentive Plan (STIP) component of compensation (Please see response at Exhibit I.1.2- SEC-79, Attachment 1). As part of an enterprise ESG strategy, this metric measures GDS' progress in reducing scope 1 and 2 greenhouse gas (GHG) emissions, which supports the achievement of both Enbridge Inc.'s interim GHG emissions intensity reduction target of 35% by 2030, as well as the net-zero by 2050 target.

Enbridge Inc. has developed action plans to reduce emissions which include the following near- and long-term approaches: innovation, modernization, solar self-power, and procurement of lower emission electricity. GDS's emissions reduction focus is on vented and fugitive methane emissions and reducing emissions from combustion of natural gas from operations. (Please see Exhibit 1, Tab 10, Schedule 8, Tables 1 & 2 for opportunities identified to date as part of Enbridge Gas's emissions reduction plan) In 2022, Enbridge Gas was focused on measuring its progress toward achieving emissions intensity reductions and continuing to develop its action plan.

- b) Emission targets will continue to be part of Enbridge Inc.'s Business Units' Scorecards, which are annually assessed and rewarded through the Short-Term Incentive Plan (STIP). Compensation Costs included in proposed 2024 rates reflect EGI meeting these emission targets which represent a proportion of the Scorecard that is tied to the STIP forecast for 2024.
- c) Moving forward, GHG emissions reduction related targets will continue to be part of the GDS STIP Business Unit Scorecard. All employees within Enbridge Gas's regulated gas distribution operations are eligible to participate in STIP with awards tied to achieved scorecard results.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit 5, Tab 2, Sch. 1

Question(s):

- a) Based on the most recent information available, please update the cost of short-term debt (page 4).
- b) Please update Table 2 for the most recent debt ratings available, if different from that shown in Table 2.

Response:

- a) There are currently no updates to the information that was provided in the short-term debt section at Exhibit 5, Tab 2, Schedule 1, page 4, however, the actual short-term debt cost rate for 2022 was 2.31% which can be found in the table provided in response at Exhibit I.5.1-LPMA-36, part a). For the most recent forecast of short-term effective rates, please see response at Exhibit I.3.2-SEC-154, part a), Table 3.
- b) Table 2 contains the most recent debt ratings available. Exhibit I.1.8-STAFF-14 contains the full ratings reports.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit 5, Tab 2, Sch. 1

Question(s):

a) When available, please update Attachment 4 to reflect actual data for 2022.

Response:

a) Please see Attachment 1 for the Excel.

Table 3
Utility Cost of Capital - EGI

Line No.	Particulars	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
		Actual (a)	Actual (b)	Actual (c)	Actual (d)	Bridge Year (e)	Test Year (f)
	<u>Principal (\$ millions)</u>						
1	Long and Medium Term Debt	8,002.0	8,568.5	8,505.3	9,049.8	9,628.8	10,028.1
2	Short Term Debt	407.0	111.1	596.5	794.2	380.9	66.2
3	Common Equity	4,730.0	4,882.3	5,119.8	5,537.3	5,630.4	6,186.8
4	Total	<u>13,139.0</u>	<u>13,561.9</u>	<u>14,221.6</u>	<u>15,381.3</u>	<u>15,640.1</u>	<u>16,281.1</u>
	<u>Capital Structure (%)</u>						
5	Long and Medium Term Debt	60.90	63.18	59.81	58.84	61.56	61.59
6	Short Term Debt	3.10	0.82	4.19	5.16	2.44	0.41
7	Common Equity	36.00	36.00	36.00	36.00	36.00	38.00
8	Total	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>
	<u>Cost Rate (%)</u>						
9	Long and Medium Term Debt	4.45	4.38	4.37	4.25	4.18	4.17
10	Short Term Debt	2.04	0.94	0.31	2.31	3.00	3.00
11	Common Equity	8.98	8.52	8.34	8.66	8.66	8.66
	<u>Cost (\$ millions)</u>						
12	Long and Medium Term Debt	356.1	375.3	371.3	384.9	402.5	418.0
13	Short Term Debt	8.3	1.0	1.9	18.4	11.4	2.0
14	Common Equity	424.8	416.0	427.0	479.5	487.6	535.8
15	Total	<u>789.1</u>	<u>792.3</u>	<u>800.2</u>	<u>882.8</u>	<u>901.5</u>	<u>955.7</u>

Table 3
Forecast of Fixed Financing Charges

Line No.	Particulars (\$ millions)	Actual	Bridge Year	Test Year
		2022 (a)	2023 (b)	2024 (c)
1	Debt Issuance and Admin Fees	0.3	0.5	0.5
2	Account Maintenance Fees	1.3	1.5	1.5
3	Standby and Commitment Fees	2.0	2.0	2.0
4	Interest on Security Deposits	1.1	0.0	0.0
5	Total	4.6	4.0	4.0

2022 Utility Cost of Capital Summary - Actual - EGI

Line No	Particulars	<u>Principal</u>	<u>Component</u>	<u>Cost Rate</u>	<u>Return</u>	
		(\$ millions) (a)	(%) (b)	(%) (c)	(%) (d) = (b * c)	(\$ millions) (e) = (a * c)
1	Long and Medium Term Debt	9,049.8	58.84	4.25	2.50	384.9
2	Short Term Debt	794.2	5.16	2.31	0.12	18.4
3	Common Equity	5,537.3	36.00	8.66	3.12	479.5
4	Total	<u>15,381.3</u>	<u>100.00</u>		<u>5.74</u>	<u>882.8</u>

2022 Utility (Deficiency)/Sufficiency Calculation and Required Rate of Return - Actual - EGI

Line No	Particulars	Principal	Component	Cost Rate	Return Component
		(\$ millions)	(%)	(%)	(%)
		(a)	(b)	(c)	(d) = (b * c)
	<u>Debt</u>				
1	Long and Medium Term Debt (1)	9,049.8	58.84	4.25	2.502
2	Short Term Debt	794.2	5.16	2.31	0.119
3	Total Debt	<u>9,844.0</u>	<u>64.00</u>		<u>2.622</u>
4	<u>Common Equity</u>	<u>5,537.3</u>	<u>36.00</u>	8.66	<u>3.118</u>
5	Total	<u>15,381.3</u>	<u>100.00</u>		<u>5.739</u>
6	Rate Base	15,381.3			
7	Utility Income	921.6			
8	Indicated Rate of Return	5.992%			
9	(Deficiency)/Sufficiency in Rate of Return (1)	0.252%			
10	Net Sufficiency (Deficiency)	38.8			
11	Gross (Deficiency)/Sufficiency	52.8			
12	Revenue at Existing Rates	6,317.1			
13	Revenue Requirement	6,264.3			
14	Gross Revenue (Deficiency)/Sufficiency	52.8			
	<u>Common Equity</u>				
15	Allowed Rate of Return (1)	8.660%			
16	Earnings on Common Equity	9.361%			
17	(Deficiency)/Sufficiency In Common Equity Return (1)	0.701%			

Notes:

- (1) As approved in the EB-2017-0306/0307 Decision, for the purposes of determining any applicable earnings sharing amount, a 1.50% (or 150 basis point) ROE deadband was added to the annual OEB formula ROE.

2022 Summary Statement of Principal and Carrying Cost of Term Debt - Actual - EGI

Line No	Maturity Date	Principal	Coupon Rate	Effective Cost	Carrying Cost
		(Average of Monthly Averages)		Rate	
		(\$ millions)	(%)	(%)	(\$ millions)
		(a)	(b)	(c)	(d) = (a * c)
<u>Medium Term Notes</u>					
1	June 2, 2044	250.0	4.20	4.24	10.6
2	June 2, 2044	250.0	4.20	4.27	10.7
3	September 2, 2038	300.0	6.05	6.1	18.3
4	June 21, 2041	300.0	4.88	4.92	14.8
5	July 23, 2040	250.0	5.20	5.27	13.2
6	July 10, 2023	250.0	3.79	3.87	9.7
7	June 1, 2026	250.0	2.81	2.87	7.2
8	June 1, 2046	250.0	3.80	3.84	9.6
9	November 22, 2027	250.0	2.88	2.95	7.4
10	November 22, 2047	250.0	3.59	3.64	9.1
11	September 17, 2025	200.0	3.19	3.26	6.5
12	September 11, 2036	165.0	5.46	5.49	9.1
13	November 10, 2025	125.0	8.65	8.77	11.0
14	April 25, 2022	36.5	4.85	4.91	1.8
15	June 2, 2021	0.0	2.76	2.85	0.0
16	October 1, 2028	0.0	3.65	3.65	0.0
17	October 2, 2025	20.0	8.85	8.97	1.8
18	October 29, 2026	100.0	7.60	8.086	8.1
19	November 3, 2027	100.0	6.65	6.711	6.7
20	May 19, 2028	100.0	6.10	6.161	6.2
21	July 5, 2023	100.0	6.05	6.383	6.4
22	November 15, 2032	150.0	6.90	6.95	10.4
23	December 16, 2033	150.0	6.16	6.18	9.3
24	February 25, 2036	300.0	5.21	5.183	15.5
25	December 17, 2021	0.0	4.77	5.31	0.0
26	November 23, 2020	0.0	4.04	5.209	0.0
27	November 22, 2050	200.0	4.95	4.99	10.0
28	November 22, 2050	100.0	4.95	4.731	4.7
29	November 23, 2020	0.0	4.04	2.801	0.0
30	November 23, 2043	200.0	4.50	4.198	8.4
31	August 22, 2024	215.0	3.15	3.241	7.0
32	August 22, 2044	215.0	4.00	3.889	8.4
33	August 22, 2044	170.0	4.00	4.436	7.5
34	September 11, 2025	400.0	3.31	3.619	14.5
35	August 5, 2026	300.0	2.50	3.423	10.3
36	November 29, 2047	300.0	3.51	3.527	10.6
37	September 6, 2028	0.0	3.32	3.37	0.0
38	August 9, 2029	400.0	2.37	3.225	12.9
39	August 9, 2049	300.0	3.01	3.027	9.1
40	April 1, 2030	600.0	2.90	3.41	20.5
41	April 1, 2050	600.0	3.65	3.67	22.0
42	September 1, 2031	475.0	2.35	2.94	14.0
43	September 1, 2051	425.0	3.20	3.22	13.7
44	July 1, 2032	121.9	4.15	3.15	3.8
45	July 1, 2052	121.9	4.55	4.52	5.5
46	Total - Medium Term Notes	<u>9,290.3</u>			<u>386.2</u>
<u>Long Term Debentures</u>					
47	December 2, 2024	85.0	9.85	9.91	8.4
48	Total - Long Term Debentures	<u>85.0</u>			<u>8.4</u>
49	Total	<u>9,375.3</u>			<u>394.6</u>

2022 Unamortized Debt Discount and Expense - Actual - EGI

Line No	Month / Day	<u>Carrying Cost</u> (\$ millions)
1	January 1	118.3
2	January 31	116.8
3	February	115.6
4	March	114.3
5	April	113.1
6	May	111.9
7	June	110.7
8	July	109.5
9	August	72.6
10	September	72.2
11	October	71.3
12	November	70.4
13	December	<u>69.5</u>
14	Average of Monthly Averages	<u><u>97.7</u></u>

2022 Calculation of Cost Rates for Capital Structure Components - Actual - EGI

Line No	Particulars	<u>Average of</u>	<u>Carrying Cost</u>	<u>Calculated</u>
		<u>Monthly</u>		<u>Cost Rate</u>
		<u>Averages</u>		
		(\$ millions)	(\$ millions)	(%)
		(a)	(b)	(c) = (b / a)
<u>Long and Medium Term Debt</u>				
1	Debt Summary	9,375.3	394.6	
2	Unamortized Finance Costs	(97.7)	-	
3	Percentage Allocation of Debt to Unregulated	(227.8)	(9.7)	
4	Total	<u>9,049.8</u>	<u>384.9</u>	
6	Calculated Cost Rate			<u>4.25</u>
<u>Short Term Debt</u>				
7	Calculated Cost Rate			<u>2.31</u>
<u>Common Equity</u>				
8	OEB-Approved Formula ROE (1)			8.66

Notes:

- (1) As approved in the EB-2017-0306/0307 Decision, for the purposes of determining any applicable earnings sharing amount, a 1.50% (or 150 basis point) ROE deadband was added to the annual OEB formula ROE.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit 5, Tab 2, Sch. 1, Attachment 6

Question(s):

- a) On pages 3 and 4, please explain why there is no principal amounts shown for the following line items:
 - i. Line 16 – maturity date of October 1, 2028;
 - ii. Line 37 – maturity date of September 6, 2028; and
 - iii. Line 45 – maturity date of July 1, 2052.

- b) Line 8 in Table 4 on page 11 shows a retirement in December 2024 of a 30 year term note at an interest rate of 9.85%. Please indicate where this note is shown in the 2024 Summary Statement of Principal and Carrying Cost of Term Debt in Attachment 6.

Response:

- a)
 - i. Line 16 is a Westcoast Energy Inc. affiliate loan that was repaid on April 1, 2020.

 - ii. Line 37 is debt that was repaid early in August 2019.

 - iii. At the time of budget and evidence preparation it was assumed that an issuance of \$650 million in 2022 would be through a 10-year note. This note is set out at line 44. Line 45 is a placeholder line. There is no new issuance, outstanding issuance or retirement associated with Line 45.

- b) Line 8 in Table 4 on page 11 is provided at Exhibit 5, Tab 2, Schedule 1, Attachment 6, page 4, line 51.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit 5, Tab 2, Sch. 1, Attachments 1- 6

Question(s):

How does EGI calculate the percentage allocation of debt to unregulated, shown on page 6 of each of the attachments?

Response:

Enbridge Gas compares the unregulated rate base amount for each year to the total rate base (combining both regulated and unregulated) and uses that same percentage to allocate a portion to long-term debt.

For example, the 2024 Test Year allocation is based off of the proration of forecast regulated rate base to forecast total rate base inclusive of the unregulated rate base forecast. Table 1 provides the calculations.

Table 1

	<u>2024 Forecast Rate Base (\$ millions)</u>	<u>%</u>
Regulated	16,281.1	97.15
Unregulated	477.7	2.85
Total	16,758.7	100.0

Please note that the 2.85% above differs slightly from Exhibit 5, Tab 2, Schedule 1, Attachment 6 (2.87%), however this variance does not change any of the cost of capital forecast parameters for 2024.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

5-2-1; 5-2-3

Question(s):

Please restate Table 1 in Tab 2 and Table 2 in Tab 3 replacing the ROE placeholder with the current OEB ROE figure of 9.36%, and in each case provide the response in Excel format.

Response:

Please see Attachment 1 for Excel. Attachment 1 sets out the requested update to Table 1 from Exhibit 5, Tab 2, Schedule 1 and to Table 2 from Exhibit 5, Tab 3, Schedule 1.

Table 1
Utility Cost of Capital - EGD, Union and EGI

Line No.	Particulars	<u>2013</u>	<u>2013</u>	<u>2013</u>	<u>2024</u>
		Approved EGD (a)	Approved Union (b)	Approved Combined (c)	Test Year EGI (d)
	<u>Principal (\$ millions)</u>				
1	Long and Medium Term Debt	2,507.0	2,289.1	4,796.1	10,028.1
2	Short Term Debt	56.7	(1.3)	55.4	66.2
3	Preferred Shares (1)	100.0	102.3	202.3	0.0
4	Common Equity	1,498.3	1,344.4	2,842.7	6,186.8
5	Total	4,162.0	3,734.5	7,896.5	16,281.1
	<u>Capital Structure (%)</u>				
6	Long and Medium Term Debt	60.24	61.30	60.74	61.59
7	Short Term Debt	1.36	(0.03)	0.70	0.41
8	Preferred Shares (1)	2.40	2.74	2.56	0.00
9	Common Equity	36.00	36.00	36.00	38.00
10	Total	100.00	100.01	100.00	100.00
	<u>Cost Rate (%)</u>				
11	Long and Medium Term Debt	5.79	6.53	6.14	4.17
12	Short Term Debt	2.00	1.31	2.05	3.00
13	Preferred Shares (1)	3.20	3.05	3.11	0.00
14	Common Equity	8.92	8.93	8.92	9.36
	<u>Cost (\$ millions)</u>				
15	Long and Medium Term Debt	145.2	149.5	294.7	418.0
16	Short Term Debt	1.1	0.0	1.1	2.0
17	Preferred Shares (1)	3.2	3.1	6.3	0.0
18	Common Equity	133.7	120.0	253.7	579.1
19	Total	283.1	272.6	555.7	999.0

Note:

- (1) On November 29, 2018, EGD redeemed all outstanding Group 3, Series D preference shares for \$25.00 per share and Union Gas redeemed all outstanding preference shares for the following amounts per share: Class A, Series A - \$50.50; Class A, Series B - \$55.00; Class A, Series C - \$50.50 and Class B, Series 10 - \$25.00. No gain or loss was realized on the redemption.

Table 2
2024 Equity Thickness Impacts on Cost of Capital and Revenue Requirement Assuming 9.36% ROE

Line No.	Particulars (\$ millions)	Principal (a)	Component (b)	Cost Rate (c)	Cost (d)	Gross-up for taxes (e)	Rev. Req. Impact (f)
	<u>Equity thickness - 36%</u>						
1	Medium and Long Term Debt	10,206.0	62.69%	4.17%	425.6	0.0	425.6
2	Short Term Debt	213.9	1.31%	3.00%	6.4	0.0	6.4
3	Common Equity	<u>5,861.2</u>	36.00%	9.36%	<u>548.6</u>	197.8	<u>746.4</u>
4	Cost of Capital component of Revenue Requirement	16,281.1			980.7		1,178.5
	<u>Equity thickness - 38% (included in 2024 rev. req.)</u>						
5	Medium and Long Term Debt	10,028.1	61.59%	4.17%	418.0	0.0	418.0
6	Short Term Debt	66.2	0.41%	3.00%	2.0	0.0	2.0
7	Common Equity	<u>6,186.8</u>	38.00%	9.36%	<u>579.1</u>	208.8	<u>787.9</u>
8	Cost of Capital component of Revenue Requirement	16,281.1			999.0		1,207.8
	<u>Equity thickness - 42%</u>						
9	Medium and Long Term Debt	9,852.2	60.51%	4.17%	410.4	0.0	410.4
10	Short Term Debt	(409.1)	(2.51%)	3.00%	(12.3)	0.0	(12.3)
11	Common Equity	<u>6,838.1</u>	42.00%	9.36%	<u>640.0</u>	230.8	<u>870.8</u>
12	Cost of Capital component of Revenue Requirement	16,281.1			1,038.2		1,268.9
13	2024 Revenue requirement impact of moving to 38% deemed equity thickness (from 36%)						29.4
14	2024 Revenue requirement impact of moving to 42% deemed equity thickness (from 36%)						90.5
15	42% versus 38% revenue requirement variance to be captured through base rate adjustments in 2025 - 2028						61.1
16	Proposed annual base rate adjustment in each of 2025 - 2028 (1/4 of \$61.1 million)						<u>15.3</u>

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

5-2-1, p.6

Question(s):

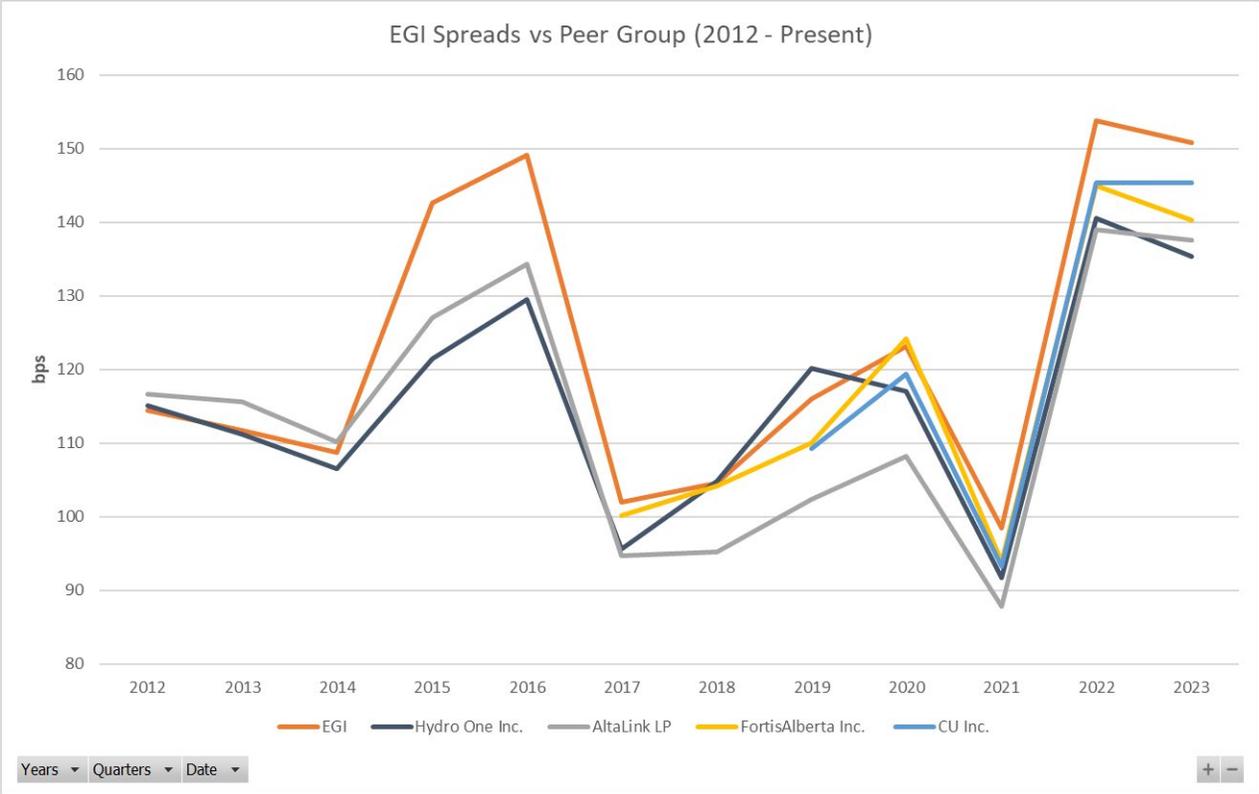
Please provide any reports, analyses, presentations or other documents in the Applicant's possession dealing with the reasons for Enbridge's increasing interest rate spreads. Without limiting the generality of the foregoing, please provide any such materials related to spreads increasing due to the business risks associated with climate change, net zero, and other aspects related to the energy transition.

Response:

Enbridge does not have specific reports, analyses, presentations, or other documents that analyze the reasons for Enbridge Gas's increasing rate spread. The Enbridge Treasury group tracks credit spreads on a weekly basis to monitor changes through indicative pricing reports provided by a variety of Canadian and U.S. banks that are based on the trading levels of Enbridge Gas's bonds in the secondary market. There are multiple factors that influence the interest rate spread and cause it to fluctuate. In today's landscape, macroeconomic factors have a great impact on credit spreads. These factors include inflation, economic growth outlooks, and monetary and fiscal policy. There are also credit specific factors that can cause fluctuations in credit spreads such as the credit rating, leverage, sector, investor demand, and debt offering size. Business risks associated with the energy transition can also influence investor sentiment through credit ratings and assessments of sector and company risk.

Chart 1 shows the Enbridge Gas (EGD prior to amalgamation) 10-year credit spread plotted with a number of utility peers. Annual average credit spreads are used. The Enbridge Gas Credit spread has increased since 2012, and the spread relative to peers has also increased during this period.

Chart 1
EGI 10-year Credit Spread vs Peers



ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

5-2-1, p.9

Question(s):

Please provide a breakdown the figures in Table 3 between those incurred by the Enbridge directly, and those incurred by an affiliate (including Enbridge) of the Enbridge and charged to the Enbridge through internal cost allocations.

Response:

Line No. 1 of Table 3 provided at Exhibit 5, Tab 2, Schedule 1:

Debt Issuance fees are charged directly to Enbridge Gas based on the amount of debt to be issued. This amounts to approximately \$0.3 million per year.

Admin Fees represent the Rating Agency charges related to monitoring Enbridge Gas as an issuer and all Enbridge Gas's outstanding debt and credit facilities. A single monitoring fee is negotiated with each rating agency and covers Enbridge Inc and its subsidiaries with public debt. Enbridge Inc. is charged for these fees. These costs are then charged to Enbridge Inc. and issuing subsidiaries based on the percentage of consolidated outstanding debt held by each issuing entity. Enbridge Gas is charged approximately \$0.2 million per year for this service.

Line No. 2 and Line No. 3 of Table 3 provided at Exhibit 5, Tab 2, Schedule 1:

Represent costs forecasted to be directly charged to Enbridge Gas.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

5-2-1, p. 11

Question(s):

Please restate Table 4 as a continuity table showing the outstanding balance of existing and planned medium term notes after each issuance or retirement.

Response:

a) Please see Table 1.

Table 1
Debt Continuity Table

<u>Line No.</u>	<u>Particulars</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
	(a)	(b)	(c)	(d)	(e)
1	Opening Long-term Debt		9,220	9,745	10,295
2	Issuances		650	900	400
3	Maturities		(125)	(350)	(300)
4	Closing Long-term Debt	9,220	9,745	10,295	10,395

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

5-2-1, Attachment 6, p.2

Question(s):

Please confirm that the Enbridge had or expects a sufficiency (i.e. ROE in excess of OEB-approved) for each year prior to the Test Year, but expects a deficiency in the Test Year and each subsequent year unless rates are increased. Please provide all reports, analyses, presentations, memoranda and other documents identifying and/or analyzing this fact and the reasons for it. Please include, without limiting the generality of the foregoing, all reports to the Applicant's Board of Directors or to the Applicant's parent company that discuss this fact.

Response:

As illustrated in the pre-filed evidence, Enbridge Gas has or has forecasted to have a sufficiency in each year from 2019 to 2023. For 2023, as provided at Exhibit 6, Tab 1, Schedule 2, Attachment 4, page 19, updated March 8, 2023, Enbridge Gas expects to achieve a rate of return on equity at 8.82% (vs the 2022 OEB formula ROE of 8.66%, which was used as a placeholder) and a sufficiency of \$12 million. However, if the placeholder ROE was updated to the 2023 OEB formula ROE of 9.36%¹, released on October 20, 2022, which will be utilized for 2023 earnings sharing purposes, Enbridge Gas would expect a deficiency. For 2024 to 2026, based on long-range plan forecasts (please see response at Exhibit I.1.2-SEC-76, Attachment 1), Enbridge Gas expects a deficiency unless rates are increased. For 2027 to 2028, Enbridge Gas's long-range plan does not extend to that period and accordingly is unable to confirm.

Please see below for presentations that referenced 2019 to 2024:

- Exhibit I.1.2-CCC-1, Attachment 1, Pages 4 to 5 - 2024 Rebasing Application Update to Board of Directors

¹ 2023 Cost of Capital Parameters filed October 20, 2022. <https://www.oeb.ca/regulatory-rules-and-documents/rules-codes-and-requirements/cost-capital-parameter-updates>

- Exhibit I.1.2-SEC-76, Attachment 2, Pages 6 to 7 - 2024 Rebasing Proposal Approval presentation to Enbridge Inc.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

5-2-1

Question(s):

With respect to Enbridge's long-term debt:

- a) [p.6] Please provide information on Enbridge's interest rate spreads since September 2022.
- b) [p.11] Please explain Enbridge's long-term debt strategy (e.g. when it issues new debt, length of time of any new medium-term note, issuance, etc.).

Response:

- a) Enbridge Gas credit spreads were at approximately 141 bps in early February 2023. Table 1 provides the monthly average EGI credit spreads for the 10-year tenor from September 2022 through early February 2023.

Table 1
Enbridge Gas - Interest Rate Credit Spreads

<u>Line No.</u>	<u>Particulars</u>	<u>10-year Spread</u>
	(a)	(b)
1	September-22	155
2	October-22	172
3	November-22	165
4	December-22	155
5	January-23	153
6	February-23	141

- b) Enbridge Gas determines the timing of issuances to ensure that there is sufficient liquidity to fund operations, its current portfolio of capital projects, and debt retirements; while minimizing interest expense and ensuring that the approved capital structure is maintained.

Enbridge Gas has historically issued dual-tranche offerings of medium-term notes, split evenly between 10-year and 30-year tenors with the intent to attract diversified bond investors and maintain price levels, helping reduce interest expense.

When developing its Financing Plan, Enbridge Gas also monitors the maturity profile of existing debt to balance annual re-financing requirements. This helps ensure that a single year does not have significant refinancing requirements.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

5-3-1, p.11

Question(s):

Please provide an illustrative example of how Enbridge proposes that the equity thickness base rate adjustment would work in conjunction with the annual price cap escalation for each through the end of 2028.

Response:

The following is an illustrative example of how Enbridge Gas has proposed the equity thickness base rate adjustment would work as part of the annual price cap escalation process over the 2025 to 2028 period. The example illustrates how, beginning in 2025, the proposed equity thickness base rate adjustment is added to approved revenue (excluding amounts not subject to price cap escalation) after price cap escalation for the current year has occurred, but would be subject to escalation in subsequent years. The Company has proposed this method because it is straightforward to administer as part of the proposed price cap mechanism.

Table 1
Illustrative Example of Equity Thickness Base Rate Adjustment Over the Price Cap Term

Line No.	(\$ Millions)	Cost of Service (incl. 38% Equity Thick.)		Price Cap		
		2024 (a)	2025 (b)	2026 I	2027 (d)	2028 I
1	Prior Year Approved Revenue (excl. gas cost, Y & Z factors, & ICM)		2,900.0	3,000.7	3,104.4	3,211.3
2	I-X Price Cap Escalation (3% assumed for illustration)		87.0	90.0	93.1	96.3
3	Equity Thickness Base Rate Adjustment		13.7	13.7	13.7	13.7
4	Approved Revenue (excl. gas cost, Y & Z factors, & ICM)	2,900.0	3,000.7	3,104.4	3,211.3	3,321.3

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

5-3-1, Attach 1

Question(s):

With respect to the Concentric, Enbridge Gas Inc. Common Equity Ratio Report:

- a) [p.40] Please update Figure 40, to show beta coefficients for each between 2012 and 2022.
- b) [p.132-p.137] For each proceeding listed in which the author provided expert evidence on utility capital structure, please provide the following information:
 - i. the existing utility capital structure
 - ii. the author's proposed capital structure
 - iii. the capital structure ordered by the regulator

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see response at Exhibit I.5.3-STAFF-233.
- b) Please see Attachment 1. Concentric does not have the existing utility capital structure for these cases readily available.

JURISDICTION	DATE	APPLICANT	DOCKET	SUBJECT	RECOMMENDED EQUITY RATIO	APPROVED EQUITY RATIO
Alberta Utilities Commission	2023	ENMAX Corp.	27084	2024 Generic Cost of Capital	40.00%	Pending
Alberta Utilities Commission	2020	ENMAX Corp.	24110	2021 Generic Cost of Capital	42.00%	37.00%
Alberta Utilities Commission	2017	ENMAX Corp.	22570	2018 Generic Cost of Capital	42.00%	37.00%
Alberta Utilities Commission	2008/2009	ATCO Electric Transmission	1578571	2009 Generic Cost of Capital	38.00%	36.00%
Alberta Utilities Commission	2008/2009	ATCO Electric Distribution	1578571	2009 Generic Cost of Capital	40.00%	39.00%
Alberta Utilities Commission	2008/2009	ATCO Gas	1578571	2009 Generic Cost of Capital	40.00%	39.00%
Alberta Utilities Commission	2008/2009	ATCO Pipelines Ltd	1578571	2009 Generic Cost of Capital	43.00%	45.00%
Arkansas Public Service Commission	2023	The Empire District Electric Company	22-085-U	Cost of Capital (Electric)	55.69%	Pending
British Columbia Utilities Commission	2022	FortisBC Inc.	G-217-22	Cost of Capital (Electric)	40.00%	Pending
British Columbia Utilities Commission	2022	FortisBC Energy, Inc.	G-217-22	Cost of Capital (Gas Distribution)	42.00%	Pending
British Columbia Utilities Commission	2016	Fortis BC Utilities	FEI CEC ROE 2016, Project No. 3698852	Cost of Capital (Gas Distribution)	40.00%	38.50%
California Public Utilities Commission	2022	Southern California Gas Company	A-22-04-011	Cost of Capital (Gas Distribution)	54.00%	52.00%
California Public Utilities Commission	2022	San Diego Gas & Electric Company	A-22-04-012	Cost of Capital (Electric & Gas Distribution)	54.00%	52.00%
California Public Utilities Commission	2021	San Diego Gas & Electric Company	A-21-08-014	Cost of Capital (Electric & Gas Distribution)	54.00%	52.00%
California Public Utilities Commission	2019	San Diego Gas & Electric Company	A-19-04-014	Cost of Capital (Wildfire Risk Premium, Electric & Gas)	N/A	N/A
Connecticut Dept of Public Utility Control	2007	Aquarion Water Company of CT	7/5/2019	Return on Equity (Water)	58.00%	55.00%
Federal Energy Regulatory Commission	2020	PPL Electric Utilities Corp.	EL20-48-000	Cost of Capital (Electric Transmission)	N/A	50.00%
Federal Energy Regulatory Commission	2020	South First Energy Operating Companies	ER21-253-000 and ER21-265-000	Cost of Capital (Electric Transmission)	N/A	N/A
Federal Energy Regulatory Commission	2019	Northern States Power Company	ER20-26-000	Cost of Capital (Electric Transmission)	N/A	N/A
Federal Energy Regulatory Commission	2015	Startrans IO LLC	ER16-194-000 and EL16-25-000	Cost of Capital (Electric Transmission)	N/A	N/A
Federal Energy Regulatory Commission	2012	Startrans IO LLC	ER13-272-000	Cost of Capital (Electric Transmission)	N/A	N/A
Federal Energy Regulatory Commission	2011	Atlantic Path 15 LLC	ER11-2909-000 and EL11-29	Cost of Capital (Electric Transmission)	50.09%	Not disclosed
Federal Energy Regulatory Commission	2007	Atlantic Path 15 LLC	ER-08-374-000	Cost of Capital (Electric Transmission)	48.00%	Not disclosed
Florida Public Service Commission	2021	Florida Power & Light Company	20210015-EI	Cost of Capital (Electric)	59.60%	59.60%
Georgia Public Service Commission	2022	Georgia Power Company	44280	Cost of Capital (Electric)	56.00%	56.00%
Hawaii Public Utility Commission	2017	The Gas Company	Docket No. 2017-0105	Cost of Capital (Gas Distribution)	55.00%	55.00%
Maine Public Utilities Commission	2022	Versant Power	2022-00255	Cost of Capital (Electric)	49.00%	Pending
Maine Public Utilities Commission	2021	Versant Power	2020-00316	Cost of Capital (Electric)	49.00%	49.00%
Minnesota Public Utilities Commission	2017	Northern States Power Company	G002/M-17-787	Cost of Capital (Gas Distribution Rider)	N/A	N/A

JURISDICTION	DATE	APPLICANT	DOCKET	SUBJECT	RECOMMENDED EQUITY RATIO	APPROVED EQUITY RATIO
Minnesota Public Utilities Commission	2017	Northern States Power Company	E002/M-17-797; E002/M-17-818	Cost of Capital (Electric transmission and Renewable Generation riders)	N/A	N/A
Minnesota Public Utilities Commission	2015/16	Northern States Power Company	E-002/GR-15-826	Cost of Capital (Electric)	52.50%	52.50%
New Brunswick Energy and Utilities Board	2021	Liberty Utilities (Gas New Brunswick) LP	491	Cost of Capital (Gas)	45.00%	45.00%
Newfoundland and Labrador Board of Commissioners of Public Utilities	2021	Newfoundland Power	2022/2023 GRA	Cost of Capital (Electric)	45.00%	45.00%
Newfoundland and Labrador Board of Commissioners of Public Utilities	2018	Newfoundland Power	2018 GRA	Cost of Capital (Electric)	45.00%	45.00%
Newfoundland and Labrador Board of Commissioners of Public Utilities	2016	Newfoundland Power	2016 GRA	Cost of Capital (Electric)	45.00%	45.00%
Nova Scotia Utility and Review Board	2022	Nova Scotia Power Inc.	2022 GRA	Return on Equity/Business Risk (Electric)	45.00%	40.00%
Public Utilities Commission of Ohio	2022	Duke Energy Ohio, Inc.	2022-00372	Cost of Capital (Gas Distribution)	52.34%	Pending
Oklahoma Corporation Commission	2022	Liberty Empire District Electric	Cause No. PUD 202100163	Cost of Capital (Electric)	54.45%	Pending
Ontario Energy Board	2022	Enbridge Gas Inc.	EB-2022-0200	Capital Structure and Business Risk	42.00%	Pending
Ontario Energy Board	2020	Ontario Power Generation	EB-2020-0290	Capital Structure and Business Risk	50.00%	45.00%
Ontario Energy Board	2016	Ontario Power Generation	EB-2016-0152	Capital Structure and Business Risk	49.00%	45.00%
Ontario Energy Board	2012	Enbridge Gas Distribution	EB-2011-0354	Capital Structure and Business Risk	42.00%	36.00%
Prince Edward Island Regulatory and Appeals Commission	2022	Maritime Electric Company Ltd.	UE20944	Cost of Capital (Electric)	40.00%	Pending
Prince Edward Island Regulatory and Appeals Commission	2015	Maritime Electric Company Ltd.	UE20942	Cost of Capital (Electric)	40.90%	40.90%
Regie de l'energie du Quebec	2013	Hydro Quebec Distribution and Hydro Quebec TransEnergie	R-3842-2014	Return on Equity (Electric)	N/A	N/A
Regie de l'energie du Quebec	2012	Gaz Metro	R-3809-2012	Cost of Capital (Gas)	N/A	N/A
South Carolina Public Service Commission	2022	Piedmont Natural Gas	2022-89-G	Cost of Capital (Gas)	54.56%	52.20%
South Carolina Public Service Commission	2022	Duke Energy Progress	2022-254-E	Return on Equity (Electric)	N/A	52.43%
South Dakota Public Service Commission	2012	Northern States Power Company	EL11-019	Return on Equity (Electric)	52.90%	53.04%
Vermont Public Utility Commission	2018	Green Mountain Power	Case No. 18-0974	Cost of Capital (Electric)	49.80%	49.85%
Vermont Public Utility Commission	2017	Green Mountain Power	Case No. 17-3112-INV	Cost of Capital (Electric)	48.60%	48.60%
Vermont Public Utility Commission	2016	Vermont Gas	8710	Cost of Capital (Gas Distribution)	50.00%	N/A
Vermont Public Utility Commission	2013	Green Mountain Power	Docket No. 8190/8191	Return on Equity (Electric)	48.97%	50.00%

JURISDICTION	DATE	APPLICANT	DOCKET	SUBJECT	RECOMMENDED EQUITY RATIO	APPROVED EQUITY RATIO
Vermont Public Utility Commission	2012	Vermont Gas	7843	Return on Equity (Gas)	50.00%	N/A
Virginia State Corporation Commission	2021	Virginia Electric and Power Company (Dominion Energy Virginia)	PUR-2021-00058	Cost of Capital (Electric)	51.92%	51.92%
Wisconsin Public Service Commission	2021	Northern States Power - Wisconsin	D-4220-UR-125	Cost of Capital (Electric and Gas)	52.50%	52.50%
Wisconsin Public Service Commission	2019	Northern States Power - Wisconsin	D-4220-UR-124	Cost of Capital (Electric and Gas)	52.52%	52.52%
Wisconsin Public Service Commission	2017	Northern States Power - Wisconsin	D-4220-UR-123	Cost of Capital (Electric and Gas)	52.53%	51.45%
Wisconsin Public Service Commission	2015	Northern States Power - Wisconsin	D-4220-UR-121	Cost of Capital (Electric and Gas)	52.59%	52.49%
Wisconsin Public Service Commission	2013	Northern States Power - Wisconsin	D-4220-UR-119	Cost of Capital (Electric and Gas)	52.54%	52.54%
Wisconsin Public Service Commission	2011	Northern States Power - Wisconsin	D-4220-UR-117	Cost of Capital (Electric)	52.59%	52.59%
Yukon Utilities Board	2016	ATCO Electric Yukon	2016-2017 GRA	Cost of Capital (Electric)	40.00%	40.00%

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pp. 2-7
Exhibit 10, Tab 1, Schedule 1, pages 4 and 13
EB-2006-0088/-0089, *Report of the Board on Cost of Capital and 2nd Generation Incentive Regulation for Ontario's Electricity Distributors*, December 20, 2006, pages 22,43-443¹

Question(s):

On pages 2 through 4 of Exhibit 5, Tab 3, Schedule 1, Enbridge Gas proposes that its deemed equity thickness be increased from 36% (currently) to 38% with 2024 rebased rates, and then increased by one percentage point per year during the price cap plan from 2025-2028, thus achieving a deemed 42% equity thickness by 2028.

In para. 11 on page 6 of this exhibit, Enbridge Gas states:

In order to implement the proposed 1% increase in equity thickness in each year of the IR term (2025 to 2028), the Company proposes an annual base rate adjustment of \$13.6 million. The annual base rate adjustment of \$13.6 million is calculated as the incremental 2024 revenue requirement between an equity thickness of 42% and 38%, or \$54.5 million, divided by the remaining four years of the IR term. In the derivation of annual rates, the Company proposes to include the annual base rate adjustment to the revenue requirement for rate-setting following the escalation of the previous year's rates.

OEB staff notes that Enbridge Gas does not mention in any detail the adjustment for the increased equity thickness as part of the proposed price cap plan mechanism in Exhibit 10, Tab 1, Schedule 1, other than mentioning it on pages 4 and 13 the proposal documented in Exhibit 5, Tab 3, Schedule 1. Further, the price cap plan operates on

¹ https://www.oeb.ca/documents/cases/EB-2006-0088/report_of_the_board_201206.pdf.

Enbridge Gas's rates and not on its revenue requirement. OEB staff also observes that Enbridge Gas's expert, Black & Veatch, does not discuss this in its evidence.²

OEB staff also notes that Enbridge Gas has only provided a customer and load forecast for the 2024 rebasing test year and has not provided any customer and load forecasts for the years of the price cap plan 2025-2028.

It is not clear what is the "revenue requirement for rate-setting" that Enbridge Gas is proposing to use for the 2025-2028 of the price cap term.

Normally, under incentive mechanisms such as price or revenue caps, changes to the cost of capital, including changes in the deemed capital structure, for rate-setting purposes, are not allowed. However, OEB staff notes that, for the 2nd Generation IRM for electricity distributors, the OEB implemented an approach to migrate electricity distributors from different deemed capital structures to the current common 40% equity/56% long term debt/4% short-term debt. This was phased in by up to three years from 2008 to 2010, with some adjustments made at the time of a cost of service application to rebase rates and during years of price cap adjustments by a k-factor in the price cap formula. This is discussed on pages 21 and 43-44 of the Report of the Board on *Cost of Capital and 2nd Generation Incentive Regulation for Ontario's Electricity Distributors*.

- a) Please provide further details on the definition and derivation of the "base rate adjustment" and the "revenue requirement for rate-setting" as discussed in para. 11 of Exhibit 5, Tab 3, Schedule by which Enbridge Gas proposes to implement incremental increases in the equity thickness during the price cap term.
- b) Did Enbridge Gas consider an approach for implementing the change through a factor in the price cap formula itself, akin to the k-factor adopted by the OEB for 2nd Generation IRM for electricity distributors? If so, why did Enbridge Gas adopt its proposed method?
- c) Does Enbridge Gas's proposed "base rate adjustment" or "revenue requirement for rate-setting" take into account changes in customers or load during the 2025-2028 years? Please explain your response.
- d) Was Black & Veatch asked to review the phase-in of the deemed equity thickness increase as part of its work, or was it made aware of this proposal? If so, why is it not discussed in Black & Veatch's report? If not, please explain why this was omitted from Black & Veatch's analysis of Enbridge Gas's price cap plan proposal.

² Exhibit 10, Tab 1, Schedule 1, Attachment 1.

Response:

- a) When Enbridge Gas referred to the “revenue requirement for rate-setting” it was referring to the total revenue requirement (or approved revenues) that rates will be designed to recover in each of 2025 to 2028 under the proposed price cap rate setting mechanism. The total revenue requirement (or approved revenues) under the proposed price cap mechanism will consist of up to four components: the base revenue requirement (or approved revenues) that is subject to annual price cap index escalation (e.g. the 2024 base revenue requirement (or approved revenues) for rate-setting, excluding Z-factor amounts), Y-factor amounts, and if applicable any approved Z-factor and or ICM amounts. Enbridge Gas is proposing to add the equity thickness base rate adjustment to the base revenue requirement (or approved revenues) subject to annual price cap index escalation each year. However as provided at Exhibit 5, Tab 3, Schedule 1, paragraph 11, the current base year adjustment is proposed to be added to the base revenue requirement (or approved revenues) subject to annual price cap index escalation after PCI escalation has been performed for the current year, but would be subject to escalation in subsequent years. In conjunction with the description of the “revenue requirement for rate setting”, when Enbridge Gas refers to “base rate adjustment” it is referring to an amount that would be added/subtracted to the revenue requirement (or approved revenues) amount that is subject to annual price cap index escalation. Details of how the proposed equity thickness base rate adjustment was calculated are described in detail at Exhibit 5, Tab 3, Schedule 1, paragraphs 7 to 11 and presented numerically in Table 2 of the same Exhibit. For an illustration of how the base rate adjustment would function as part of the proposed price cap mechanism, please see response at Exhibit I.5.2-SEC-203.
- b) No, Enbridge Gas did not consider an approach to implementing its proposed phased equity thickness increase through a factor in the price cap formula itself, which would be akin to the k-factor adopted by the OEB for 2nd Generation IRM for electricity distributors. Enbridge Gas was not familiar with the prior use of and methodology of the k-factor by the OEB. Having briefly reviewed the k-factor previously used by the OEB, it appears to Enbridge Gas that it would produce a similar result to the base rate adjustment it is proposing. It appears to Enbridge Gas that the k-factor worked in the following manner. First, a change in the cost of capital was calculated between a utility’s existing capital structure, and a capital structure that incorporated the Board’s deemed equity thickness (for example 40% for electric utilities with requisite offsetting change in the debt component) was determined. The cost of capital in both scenarios employed the same base year rate base value to be financed. Once the change in the cost of capital was determined, it was then converted to a percentage of revenue requirement, which was then divided by the number of years over which the change in equity thickness was to occur. Finally, it appears this resultant percentage was then applied to base rates over the requisite

number of years in order to implement the change. In Enbridge Gas's interpretation, it appears as though its proposed approach employs common elements, in that it utilizes a static base year rate base to calculate a cost of capital change under a base equity thickness scenario versus a desired equity thickness scenario (with a corresponding change in debt financing costs). Enbridge Gas's proposal also divides the cost of capital change by the number of years over which the change is to be implemented. The main difference appears to be that under the k-factor approach, the annual cost of capital change is converted to a percentage to be applied to base rates, while under Enbridge Gas's proposal the annual dollar value of the cost of capital change is added to the base revenue requirement (or allowed revenues) that will be utilized to determine rates. Overall, it appears as though the two approaches are slightly different ways of achieving a similar outcome.

c) Similar to Enbridge Gas's existing price cap mechanism, the proposed 2025 to 2028 price cap mechanism is intended to apply the annual price cap index escalation against a base revenue requirement (or approved revenues), which would then be utilized to determine rates. The annual price cap index escalation is not applied to rates themselves. A base revenue requirement (or approved revenues) is escalated, as opposed to rates, because the existing and proposed price cap mechanisms include Y-factors for general service normalized average use volumetric adjustments and contract rate class lost revenue adjustment mechanism volumetric adjustments. These adjustments need to be made to the volume over which the approved revenue requirement (or approved revenues) is collected. The number of customers underpinning the volumes are not adjusted however, just the use per customer. As a result of these volumetric Y-factors, the recovery of the proposed base rate adjustment and the base revenue requirement (or approved revenues) are subject to annual price cap index escalation, does consider some load (average use) updates. The Company notes however, the Y-factor adjustment for general service normalized average use will not be required upon implementation of the proposed Straight Fixed Variable with Demand rate design to general service rate classes.

d) The following response was provided by Black and Veatch (B&V).

Black and Veatch (B&V) was aware that the Company was considering a rate adjustment to increase equity thickness, but it was not asked to review the proposal. However, the proposed equity thickness adjustment has no impact on B&V's recommended values for the productivity offset and stretch factor for EGI's proposed IRM. Both of those recommendations are grounded empirically in historical analyses of industry-wide TFP trends and unit cost comparisons between EGI and various industry aggregates. None of these analyses would be impacted by the Company's proposed adjustment for equity thickness.

In addition, the proposed equity thickness factor does not impact B&V recommended inflation factor. B&V recommendation to use a two-factor, “industry specific” inflation factor, constructed as a weighted average of inflation in the GDP-IPI-FDD and inflation in average hourly earnings (“AHE”) was based on the following foundations:

- An “industry-specific” inflation factor is more consistent with the competitive market paradigm and indexing logic that underpins the design of IRMs than an economy-wide inflation factor (Total Factor Productivity, Benchmarking, and Recommended Inflation and X Factors for Enbridge Gas Inc. Incentive Rate-Setting Mechanism, p. 5)
- Recent OEB precedents regarding approved inflation factors are consistent with the use of a two-factor inflation factor (op cit, p. 7)
- As a measure of input price inflation for labour inputs, the AHE is more consistent with the competitive market paradigm and indexing logic than Average Weekly Earnings (“AWE”) (op cit, p. 7)
- The 25% weight applied to the AHE is broadly consistent with the cost share weights of both EGI and the US industry sample (op cit, p. 7)

None of these elements used to support the recommended inflation factor for Enbridge Gas are impacted by the Company’s proposed equity thickness adjustment.

Since B&V was not asked to review the equity thickness adjustment factor, and because the equity thickness adjustment does not impact the productivity offset, stretch factor, and inflation factor recommendations we were asked to provide to the Company, the equity thickness factor was not discussed in B&V’s report.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 5 of 164

Question(s):

Concentric Energy Advisors, Inc. (“Concentric”) has stated the following:

... our analysis compares the Company’s risk profile today to the Company’s risk profile in 2012, which is the approximate period in which EB-2011-0354 (i.e., the OEB’s most recent equity thickness evaluation for EGD) and EB-2011-0210 (i.e., the OEB’s most recent equity thickness evaluation for Union Gas) occurred.

Enbridge Gas proposed a common equity ratio of 36% in its application for amalgamation of EGD and Union Gas, which was accepted by the OEB in 2018.¹ This implies that Enbridge Gas and the OEB agreed that the risk profile of Enbridge Gas had not changed materially from 2012 to 2018.

Please provide justification for comparing Enbridge Gas’s risk profile in 2022 to EGD and Union Gas’s risk profile in 2012 instead of comparing to their risk profiles in 2018.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

In its amalgamation application, EGD and Union proposed to maintain the equity ratio of the amalgamated entity at 36 percent, which was accepted by the OEB. The companies, at that time, did not provide a risk assessment that would have served as a basis for reconsidering the allowed equity ratio, and it was not a rate proceeding where such evidence would have been considered. The last time the OEB considered evidence on the risks of EGD and Union was in 2012; therefore this served as the basis of Concentric’s retrospective risk assessment.

¹ OEB. EB-2017-0306 and EB-2017-0307. Decision and Order. Enbridge Gas Distribution Inc. and Union Gas Limited Application for Amalgamation and Rate-Setting Mechanism. August 30, 2018.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 6 of 164/Table 1

Question(s):

Exhibit 5/Tab 3/Schedule 1/Attachment 1 is the evidence of Concentric Energy Advisors, Inc. (Concentric), and is entitled *Enbridge Gas Inc. - Common Equity Ratio Study*, dated October 17, 2022 (Concentric Report). Table 1 of the Concentric Report, on page 6 of 164, is a "Risk Analysis Summary" of Concentric's assessment of EGD's / Enbridge Gas's business, operational, financial, volumetric and regulatory risk since 2012, when the OEB last made a determination of EGD's risk based on evidence in front of it in a rate application for the utility.¹

OEB staff notes that Concentric does not identify the formation of Enbridge Gas Inc. as a result of an acquisition and amalgamation of Union Gas and EGD approved by the OEB in a joint MAADs and multi-year rate plan application,² as a major factor in any change in the risk since 2012.

- a) All else being equal, would not investors and lenders consider that the amalgamation of EGD and Union Gas, and creating a larger utility with service areas (in the more populous area of southern Ontario) largely contiguous and thus offering opportunities for economies of scale and other synergies, as lowering the risk of Enbridge Gas relative to that of EGD as assessed in 2012?
- b) Please explain why Concentric does not consider the amalgamation of EGD and Union Gas, upon acquisition of the latter, to form Enbridge Gas, a major change affecting Enbridge Gas's business risk relative to that of EGD in 2012.

¹ EB-2011-0354 and EB-2011-0210.

² EB-2017-0306/-0307.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) While the amalgamation of EGD and Union Gas created a larger utility and resulted in economies of scale and synergies, investors and rating agencies already considered EGD and Union Gas to be large utilities prior to the amalgamation. The combined company, Enbridge Gas, does not have more economic or regulatory diversification than before the amalgamation. The business and financial risk profile of Enbridge Gas did not change in any meaningful way as a result of the amalgamation. The combined company continues to be regulated in the same manner by the OEB. Please see the response at Exhibit I.5.3-CME-46 for additional discussion.
- b) Please see the response to part a).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 17-18 of 164

Question(s):

On pages 17-18 of 164 of its evidence, Concentric summarizes its assessment of how Enbridge Gas's risk has increased relative to the last case when it was reviewed in 2012. The second bullet of the list, at the bottom of page 17 and continuing on page 18 relates to volumetric risk. The concluding sentence in that bullet states: "Regulatory mechanisms provide short-term insulation, but do not change the long-term challenges facing the Company [Enbridge Gas]."

- a) Please identify the regulatory mechanisms that Concentric is referring to.
- b) Please explain why Concentric believes that, even if these regulatory mechanisms provide "short-term insulation" for Enbridge Gas, they do not address the longer-term challenges faced by the utility.
- c) Can Concentric quantify, to the best of its ability, what it is meaning by "short-term" versus "long-term", as used in this sentence.
- d) Concentric has also assessed a sample of U.S. natural gas utilities in its evidence.
 - i. Based on its assessment of the U.S. natural gas utilities in its sample, does Concentric view that the volumetric risk also exists elsewhere on the natural gas sector in North America? Is the volumetric risk higher, lower, or the same for Enbridge Gas compared with the natural gas sector generally?
 - ii. Are there the same, or analogous, regulatory mechanisms in place for the sampled U.S. utilities as there are for Enbridge Gas in Ontario. Please explain your response.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric is primarily referring to the Company's proposed straight-fixed-variable rate design proposal, but the Company is also proposing the Average Use True-up Variance Account, which tracks the revenue impact of changes in average use for general service rate classes.
- b) These mechanisms do not address the long-term challenges faced by Enbridge Gas (and, specifically those related to the Energy Transition) because, as described in Concentric's Report starting on page 38 of 164, investors are concerned that increasing costs recovered over declining volumes and customers may create a "death spiral" scenario. In this scenario, consideration of risk extends beyond mitigation of volumetric risk because a shrinking customer base would result in remaining customers bearing an increased level of fixed costs, further contributing to pressures associated with fuel conversions and electrification.
- c) "Short-term" versus "long-term," as used in this sentence, do not reflect distinct periods that result in different levels of risk. The risks related to the Company's long-term challenges that are discussed throughout the Concentric Report are considered by investors today as evidenced by the many investor and industry-related materials cited by Concentric. In other words, the cost of capital today reflects investors' views of future performance and risks, even if the underlying events that underly the risks are not resolved for many years. In terms of the "short-term insulation" discussed by Concentric, it refers to the period over which volume-related cost recovery is not outweighed by declining customer counts and other Energy Transition-related challenges. The timing of that occurrence is as of yet unknown (thus resulting in risk) and will depend on the rate of acceleration of the Energy Transition.
- d)
 - i. Yes. Please see Schedule 3 to the Concentric Report (pages 152 to 153 of 164), which provides, among other information, the prevalence of full or partial decoupling mechanisms in place at utilities in Concentric's sample group. Decoupling mechanisms break the link between volumes of gas sold and utility revenues. Based on the proxy group, between 61.1% to 100% of the utilities in each group have either full or partial decoupling. If the Company's SFV proposal is accepted, Concentric generally considers Enbridge Gas to have lower volumetric risk than utilities with no decoupling mechanisms, and equivalent risk to those utilities that have decoupling.
 - ii. Yes. Please see response to part d) i.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 21 of 164/Figure 3

Question(s):

On page 21 of 164 of its evidence, Concentric notes that 48 Ontario municipalities have declared “climate emergencies”. Figure 3 lists the municipalities that Concentric identified as having declared climate emergencies.

- a) On what basis has Concentric concluded that municipal council “climate emergency” declarations are representative of Energy Transition actualization and that indicate that Enbridge Gas’s business risk has materially increased?
- b) Of the Ontario municipalities listed in Figure 3:
 - i. How many are currently serviced by Enbridge Gas, in all or part of the municipality?
 - ii. In how many of the municipalities serviced by Enbridge Gas has it increased its service in the municipality since early 2019, either by addition of customers and/or by increasing or reinforcing pipeline capacity to service the municipality?
 - iii. In how many of the municipalities listed in Figure 3 has Enbridge Gas been denied a franchise agreement or an application to connect customers or increase capacity, since early 2019?

Response:

- a) The following response was provided by Concentric Energy Advisors, Inc.:

As provided in the Concentric report, at pages 20 to 21 of 164, protecting the environment is an increasing focus for federal, provincial, and local governments in both Canada and the U.S., and that is reflected, in part, by the declaration of climate emergencies by municipalities. As an example of the impact of addressing climate change at the local level and its impact on gas distribution companies, the April 2022 Climate Emergency Action Plan for London, Ontario, which is served by Enbridge Gas, includes “natural gas use 50% lower than 2019” as an example of “Energy-Related Local Reductions Needed to Close the ‘Action Gap’” that London identified in

its climate emergency plan to contribute to reductions in carbon emissions. As another example, the City of Toronto, in its “TransformTO” strategy¹ stated:

“Toronto City Council has adopted an ambitious strategy to reduce community-wide greenhouse gas (GHG) emissions in Toronto to net zero by 2040 – 10 years earlier than initially proposed. The City’s 2040 target is one of the most ambitious in North America,” and “[b]uildings are the largest source of GHG emissions in Toronto today, accounting for 58 per cent of total emissions. The emissions stem from the burning of fossil fuels, primarily natural gas, for heating, cooling and hot water. To reach net zero emissions by 2040, we must eliminate the use of fossil fuels as much as possible and switch to cleaner energy sources such as electricity and renewable energy.”

- b) The following response was provided by Enbridge Gas:
- i. Enbridge Gas provides gas services within each of the municipalities listed in Figure 3, but the extent of Enbridge Gas’s current service area within the municipalities varies.
 - ii. Enbridge Gas does not track customer additions by municipality. At a high level, Enbridge Gas’s annual attachments increased slightly from 44,194 in 2019 to 45,817 in 2022. However, these increases were not evenly dispersed across Enbridge Gas’s service areas. Certain regions experienced slight increases in attachment rates while annual attachments in other regions declined or remained unchanged.
 - iii. Enbridge Gas has not been denied a franchise agreement or an application to connect customers or increase capacity in these municipalities since 2019. However, Enbridge Gas has noted increased opposition to gas infrastructure and services from municipalities in the process of renewing franchise agreements.

¹ TransformTO Strategy. <https://www.toronto.ca/services-payments/water-environment/environmentally-friendly-city-initiatives/transformto/>

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 23-25 of 164

Question(s):

On pages 24-25 of 162 of its evidence, Concentric notes that, while it is unaware of any specific bans on natural gas expansion in Ontario, 48 municipalities in Ontario have declared “climate emergencies”. Concentric also references the City of Toronto targets, and quotes from speeches from the current Minister of Energy.

Please provide any analysis Concentric has done to corroborate the quotes that it has taken from The Brattle Group presentations or Government announcements being actualized so as to constitute a real energy transition risk to Enbridge Gas at this point in time.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Concentric has not done any analysis to corroborate the quotes from The Brattle Group presentations or Government announcements. While Concentric is not aware of any natural gas bans in Ontario, there is a risk of such gas bans given the circumstances referenced in the question.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 25 of 164

Question(s):

Concentric states the following on the referenced page: "S&P [Standard & Poor's] and Moody's have incorporated ESG criteria into their credit rating analyses...".

- a) Please provide examples (with detailed references) of a company's credit rating being affected by ESG criteria (examples may include credit rating reports from any major credit rating agency).
- b) Has this addition of ESG criteria into credit rating agencies' rating methodologies affected Enbridge Gas's credit rating? If yes, please provide references and/or any relevant credit reports.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see Attachment 1 for an April 2021 report from S&P regarding the effect of ESG factors on utility credit quality. Page 2 of the attached report provides examples of ESG matters affecting the credit ratings of specific utilities. In that report, S&P states:
 - We believe the frequency and financial impact of physical climate change and transition risks are rising, while societal change points to a greater focus on sustainability by customers, communities, politicians, and regulators. These issues are likely to influence credit quality among North American investor-owned utilities for years to come.

In addition, please see the response at Exhibit I.5.3-VECC-58, Attachment 1, which is a November 2022 report from Moody's Investors Service titled "Local Gas Distribution Utilities – North America Emissions reduction, electrification threaten long-term competitiveness." In that report, Moody's states:

- Decarbonization policies pose biggest threat to LDC business model. Emissions reduction and electrification initiatives call into question the long-term ability of natural gas local distribution companies (LDCs) to maintain their position as natural gas monopoly service providers. Government policies requiring significantly lower emissions could eventually reduce the size of LDCs over time and make them less competitive by driving up their costs.
 - While there are still significant barriers to replacing LDCs, continued policy and regulatory support will be necessary to facilitate the sector's energy transition and maintain credit quality over the long term.
 - The vast majority of LDCs have moderately negative credit exposure to carbon transition risk, as shown in Exhibit 6. Those companies that have a weaker carbon transition risk score of 4, which corresponds to a highly negative exposure to carbon transition risk, generally operate in jurisdictions that are more aggressively pursuing emissions reduction targets.
- b) Yes. Given that in the above-referenced S&P commentary the bulk of the analytical discussion appears under the heading, "ESG Factors Can Be Found Throughout Corporate Credit Analysis," it is evident that ESG has affected the assessment of Enbridge Gas's credit rating. Although ESG factors have not yet had a material impact on Enbridge Gas's credit rating analysis to date, as noted in the most recent S&P report, and no impact from DBRS Morningstar, see response at Exhibit I.5.3-STAFF-14, these factors are now evaluated and could result in a material impact in the future.

How ESG Factors Are Shaping North American Regulated Investor-Owned Utilities' Credit Quality

April 28, 2021

Key Takeaways

- Environmental, social, and governance (ESG) factors are important to investor-owned utility credit risk analysis.
- Most ESG-related rating actions originate from adverse developments linked to environmental compliance, safety standards, customer bill impacts, exposure to severe weather events associated with climate change, and internal controls failures.
- Recent rating actions have highlighted the materiality of these issues to credit quality, with several downgrades and negative outlook revisions during the past several quarters.
- ESG factors can also influence rating component scores in corporate credit analysis in a variety of ways.
- Investor demands for ESG-related disclosures will likely promote greater transparency on how these issues may affect credit quality in the future.
- The ever-increasing investor demands for information on environmental, social, and governance standards is also influencing utility strategies and transparency.

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In this report, we focus on North American investor-owned utilities, and provide insights into how ESG factors rise to the level of influencing credit quality and where in our corporate ratings criteria they can come into play. As we have published previously, we are already regularly addressing ESG risks in our analyses and we believe these trends are here to stay. We believe the frequency and financial impact of physical climate change and transition risks are rising, while societal change points to a greater focus on sustainability by customers, communities, politicians, and regulators. These issues are likely to influence credit quality among North American investor-owned utilities for years to come.

ESG Factors' Impact On Investor-Owned Utilities' Credit Risk Is Evident In Recent Actions

Credit quality in the utilities sector has come under pressure in recent quarters. Many issuers

How ESG Factors Are Shaping North American Regulated Investor-Owned Utilities' Credit Quality

have limited financial cushion at their ratings after years of increasing leverage and capital spending aimed at reducing greenhouse gas emissions and improving safety and reliability. In fact, 2020 was the first year out of the last decade when downgrades outpaced upgrades among North American utilities and the negative trends have continued into 2021. Many utility companies still face ratings pressure with nearly 30% of issuer credit ratings assigned a negative outlook or on CreditWatch with negative implications. We have also observed a material increase in the number of rating actions either directly or tangentially influenced by ESG risk factors. Following are several examples where ESG factors resulted in ratings actions in North America including:

- A bribery charge filed against Exelon Corp.'s subsidiary (July 21, 2020) that resulted in a downgrade of our long-term issuer credit rating on Commonwealth Edison Co. by one notch to 'BBB+' from 'A-' due to weak internal controls.
- Unprecedented wildfire activity throughout California at the beginning of the wildfire season that indicated a worsening environment with utilities more susceptible to frequent wildfires (Sept. 16, 2020). We revised our outlook on PG&E Corp. and subsidiary Pacific Gas & Electric Co. to negative from stable.
- Physical climate change risks associated with storm activity contributed to the decision to downgrade Entergy New Orleans LLC to 'BBB' From 'BBB+' and assign a negative outlook (Oct. 8, 2020).
- FirstEnergy Corp. (FE) terminated three executives, including its CEO, after it determined that they violated company policies and its code of conduct. This followed the U.S. government filing a criminal complaint against the Speaker of the Ohio House of Representatives and four associates for participating in an approximately \$60 million racketeering scheme (Oct. 30, 2020). In response, S&P Global Ratings downgraded FE and its subsidiaries by two notches and placed the ratings on CreditWatch with negative implications.
- Duke Energy Corp.'s announced higher risks regarding its ability to fully and consistently recover coal ash costs (Dec. 15, 2020). We downgraded both Duke Energy and its subsidiary Duke Energy Progress LLC after they agreed not to seek recovery of approximately \$1 billion of deferred coal ash costs and will each take a pre-tax charge of approximately \$500 million in the fourth quarter of 2020.
- In the wake of the severe winter weather in Texas and Oklahoma in February 2021 that resulted in extraordinary natural gas prices spikes, we lowered the ratings on both Atmos Energy Corp. to 'A-' from 'A' and One Gas Inc. to 'BBB+' from 'A'. These actions reflect our expectations for weaker financial measures at both companies.

While the list above captures many of the most visible ESG-related rating actions for investor-owned utilities, in practice, ESG factors influence a wide range of credit factors to varying degrees. ESG influences can be seen in everything from industry risk, business risk component scores, and even the thresholds we set for different rating scenarios. In this article we take a closer look at how ESG factors can influence some of the key component scores that comprise S&P Global Ratings' approach to corporate credit quality for investor-owned utilities.

ESG Factors Can Be Found Throughout Corporate Credit Analysis

Several key ESG factors can influence the assessment of credit risk. Here we look at these considerations for investor-owned utilities and provide perspective on how these issues can affect credit quality, through the lens of our corporate ratings criteria and our analytical judgment.

How ESG Factors Are Shaping North American Regulated Investor-Owned Utilities' Credit Quality

Environmental Risks

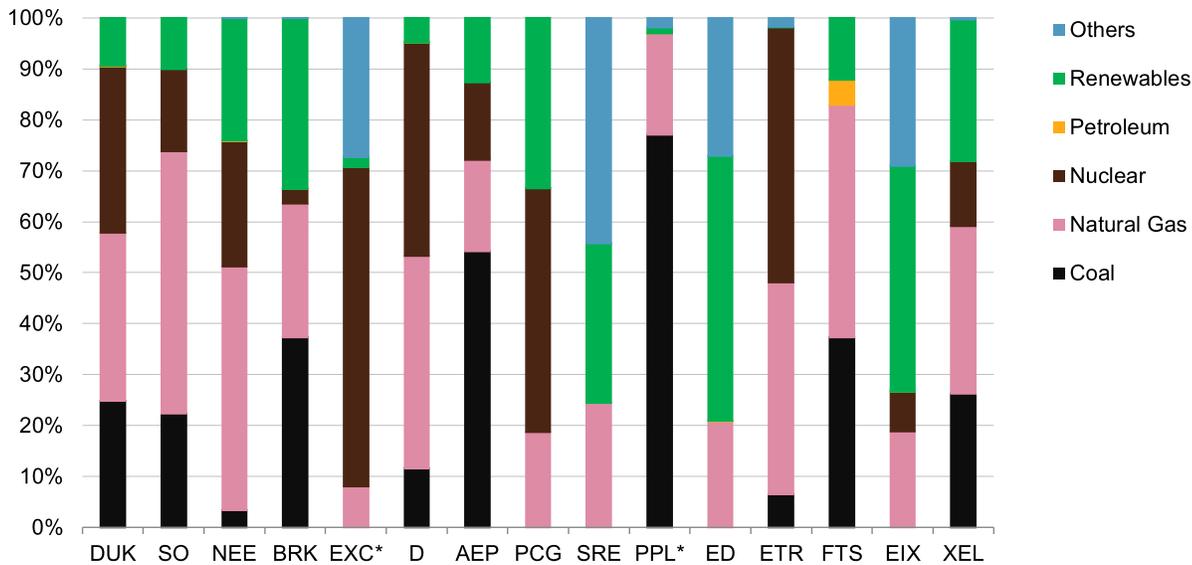
Transition to a low-carbon economy

Electric grids are materially exposed to the greenhouse gas (GHG) emissions of the power generators whose electricity flows through their grids. ESG analysis considers not just the company's direct footprint, but also exposure in its value chain. Companies are also exposed to risks related to the modernization of electric power infrastructure to accommodate new technologies and intermittent and decentralized renewable power supply. Gas utilities are exposed to risks from direct emissions from their networks (primarily methane) and more broadly the energy transition over the next decades away from hydrocarbons (although the timing and substance of this risk is likely to vary widely across service territories). Toughening climate-related regulations expose both subsectors to significant costs and operational impacts from the retirement of fossil-fuel-based assets. For water utilities these risks are less material.

Credit impact. A utility's business strategy, including its ability to effectively manage the regulatory relationship so that it can adapt to changing environmental rules, will continue to increase in importance in our analysis. We focus on the prevailing regulatory framework and the effectiveness of a utility's management of the regulatory risk in the jurisdiction(s) where it operates. A utility's regulatory strategy and its ability to manage the tariff-setting process effectively so that revenues change with costs can be a compelling regulatory risk factor. A utility's approach and strategies surrounding regulatory matters, including the deployment of capital to better position the utility for the energy transition, can create a durable advantage that differentiates it from peers. In our assessment of a utility's competitive position, we place a 60% weight on our regulatory risk and the management score, making this the most important factor in the business risk analysis. Looking ahead into the energy transition now underway, we expect that well-managed utilities will work with their regulators to ensure that the utility is transitioning effectively to a low-carbon economy and helping the states to meet decarbonization goals. Importantly, utilities must manage this without risking sudden rate spikes or negative financial implications such as insufficient cost recovery or potential stranded investments. Hence, we typically see regulatory risk as incrementally lower for utilities that are effectively transitioning their coal-fired generation to lower-carbon-intensive power generation sources.

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Top 15 North American Utilities 2019 Net Generation



Source: Edison Electric Institute Environmental, Social, Governance and Sustainability reporting templates. *Note: Category "others" for Exelon and PPL include net purchased generation in 2019 because breakdown of energy type is not available.

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Physical impacts of climate change

Climate change and extreme weather events have material effects on electric grids and water and gas utilities. For example, acute risks such as flooding and storms can cause operational disruption, damage to assets (including reduced asset lifetimes), reduced capacity in the case of water networks, and increased capital and maintenance costs.

Credit impact. We consider a utility's exposure to physical risks such as frequent or severe coastal storms or wildfires in several areas of our analysis. Within our assessment of "scale, scope, and diversity" we generally view larger and more diverse service territories as providing benefits in terms of cost recovery from physical damage. Customer diversity can lessen the effect of extreme local weather since the incremental effect on each customer declines as the scale increases. Smaller service territories that face extreme weather-related risks, due to climate change or otherwise, are typically constrained in terms of ratings potential. Such exposure could also increase regulatory risk and the prospects of cost recovery, since the damages incurred could strain rates, across a narrow customer base. Moreover, an ineffective response to coastal or winter storms can affect our assessment of a utility's regulatory strategy or operating efficiency. Storm responses leave a lasting reputational impression on various stakeholders, including ratepayers, politicians, and regulators. Our view of a utility's management of the regulatory

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relationship takes into account the utility's track record in responding to storm damage—we believe a poor or inadequate response to such events could affect the outcome of future rate cases.

Land use impacts

Construction and maintenance of electric and gas distribution and transmission corridors and water storage and transmission networks can harm endangered species and sensitive natural environments, potentially resulting in regulatory action or reputational damage for operators.

Credit impact. In the context of credit risk, land use issues don't typically rise to the level of immediate or material issues, although they can have important implications for the granting of permits and the location of transmission or generation assets. New construction sites typically require extensive environmental licenses, which in some cases could give rise to extra costs. In other cases where business strategy or growth is affected due to land use impacts, credit quality could be affected at the margin. The effective reuse of brownfield sites can be an efficient way to site new assets to support growth.

Waste and pollution

Electric, water, and gas network upgrades and expansions generate construction waste, while water utilities often handle the treatment of wastewater. These aspects can result in waste management costs, and require adherence to environmental laws, which if breached can trigger regulatory fines and potential reputational damage. For regulated power generators, notably coal and nuclear, waste management is particularly sensitive to communities and regulators.

Credit impact. Waste management issues and pollution can constrain credit quality in the sector, although the impacts typically must depart from industry norms to reach the point of materiality and rating actions. Our assessment of operating efficiency takes into consideration such issues as coal ash pond management or the handling of nuclear waste when these issues result in cost increases or questions about environmental compliance. Such issues could also raise questions around the quality of the regulatory relationship if remediation spending was excessive and not recoverable. Lastly, any environmental liabilities that rose to the level of materiality would be captured on an after-tax basis in our adjusted cash flow and leverage metrics.

Social Risks

Network reliability and affordability

Network reliability, price affordability, and accessibility can affect customer relations and satisfaction, regulatory compliance, and company reputation. Electric, water, and gas network upgrades and expansions, as well as commodity cost spikes, can put upward pressure on rates, while intermittent electric generation may influence grid reliability. Additionally, affordability and access to services, including for vulnerable populations, is an issue of growing regulatory and public scrutiny.

How ESG Factors Are Shaping North American Regulated Investor-Owned Utilities' Credit Quality

Credit impact. Network reliability and affordability is at the core of the analysis of a utility, touching key aspects of regulatory strategy assessment, operating efficiency, and profitability analysis. Operating efficiency considers compliance with the terms of a utility's operating license, including safety, reliability, and environmental standards; cost management; and management of capital spending. Given the importance of these issues, we score the operating efficiency of every rated utility and we typically will enhance component scores for well-regarded operators, or conversely, negatively view weaker or more erratic performance. We usually look for rate stability, or modest year-to-year increases as favorable and a good indication that a utility management achieves its objectives without straining rates. We generally assess some utilities as weaker if their management teams mismanage capital plans or operating costs so that rates or profitability are less predictable. Ultimately, poor execution could again hurt the promise of full cost recovery and result in rate increases that could impair the regulatory relationship. Lastly, our assessment of the volatility of profitability will capture less favorable performers and will potentially weaken our view of business risk.

Safety management

Occupational safety risks, including electrical hazards and falls, are typically well-managed given stringent safety standards. Additionally, acute safety incidents including fires, gas explosions, and contaminated drinking water, can affect local communities, and can expose companies to material financial impacts, regulatory action, and enduring reputational damage.

Credit impact. A track record of safely managing assets is part of the assessment of a utility operating risk, including a review of any material acute risks. Examples of acute risks, such as pipeline explosions, can have negative and lasting implications for both business and financial risks. For this reason, we may assign a less-supportive score to regulated gas networks than to electric grids or peers with stronger safety records. Highly unusual incidents such as explosions in gas pipelines or power plants mishaps that result in harm to the community, cannot be fully anticipated and could have widespread negative implications in our analysis depending on the extent of the damages.

Communities

The energy transition requires upgrading and expanding grids and gas network infrastructure, which can be disruptive to local communities and, in turn, can undermine regulatory support for operators.

Credit impact. Effective management of infrastructure upgrades is a key aspect of managing community and regulatory risk and important to credit quality. We view the effective regulatory strategy as one that shows an effective collaboration with regulators and allows the utility to navigate the energy transition effectively without risking delays or that expose the utility to community backlash.

Workforce and diversity

Recruiting and developing a diverse and skilled workforce is increasingly important to this sector, which is characterized by a relatively older and male talent pool. Moreover, shifting technologies and regulatory developments are rapidly reshaping the sector and require a new set of skills and

How ESG Factors Are Shaping North American Regulated Investor-Owned Utilities' Credit Quality

attributes.

Credit impact. Of the key sustainability factors, workforce and diversity may be the hardest to link directly to credit risk. Still, that does not mean to suggest that the issue lacks importance in the credit analysis, but rather this is an issue that manifests itself over a longer time frame. We view effective workforce diversity as key to achieving the objective of building a strong workforce and talent pool; failure in this regard is likely to reveal itself in higher costs, recruiting challenges, and poor execution of strategy. More immediate credit risks in the form of union-related actions could also arise that are more visible and require immediate remediation.

A Word On Governance

S&P Global Ratings assesses management and governance (M&G) as part of every utility credit risk analysis. The details of the assessment can be found in Methodology: Management And Governance Credit Factors For Corporate Entities, published Nov. 13, 2012. We focus on the following factors: strategy, execution, and monitoring; board effectiveness; risk management and internal controls; regulatory, tax, or legal infractions; and transparency. We assess most investment-grade investor-owned utilities' M&G scores as satisfactory or strong. Should we identify weaknesses and assess management and governance as fair, it could in some circumstances result in a one-notch rating change. Entities with material deficiencies could result in an assessment as weak resulting in rating downside of typically two or more notches for investment-grade entities. Thus the M&G framework is vital to credit risk as is the adherence to a high standard for matters of transparency, financial reporting, internal controls and tax and regularly matters. Unfortunately, as we have seen in recent months, adverse developments in this area typically appear with little warning due to some failure of internal controls. These situations will result in a credit review, often with negative consequences.

Expect More Focus On ESG In 2021 And Beyond

While S&P Global Ratings has long considered ESG in its corporate credit analysis for investor-owned utilities, it's clear that the financial impact of climate change and transition risks are rising. At the same time, societal change points to a greater focus on sustainability by customers, communities, politicians, and regulators. The ever-increasing investor demands for information on environmental, social, and governance standards is also influencing utility strategies and transparency. The positive development is that we will likely see improved ESG and sustainability reporting from corporate issuers. We believe that this information will allow us and investors to scrutinize these attributes as they become more comparable, thereby enhancing further transparency on how ESG factors affect credit quality.

This report does not constitute a rating action.

How ESG Factors Are Shaping North American Regulated Investor-Owned Utilities' Credit Quality

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ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 25 of 164

Question(s):

Concentric states the following on the referenced page:

Six of Canada's largest banks, including the Bank of Montreal, the Canadian Imperial Bank of Commerce, the National Bank of Canada, the Royal Bank of Canada, Scotiabank, and Toronto-Dominion Bank, recently signed on to the Net-Zero Banking Alliance, thereby committing to establishing a variety of sustainability-linked emissions targets.[footnote omitted] These banks are the primary debt capital providers for EGI.

How has signing on to the Net-Zero Banking Alliance impacted, in real or practical terms, debt market access to Enbridge Gas to date? What are the practical implications, if any, expected on Enbridge Gas's access to debt financing over the 2024-2028 period from this arrangement of major Canadian banks aligning with the Net-Zero Banking Alliance? Please elaborate in your response.

Response:

Enbridge Gas has not experienced an impact to bank debt market access to date. Enbridge Gas is not able to speculate on whether signing on to the net-zero banking alliance may impact future access to the bank debt market.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 26 of 164

Question(s):

Concentric has presented a chart on “S&P Estimated North American Energy New Issues Yield Curve: 2019-2021” in Figure 6 on this page.

Please provide underlying data for this chart (in MS Excel format), updated to December 2022.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Figure 6 was taken from a report published by S&P Global Ratings. Concentric does not have access to the underlying data that was used by S&P to create the chart, and therefore cannot update the chart through December 2022. A copy of the S&P report is provided at Attachment 1.

The Energy Transition: ESG Concerns Are Starting To Present Capital Market Challenges To North American Energy Companies

June 14, 2021

Key Takeaways

- Based on recent issuance, we estimate that funding costs were about 75 basis points (bps) higher on average for the most carbon-intensive borrowers from the North American energy sector compared with those that showed the lowest carbon intensity, as environmental, social, and governance (ESG) mandates are increasingly factored into investment decisions.
- Recent stakeholder actions targeting some of the largest integrated oil companies have called for greater environmental disclosures, acceleration of emissions reduction goals, and overall more clearly defined strategies for dealing with the energy transition.
- To date, Canadian oil and gas companies have not faced the same level of shareholder opposition as their U.S. counterparts, but investor concerns about the industry's greenhouse gas (GHG) emissions profile have already emerged. Alberta's total emissions are a significant portion of Canada's total GHG emissions, so the industry will need to make meaningful progress on emissions reduction to ensure Canada achieves its medium- to long-term emissions reduction targets.
- We expect the midstream industry to focus on initiatives that could develop and result in low-carbon investments or reduce its carbon footprint in the next few years. Infrastructure built to support the transportation and consumption of hydrocarbons for the next several decades is facing increasing risk. How companies address these challenges will be paramount to our view of industry creditworthiness.

S&P Global Ratings has recently observed contracting bond tenors and widening spreads for North American oil and gas debt issuers, relative to those of European peers and the broader corporate fixed income universe, suggesting that investors' growing focus on ESG and credit risk may be affecting demand for new issuance from oil and gas companies. Furthermore, rising stakeholder support for greater investment by oil and gas companies in renewable energy infrastructure has compelled changes in board compositions and institutional investor divestments. Even though investors' growing ESG mandates may be starting to lead to

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less-favorable financing conditions for the energy sector, bond market investors' appetite for new paper was more than sufficient for investment-grade North American oil and gas issuance to reach a new high in 2020.

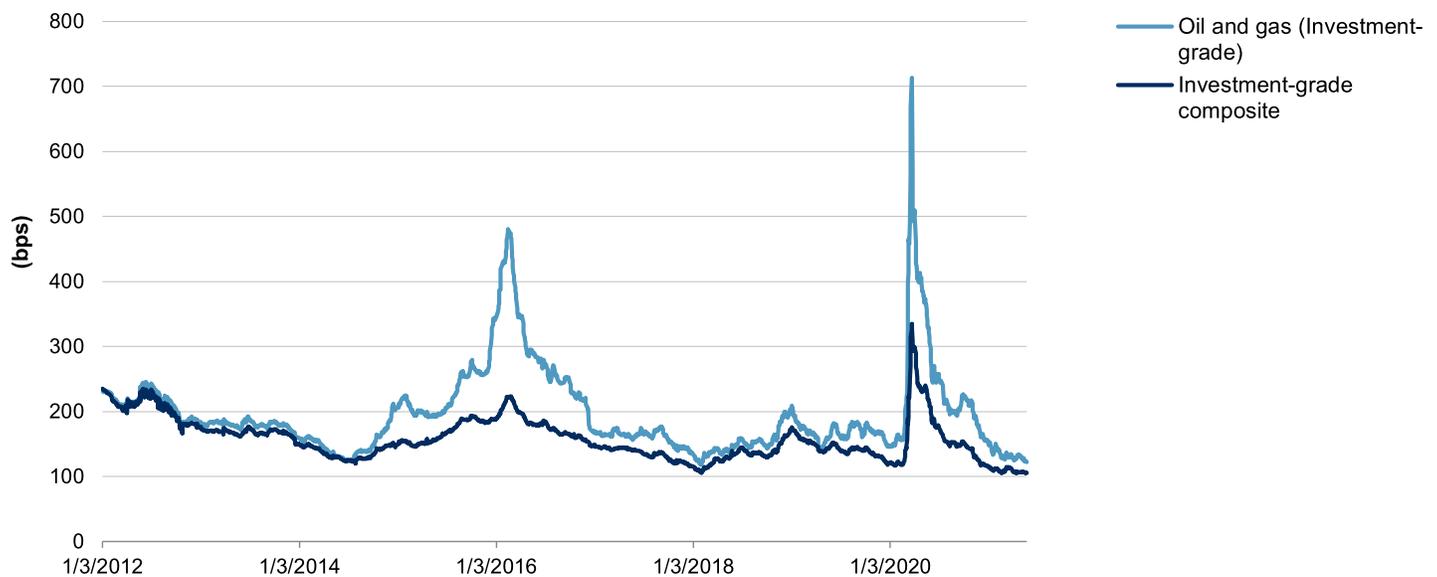
Oil And Gas Companies Have Faced Higher Funding Costs Than The Broad Market In Recent Years

Ever since late 2014, when booming U.S. oil production, rising energy efficiency, and OPEC actions to gain market share contributed to a sharp plunge in global oil and gas prices, investors have expressed elevated concern about credit risk in the oil and gas sector. In 2016, credit spreads for investment-grade bonds from the oil and gas sector were 112 bps wider than the average investment-grade spread. Although this gap narrowed in subsequent years, the oil and gas sector faces persistently higher-than-average funding costs.

With the onset of the COVID-19 pandemic and the collapse in oil prices in early 2020, credit spreads for the oil and gas sector reached new heights. In March 2020, the option-adjusted spread for our investment-grade oil and gas composite briefly surpassed 700 bps, more than double the average spread for an investment-grade nonfinancial issuer, after OPEC+ announced that it had failed to reach an agreement to slow production (see chart 1).

Chart 1

Spreads For The Oil And Gas Sector Remain Wider Than The Broad Composite



Composite bond spreads based on investment-grade bonds in the U.S. with a 10-year maturity.

Source: S&P Global Ratings.

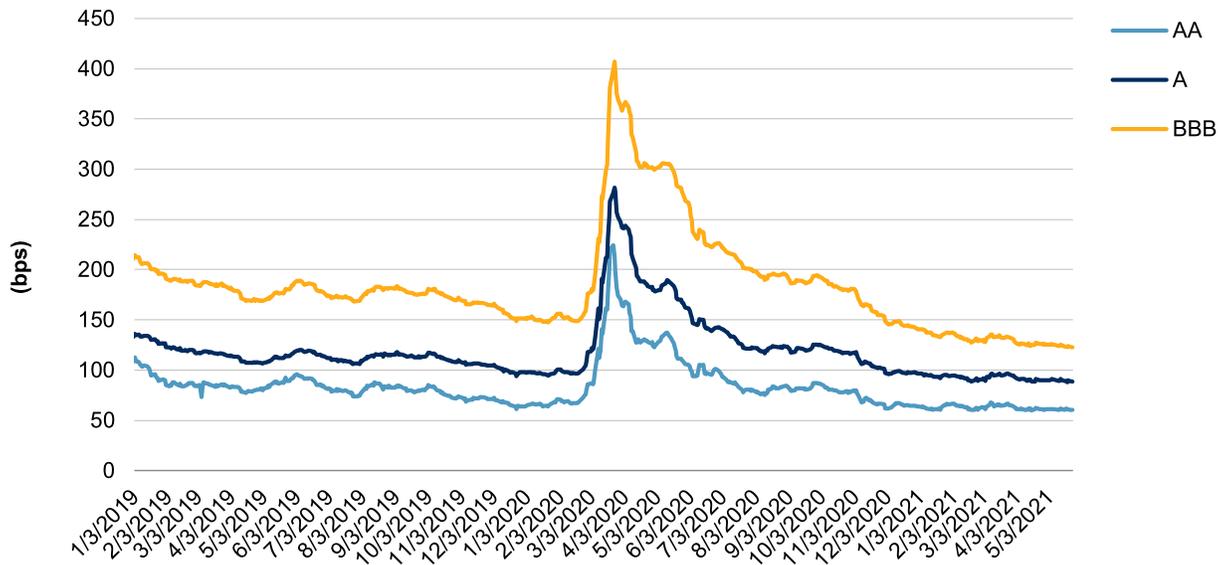
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Following the fiscal and monetary policy responses from the U.S. government and the Federal

Reserve, financing conditions quickly improved in the broad market, particularly for investment-grade issuers. By the end of 2020, spreads had narrowed back below pre-pandemic levels (see chart 2). While spreads for investment-grade bonds from the oil and gas sector also returned to pre-pandemic levels, they remain modestly wider than the investment-grade composite spread, with the average bond spread for the investment-grade oil and gas sector holding approximately in line with that of a 'BBB' issuer.

Chart 2

Investment-Grade Funding Costs Continue To Fall Below Pre-Pandemic Levels



Composite bond spreads based on investment-grade bonds in the U.S. with a 10-year maturity.

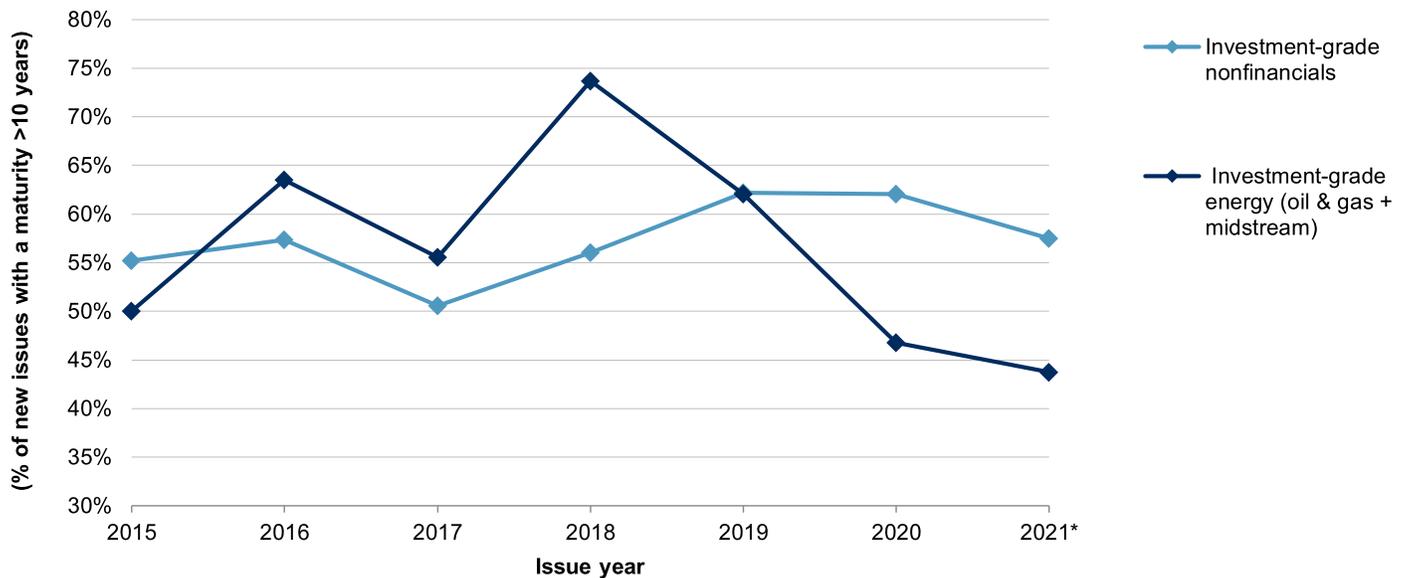
Source: S&P Global Ratings.

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Since 2017, a growing share of new investment-grade issuance has a maturity of more than 10 years as many companies have sought to lock-in low funding costs. Over the same period, the share of new issuance from the North American energy sector with maturities of that length has shrunk. In 2018, almost 75% of new issues from the energy sector had a maturity of more than 10 years, but this share sharply dropped to less than half of new issues in 2020 and 2021. While many factors could have led to the shortening tenor of energy sector issuance, one possibility is that investors may be less willing to extend longer-term financing to the sector amid ESG concerns, and perhaps uncertainty regarding the role of oil and gas in the energy transition.

Chart 3

A Shrinking Share Of Energy Sector Bond Issuance Has A Maturity Of More Than 10 Years



Investment-grade bond issuance from North American nonfinancials compared with energy companies from the integrated oil and gas and midstream sectors.

*Through April. Source: Refinitiv and S&P Global Ratings.

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Based on these trends in the oil and gas sector, we looked into whether issuers may be starting to face different funding costs based on their environmental impact. This led us to group North American issuance of energy companies (including investment-grade companies from the integrated oil and gas and midstream energy sectors) according to the relative carbon intensity of the issuer, based on their carbon-to-revenue footprints (annual metric tons of carbon emissions per million U.S. dollars of annual revenue), which are calculated by S&P Global Trucost and are used as part of the framework for assigning weights in the S&P 1200 Carbon Efficient Index. Using these metrics, we grouped issuers into quartiles based on their relative carbon intensity to compare recent issuance trends.

We see evidence that issuers with lower carbon intensity were able to issue longer-dated debt at lower financing costs than their more carbon-intense peers (see table 1).

Table 1

North American Energy (US\$) New Issue Summary: 2019-2021

Quartile	Average tenor (years)	Average yield (%)	Average rating	Trucost carbon-to-revenue metric
Lowest carbon intensity	18	3.18	BBB+	<482

Table 1

North American Energy (US\$) New Issue Summary: 2019-2021 (cont.)

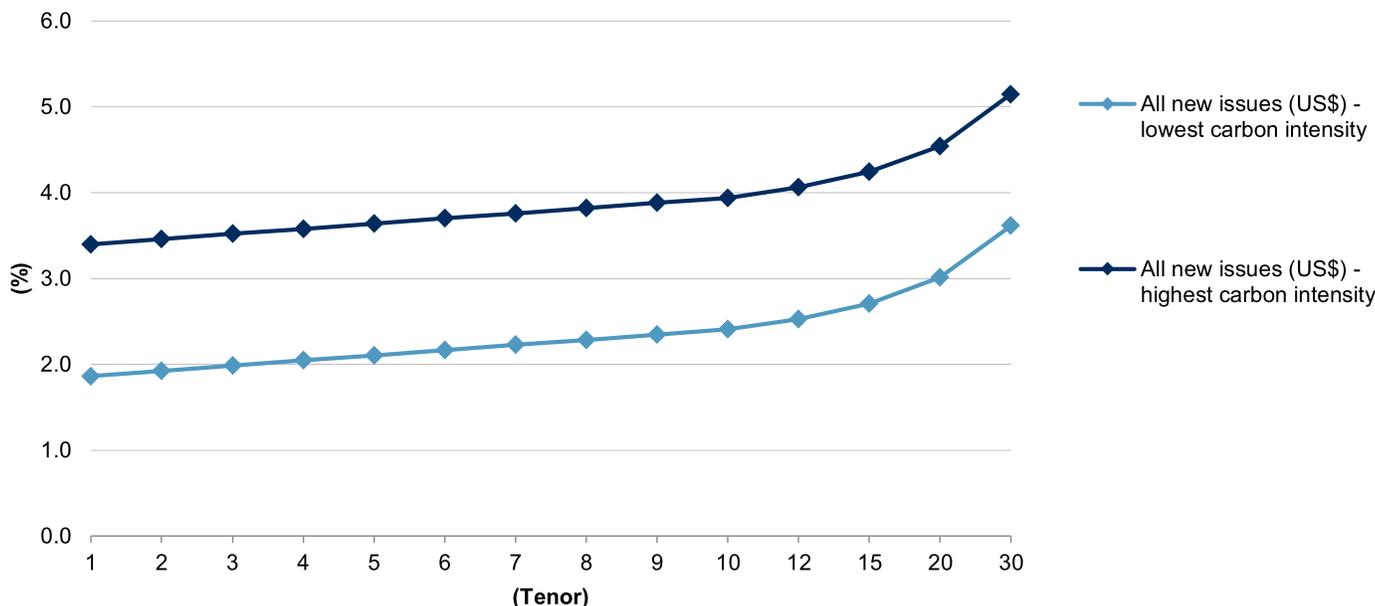
Quartile	Average tenor (years)	Average yield (%)	Average rating	Trucost carbon-to-revenue metric
Highest carbon intensity	12	4.12	BBB	>964

Based on North American bond issuance in 2019-2021 of investment-grade integrated oil and gas and midstream companies. Source: Refinitiv, S&P Global Trucost, S&P Dow Jones Indices, and S&P Global Ratings. Data from Jan. 1, 2019-May 10, 2021.

This led us to further analyze the new issues from Jan. 1, 2019, to May 10, 2021, from the North American energy issuers to test if differences in the composition of new issues from those in the top and bottom quartiles could explain the differences we saw in the averages for new issue debt. By estimating the cost of new issue debt during the period for the issue rating, tenor, and carbon intensity of the issuer, we are able to estimate new issue yield curves for the average issuer in the top and bottom quartiles (see chart 4).

Chart 4

Estimated North American Energy New Issues Yield Curve: 2019-2021



Source: Refinitiv, S&P Global Trucost, S&P Dow Jones Indices, and S&P Global Ratings. Data from Jan. 1, 2019-May 10, 2021. Copyright © 2021 by Standard & Poor's Financial Services LLC. All rights reserved.

Based on our analysis, we see some evidence that financing costs during the period from Jan. 1, 2019, to May 10, 2021, were lower for the energy companies that showed the lowest carbon intensity, and higher for those with the highest intensity. We estimate that the new issue yield curve for the average North American energy issuer in the quartile of lowest carbon intensity was

about 153 bps lower than that of the average issuer in the quartile of highest carbon intensity.

When we controlled for differences in the composition of issue ratings in the top and bottom quartiles, we estimated that the new issue yield on debt from the average North American energy issuer in the quartile of lowest carbon intensity was about 75 bps lower than that of the highest-intensity quartile. Compared with a hypothetical energy issuer with average carbon intensity in the GICS energy industry group that has also sufficiently disclosed its carbon emissions, this 75 bps accounts for a yield that is about 22 bps tighter for the top quartile and a yield that is about 53 bps wider for the bottom quartile.

ESG Factors Are Clearly Moving Front And Center For Stakeholders Of U.S. And European Oil And Gas Companies

Supporting the emerging trend in the new issue yield and tenor data for oil and gas companies relative to the broader corporate universe, recent shareholder actions have clearly demonstrated the growing importance of ESG factors to U.S. investors. At ExxonMobil Corp.'s annual meeting on May 26, shareholders elected three of the four nominees put forward by hedge fund Engine No. 1 to the board of directors, aiming to bring about change in how the company is handling the risks of climate change. Engine No. 1's proposals received support from larger shareholders including BlackRock, Vanguard, CalPERS, CalSTRS, and the New York State Common Retirement Fund. In our view, the funds expect these new directors to bring fresh ideas to ExxonMobil's 12-member board regarding the company's long-term strategy for dealing with climate change and the energy transition. On the same day in May, Chevron Corp.'s investors voted to include Scope 3 emissions (that is, emissions from customers) in the company's carbon reduction targets. These moves clearly signal investors' increasing demand for greater disclosure and push for oil companies to take faster and more meaningful actions to reduce carbon emissions.

In addition to investors, a number of banks have exited or scaled back their exposure to the exploration and production reserve-based lending market--at least in part due to ESG concerns and in part due to poor returns. Several of the largest banks already restrict their financing to exclude funding for projects in the Canadian oil sands and Arctic drilling regions. However, as the global focus on ESG gains momentum, restrictions could likely expand into other regions to help banks reach their own goals of reducing total fossil fuel exposure to align with Paris Agreement commitments, and some recent exits suggest that U.S. shale could have a target on its back. In the past year, banks including Societe Generale, Bank of Montreal, and ABN AMRO have publicly stated their intentions to exit the U.S. onshore oil sector, citing ESG and other risk factors as reasons.

In 2020, reserve-based lending facilities of speculative-grade U.S. issuers shrunk by more than 20% on average, although this was in large part caused by the collapse in oil prices, which reduced the collateral value of oil and gas reserves. However, despite the recovery in prices since then, banks have held back on extending credit to pre-collapse levels, suggesting that bank appetite for the sector remains weaker. While we believe that poor returns and higher recent default rates are primary factors, ESG considerations and the expedited timeline of the energy transition could further limit credit availability. If banks continue to exit from, or reduce exposure to, the U.S. oil and gas sector, the reserve-based lending market is set to face higher lending rates, stricter leverage thresholds, and more restrictive terms.

Governments in some countries are also increasing pressure on companies to reduce carbon emissions. A Dutch court recently ruled that Royal Dutch Shell is partially responsible for climate change, and ordered the company to reduce its carbon emissions by 45% by 2030 compared with

Increasingly, shareholders are looking for energy companies to cut carbon emissions.

2019 levels. The ruling was handed down despite the fact that Royal Dutch Shell already has in place a net zero emissions target by 2050. Meanwhile, President Biden has identified climate change as one of the four key crises he plans to address during his time in office. So far, he has brought the U.S. back into the Paris Climate Agreement and pledged to cut U.S. GHG emissions by 50% to 52% versus 2005 levels by 2030, and to net zero by 2050. Although there is not yet a specific plan of action in place, it is likely that oil companies will be mandated to contribute to this goal.

How are the supermajors handling the energy transition?

Although all five major oil companies--BP plc, Chevron, ExxonMobil, Royal Dutch Shell, and Total Energies--support the goals of the Paris Climate Agreement and are targeting emissions reductions over the next decade, only the Europeans so far have set net zero emissions targets for themselves by 2050. In addition, only two companies: Shell and Total, have net zero targets for Scope 1, 2, and 3 emissions, which include emissions by their customers, although Chevron's shareholders recently voted to include Scope 3.

There is also difference between the U.S. and European majors in the amount of capital pledged for clean energy projects over the next five-10 years. Chevron has allocated about \$380 million per year (on average) and ExxonMobil about \$600 million, while BP is planning to increase its annual allocation to \$5 billion from \$500 million, Shell intends to spend \$2 billion-\$3 billion per year, and Total has allocated \$2.4 billion for 2021.

The oil majors are pursuing a broad slate of clean energy investments in order to meet their emissions reduction goals, including:

- Projects that transform their own operations, such as reducing flaring, electrification of fleets, and carbon capture, utilization, and storage (CCUS);
- Projects that transform their products, such as hydrogen, biofuels;
- Projects that transform their business models, such as electric vehicle (EV) charging stations, renewable power;
- Projects that provide emissions offsets, such as afforestation, wetlands development, carbon credits

So far, the European majors have led the way on projects to transform their business models, while the U.S. players have focused more on their current operations and development of new products for the existing energy infrastructure. In our view, this divergence in strategies could be one of the factors driving the apparent divergence in new issue tenors for North American integrated oil and gas issuance versus that in Europe, which has grown more pronounced since 2018 (see chart 5).

Table 2

Major Oil Companies' Environmental Target Comparison

Company	Specific targets	Level of investment planned	Key investment areas	Other
BP plc	Net zero Scope 1 and 2 GHG emissions by 2050 or sooner across all operations; a 50% reduction in carbon intensity of its products by 2050, and a 50% reduction in methane intensity. Aims to be water positive by 2035. Aims to have a net positive impact on biodiversity on all new projects starting in 2022+.	Plans to increase investments on low carbon solutions to \$5 billion per year (from \$500 million currently), reaching 40% of its total investments by 2030.	Renewables, biofuels, hydrogen. Aims to have developed 50 gigawatts of renewable generating capacity by 2030.	Percentage of compensation tied to emissions reductions for leadership and employees. Cut its dividend in mid-2020 with a portion of the savings allocated to clean energy investments.
Chevron Corp.	No net zero target, but plans to reduce Scope 1 and 2 emissions per boe produced by 2028 versus 2016, including a 40% per boe reduction for oil, a 26% reduction per boe for natural gas, and a 53% reduction per boe for methane; targeting no routine flaring and a 66% reduction in overall flaring per boe by 2030. Shareholders recently voted to include Scope 3 emissions in the company's targets.	Intends to invest \$2 billion by 2028 in carbon reduction projects, \$750 million on investments in renewables/offsets, and has committed \$300 million to its Future Energy Fund II.	CCUS, hydrogen, energy optimization, digitization, energy storage and management, geothermal and nuclear fusion.	Virtually all employees' compensation includes a carbon efficiency improvement component.
ExxonMobil Oil Corp.	No net zero target, but plans to reduce Scope 1 and Scope 2 emissions intensity in upstream operations by 15%-20% by 2025 versus 2016 levels, supported by a 35%-45% reduction in flaring intensity and a 40-50% reduction in methane intensity. Plans to reduce absolute GHG emissions by about 30% by 2025 relative to 2016. Has started to report Scope 3 emissions.	Intends to invest \$3 billion in low carbon technologies between 2020-2025.	CCUS, hydrogen, biofuels, lightweight packaging, synthetic lubricants.	Supports carbon pricing.
Royal Dutch Shell plc	Net zero Scope 1, 2, and 3 GHG emissions by 2050. A 20% reduction in the carbon intensity of its products by 2030, 45% by 2035, and 100% by 2050 versus 2016. Aims to eliminate routine flaring by 2030; expects to keep methane intensity below 0.2% by 2025.	Intends to invest \$2 billion-\$3 billion per year in renewables and energy solutions.	Biofuels, hydrogen, charging for electric vehicles, solar/wind power, nature-based solutions (forest and wetlands), CCUS.	Has linked compensation of its employees to its carbon reduction goals.

Table 2

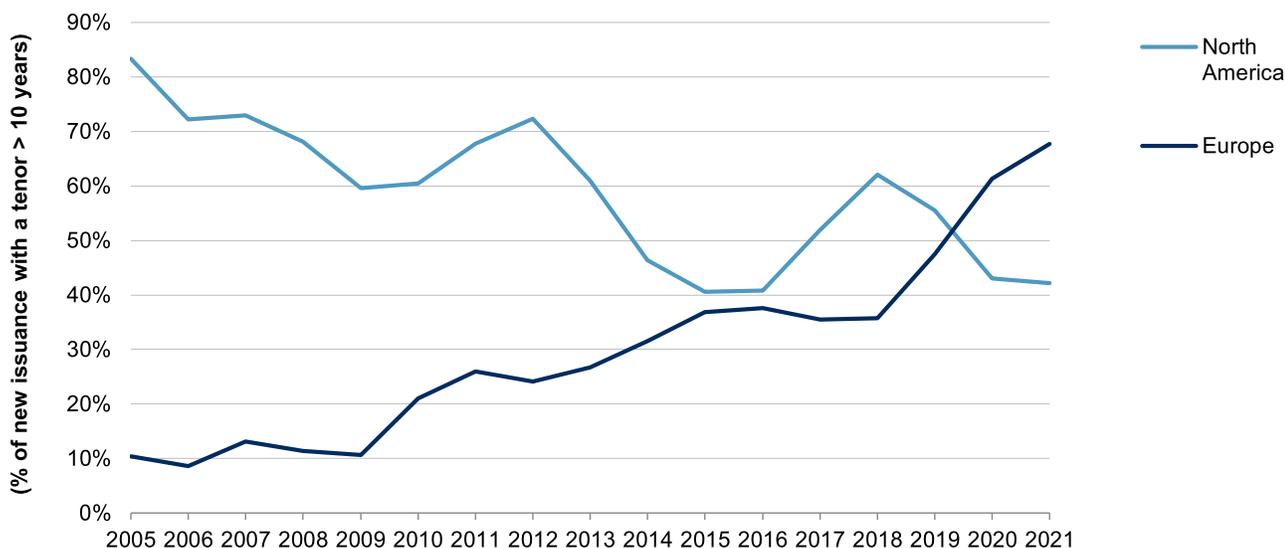
Major Oil Companies' Environmental Target Comparison (cont.)

Company	Specific targets	Level of investment planned	Key investment areas	Other
Total Energies (f/k/a Total SE)	Net zero Scope 1, 2, and 3 emissions by 2050 by improving carbon efficiency; eliminating routine flaring by 2030; electrifying processes and reducing methane emissions. Plans to reduce Scope 1 and 2 emissions by 15% by 2025 and 40% by 2030 versus 2015.	Plans to spend at least 20% of its 2021 budget of \$12 billion on renewables and electricity.	Renewable energies, nature based solutions, CCUS, hydrogen. Aims to have developed 100 megawatts of renewable generating capacity by 2030.	All future bond issuance will be linked to key climate performance indicators.

Source: Company websites. CCUS--Carbon capture, use, and storage. GHG--Greenhouse gas.

Chart 5

A Growing Share Of European Integrated Oil And Gas Issuance Has A Tenor Of More Than 10 Years, While The Percentage Recently Diminished For North America



Based on a rolling-two-year average of new issuance from integrated oil and gas companies in the U.S., Canada, and Europe. Source: Refinitiv and S&P Global Ratings. Copyright © 2021 by Standard & Poor's Financial Services LLC. All rights reserved.

While we believe it is still too early to pick winners and losers from a credit perspective, as increased capital spending on clean energy solutions may not generate returns for several years--potentially weakening near-term leverage ratios--it is clear that stakeholders are demanding greater transparency and clearer strategies for dealing with the energy transition. In our view, oil and gas companies will have to figure out how to address the environmental concerns

expressed by their stakeholders, or risk the continued widening of spreads and shortening of tenor relative to the broader corporate market. In particular, although the data are still limited, it appears North American oil and gas companies are achieving less favorable new issuance terms than their European peers.

How we incorporate the risk of continued stakeholder pressure in credit ratings

S&P Global Ratings already incorporates environmental risk and potential related stakeholder pressure into its credit ratings. In January 2021, we revised our industry risk assessment for the oil and gas exploration and production sector to moderately high from intermediate. This reflects our view of the trajectory of oil and gas supply/demand and the impact on producers of fossil fuels, given the increasing adoption and transition of renewable energy alternatives to address climate change. While we believe oil and gas will have a place in global energy, encroachment of renewable energy on market share over time will have broad implications for hydrocarbon demand, prices, and producers of fossil fuels. Due to the social and economic risks from climate change, sovereign and local governments globally are enacting stricter policies and regulations while providing industry subsidies aimed at reducing GHG and carbon dioxide emissions from the burning of fossil fuels. The transition and timing of peak hydrocarbon demand, in our view, has and will continue to accelerate due to the COVID-19 pandemic and increasing adoption of ESG investment mandates among global investors and financial institutions. As a result, we believe the risk of reduced investment and capital market access may become more challenging and costly for hydrocarbon producers.

Shortly after the industry risk assessment change, we lowered the issuer credit ratings on U.S. major oil companies ExxonMobil, Chevron, and ConocoPhillips; European companies Royal Dutch Shell and Total SE; and Canadian companies Imperial Oil Ltd. and Canadian Natural Resources Ltd. (CNRL). For more information, see our report, "The Change To The Industry Risk Assessment For Exploration & Production Companies And What It Means For Issuer Ratings," published Jan. 25, 2021.

A Few Companies Produce Most Of Canada's Crude Oil And Natural Gas

In 2020, S&P Global Ratings rated five investment-grade oil and gas companies in its ratings universe: CNRL, Cenovus Energy Inc., Husky Energy Inc., Imperial Oil Ltd., and Suncor Energy Inc. These five produced 56% of Canada's total 2020 liquids (crude oil and natural gas liquids), and 17% of the country's total natural gas. Oil sands production (synthetic crude oil and bitumen) from these companies accounted for 41% of Canada's total liquids production in 2020. Given the high GHG emissions profile associated with oil sands production, capital market participants and other stakeholders are looking to these few companies to meaningfully reduce the emissions generated by their oil and gas operations.

Investor concerns regarding ESG issues have already emerged. In May 2020, Norway's sovereign wealth fund removed Canada's largest oil and gas producers, CNRL, Cenovus, Imperial Oil, and Suncor, from its US\$1 trillion investment portfolio, citing concerns over the oil companies' GHG emissions. In April 2021, New York State's pension fund, the third largest in the U.S., restricted its investment in six Canadian oil and gas companies with a large exposure to oil sands development, due to the companies' perceived lack of preparedness for the transition to a low-carbon future. In contrast, Canada's institutional investors, with few exceptions, have maintained or increased their holdings in Canada's oil and gas companies. Canada's top five pension funds' cumulative

investment in shares of the country's top four oil sands producers jumped 147% from a year ago, although much of that increase was due to rising share prices. In contrast, the Ontario Teachers' Pension Plan, which has a 2050 net zero emissions portfolio mandate, began reducing its investment in Canada's oil and gas companies in 2018.

With most of Canada's oil production coming from the oil sands fairway, the perception of the sector's contribution to GHG emissions is emerging as a key investment consideration for large foreign equity and debt investors. With the top 10 investors outside Canada in CNRL, Cenovus, and Suncor currently owning 35%, 62%, and 27%, respectively, of these companies' equity, there is the potential that foreign investors could have a meaningful impact on corporate stewardship and governance. With the 2021 annual general meetings for these companies already completed, shareholder challenges similar to what recently occurred in the U.S. should not extend to these companies during 2021.

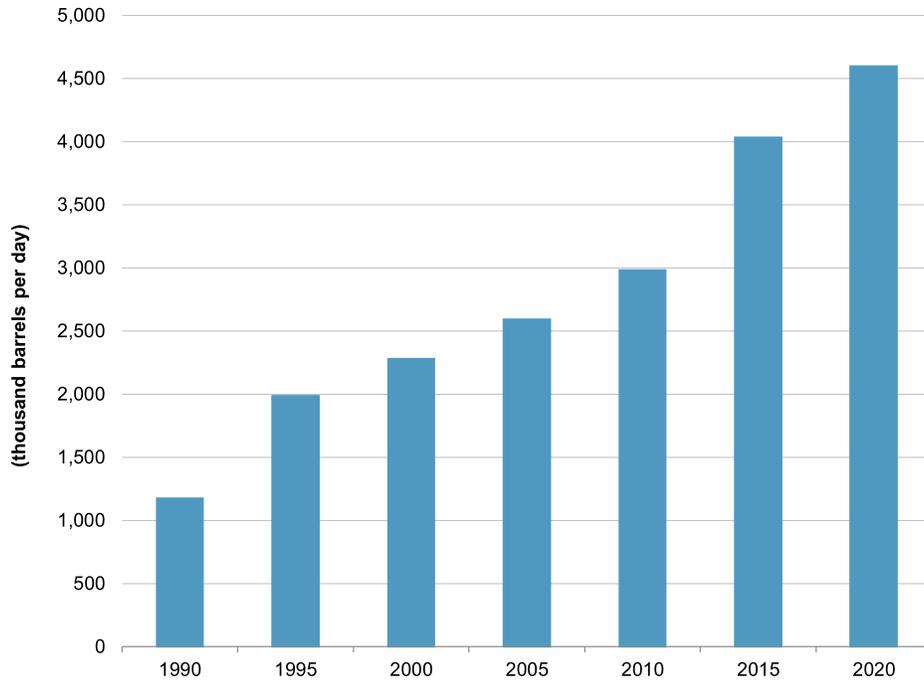
Foreign investors are scaling back investments in Canadian oil companies.

Canada's oil and gas industry has to play a large role in the country's targeted emissions reduction

In tandem with the doubling of Canada's total oil production between 1990 and 2019, primarily due to the large scale development of oil sands resources, Canada's total GHG emissions remained within a 700-750 megatonnes of carbon dioxide (CO₂) equivalent (Mt CO₂ eq) range. Canadian oil and gas producers have made significant progress reducing per barrel emissions; however, total GHG emissions from conventional oil and oil sands development increased by 20% and 468%, respectively. Increasing thermal oil production accounted for more than half of the GHG emissions growth from oil sands production.

Chart 6

Canada's Crude Oil Production

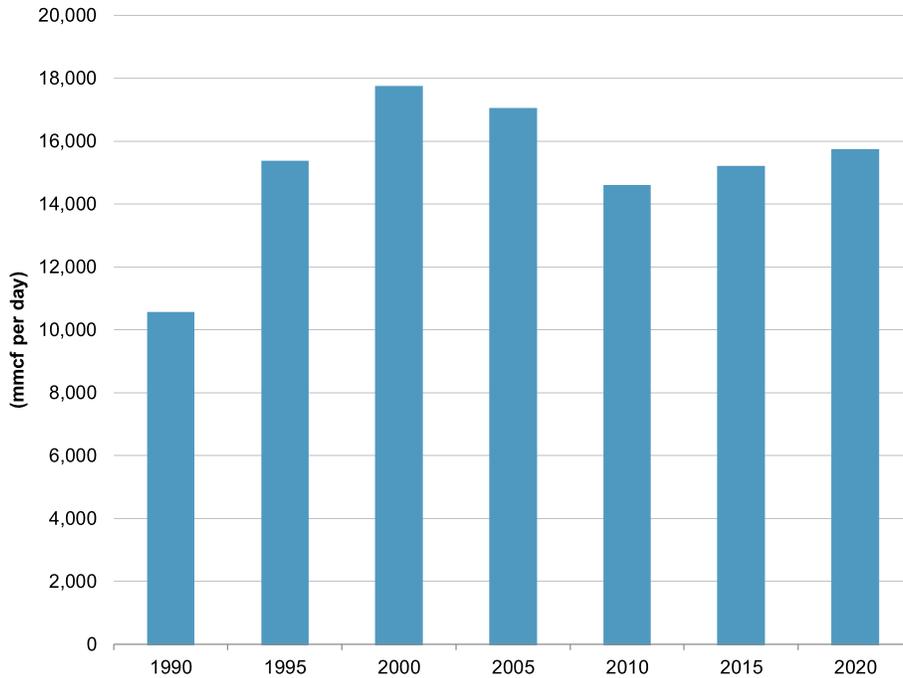


Source: Canada Energy Regulator, U.S. Energy Information Administration.

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Chart 7

Canada's Natural Gas Production

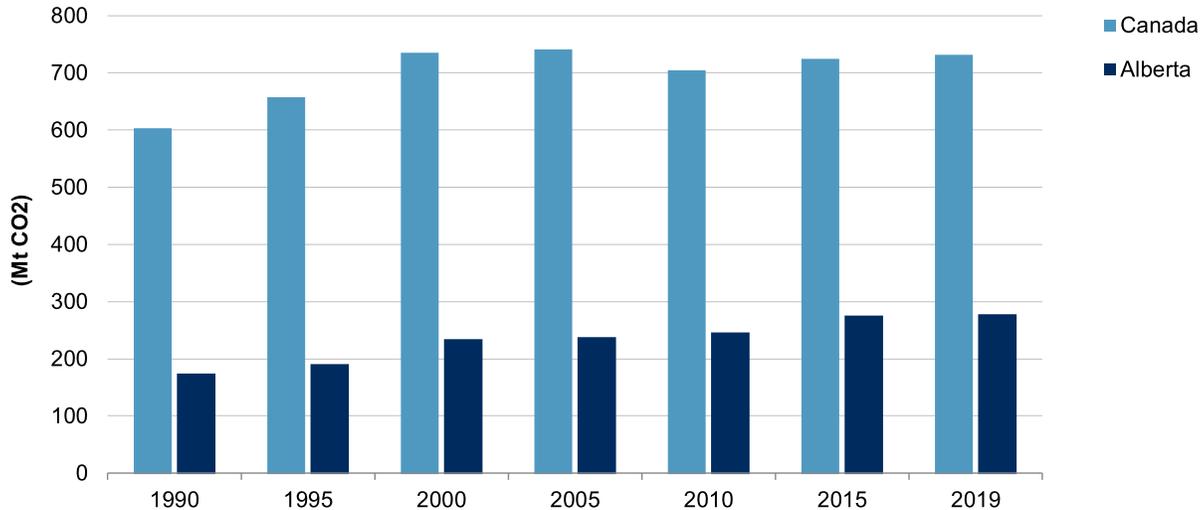


Source: Canada Energy Regulator, U.S. Energy Information Administration. mmcf--Million cubic feet.
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With oil sands production concentrated in Alberta, this province will have to play a key role in Canada achieving its Paris Climate Agreement targets. In 2019, Alberta produced 38% of Canada's total 730 Mt CO₂ eq. Canada committed to reducing emissions by 40%-45% from 2005 levels. This equates to an absolute emissions target of 400-440 Mt CO₂ eq. by 2030. In apparent acknowledgement of the need for co-ordinated action to reduce the industry's carbon footprint, Canada's largest oil sands producers recently announced their intention to work together to reduce GHG emissions. On June 9, 2021, the four investment-grade rated Canadian oil and gas companies and MEG Energy Corp., which collectively produce about 90% of the production from the oil sands fairway, announced they had formed the Oil Sands Pathways Net Zero Alliance, with an objective of reaching net zero emissions by 2050. This unprecedented collaboration highlights the importance of the oil and gas industry's role in Canada's ability to achieve its emissions reduction targets.

Chart 8

Canada Total Greenhouse Gas Emissions 1990-2019



Source: Government of Canada. MT CO₂--Megatonnes of carbon dioxide.

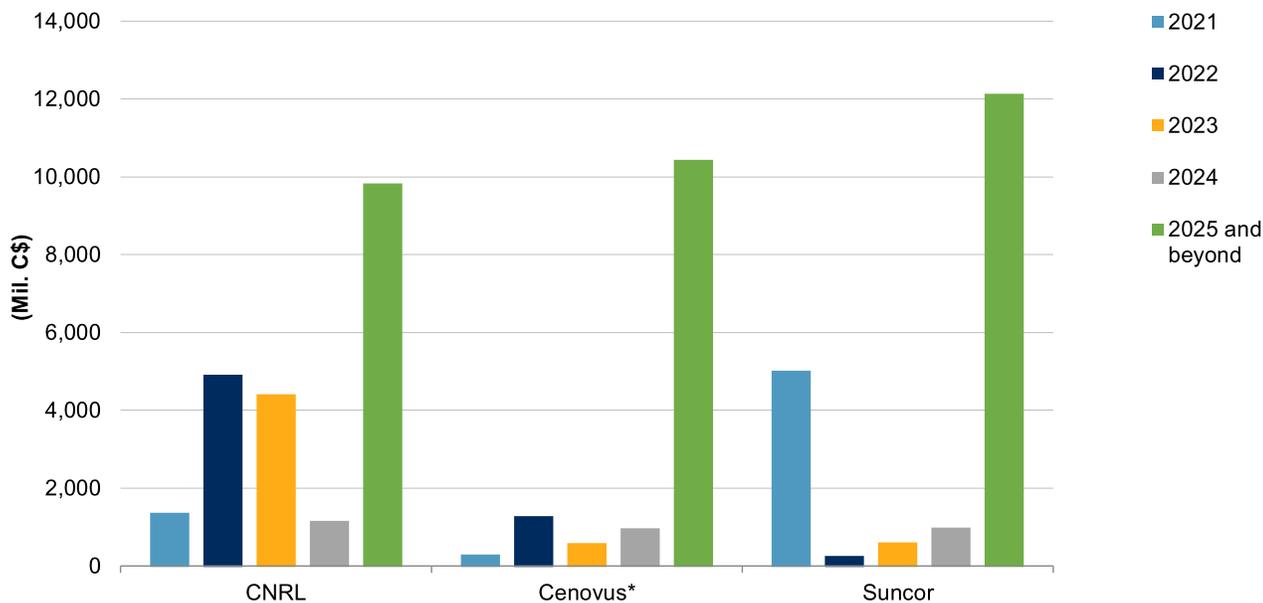
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What if recent financing trends continue?

As illustrated in chart 9, CNRL, Cenovus, and Suncor have total debt of about C\$13 billion maturing in 2021 and 2022; all three have publicly committed to continued debt reduction, so S&P Global Ratings expects a meaningful amount of these debt maturities should be repaid rather than refinanced. In the first quarter of 2021, CNRL and Suncor repaid a total of about C\$2.3 billion. Although we estimate CNRL, Cenovus, and Suncor will generate positive discretionary cash flow during this period, under our current oil and gas price assumptions, our projected positive discretionary cash flow will not be sufficient to fully repay all upcoming maturities. If hydrocarbon prices outperform our assumptions, these companies should generate greater free cash flow, and accelerate debt reduction.

Chart 9

Canadian Investment-Grade Oil And Gas Companies -- Debt Maturity Schedule



*Cenovus' debt maturities are as of March 31, 2021. Suncor's and CNRL's are both as of Dec. 31, 2021.

Source: Company reports.

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Beyond S&P Global Ratings' current 2021-2023 forecast period, the Canadian investment-grade rated oil and gas companies have sizable debt maturities. Collectively, CNRL, Cenovus, and Suncor have more than C\$32 billion in debt maturing after 2024. If the bond pricing trends observed over the past few years persist in the future, as the energy transition continues to influence bond pricing and yields, financing costs will continue rising. If these medium- and longer-term debt maturities exceed free cash flow generation or funds committed to debt reduction, we anticipate refinancing costs for oil and gas issuers will remain higher than the broader non-financial issuer universe (see chart 1). Furthermore, the observed trend of decreasing bond tenor (see chart 3) would decrease weighted-average debt maturities and weaken capital structures, if investors perceive increasing credit risk associated with environmental risks.

ESG Factors Are An Increasingly Important Driver For North American Midstream Companies

While at first glance it might appear that the upstream industry is the main focus of many ESG stakeholders, it certainly isn't the only one. The midstream industry counts oil and natural gas producers as key customers, processing, transporting, and storing hydrocarbons for the ultimate end user downstream. Midstream energy companies also are addressing many of the same environmental and social issues, including reducing GHG emissions, being a responsible community partner, and addressing climate change and the energy transition, which is a threat to

longer-term organic growth.

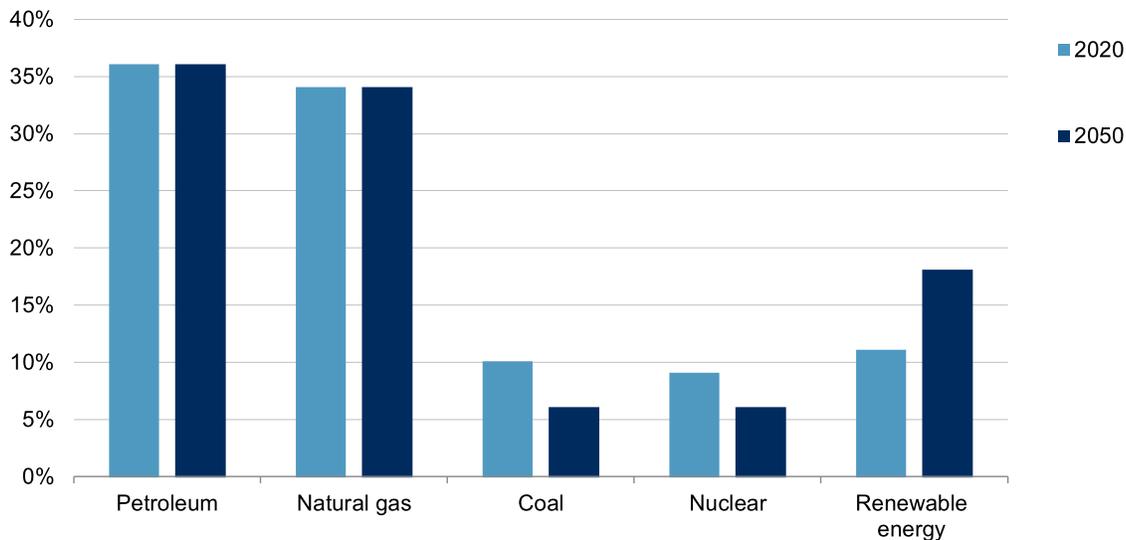
Community activism and increased regulations and policy changes contributed to two high-profile pipeline project cancellations: TC Energy Corp.'s Keystone XL, which was to transport 830,000 barrels of crude per day from the Canadian oil sands to U.S. refineries on the Gulf Coast; and the Atlantic Coast Pipeline (APC), a 1.5 billion cubic feet per day natural gas pipeline that was cancelled by Dominion Energy and Duke Energy in 2020, after a six year delay and a doubling of costs to US\$8 billion from about US\$4.5 billion. In the case of APC, the utility sponsors cancelled the project despite a 7-2 U.S. Supreme Court decision that upheld the essential permit from the U.S. Forest Service, which the sponsors stated reflected the increasing legal uncertainty that large-scale energy infrastructure development is faced with in the U.S. Another natural gas pipeline project in Appalachia, the Mountain Valley Pipeline, has faced regulatory and legal challenges related to federal permits that have pushed its in-service date to summer 2022 from the initial date of late 2018 and a cost increase of about US\$2.7 billion for a total cost of US\$6.2 billion.

That said, midstream companies are striking a balance between their traditional business and low-carbon energy pursuits. The reality is, in our opinion, that petroleum and natural gas will remain a significant part of U.S. energy consumption for years to come as the industry starts a slow march to clean energy sources. According to the EIA's annual energy outlook, petroleum and natural gas accounted for 70% of total energy consumption in the U.S. in 2020. The EIA predicts that by 2050, this will be relatively unchanged, as renewable energy increases to 18% in 2050 from about 10% in 2020, mostly at the expense of nuclear and coal. We believe there will be a need for natural gas not only as a primary fuel but also for backing up renewable sources when they are intermittently offline. We also think it could take decades before electric vehicles make up a meaningful part of the U.S. automobile fleet.

The demand for oil and natural gas won't fall substantially in the next few years.

Chart 10

U.S. Primary Energy Consumption By Energy Source



Source: Annual Energy Outlook 2021, U.S. Energy Information Administration.
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This leads midstream companies to perform a delicate balancing act of being part of the solution to reduce methane emissions and avoid spills and other potential environmental hazards, while at a minimum laying the groundwork for alternative energy investments in the future. The difficulty of building greenfield energy infrastructure assets will make existing assets more valuable, in our opinion, and likely lead to some industry consolidation as the stronger, more diversified companies look to solidify their competitive positions and provide options for their customers.

A path to cleaner energy investment

We expect to see a continued focus on midstream initiatives that could develop and result in low-carbon investments or reduce their carbon footprint in the next few years. TC Energy Corp. recently issued a non-binding request for information to identify investment opportunities in wind energy that could generate up to 620 megawatts of zero-carbon energy to electrify a portion of its pipeline assets in the U.S. TC Energy views this as an opportunity to leverage its existing power business which includes combined capacity of 4,200 megawatts in Canada. The Williams Cos. Inc. signed a memorandum of understanding with Microsoft to transform Williams' energy infrastructure using digital technology to advance the company's net zero emissions goals. Williams set a commitment of 56% absolute reduction in companywide GHG emissions by 2030 and a path to net zero by 2050. Kinder Morgan Inc. formed an Energy Transition Ventures Group to pursue commercial opportunities like carbon capture and sequestration, hydrogen production, and renewable diesel production. In our view, midstream companies will seek to leverage their existing asset base for use in the future renewable energy economy.

With industry headwinds increasing, how the midstream industry pivots to cleaner energy while sustaining the traditional business that accounts for almost all the current industry EBITDA will be a key credit factor for ratings. We revised our industry risk score in January 2021 to reflect increasing environmental and social risks posed by climate change and GHG emissions, and the threat these risks pose to the future production and use of hydrocarbons over the long-term. The industry risk change itself did not result in any ratings changes, mainly because most midstream companies have contracted cash flow and the industry had stronger balance sheets going into the recent downturn caused by the COVID-19 pandemic. However, we believe the existing midstream infrastructure was built to support the expectation of higher levels of production and end-user demand, which is under threat, and might result in lower profits when rates and fees are negotiated in the future. How companies address these challenges will be paramount to our view of industry creditworthiness.

Credit Risk Is Rising For North American Energy Companies

To varying degrees, concerns primarily regarding the 'E' factor in ESG have compelled rising activism from institutional debt and equity investors, reduced lending from banks, and increased government regulation during the past few years. Whether the success of these historic actions will trigger further stakeholder activism is not yet certain, but appears likely. Nevertheless, S&P Global Ratings perceives credit risk for energy companies is rising, which has already led to negative rating actions and could hamper credit rating upside. On the other hand, many energy companies have publicly committed to continued debt reduction, which if executed, could temper the potential adverse effects of evolving industry risks in the near term.

Commitment to change could help offset credit risk.

This report does not constitute a rating action.

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ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 31 of 164

Question(s):

Concentric states the following on the referenced page:

...the OEB is not bound by the findings of utility regulators in Massachusetts, Colorado, California, or New York. However, these proceedings illuminate the degree to which the operating environment for gas distribution utilities has changed.

In light of these developments, how have approved common equity ratios and allowed ROEs changed for gas distribution utilities in these jurisdictions? Please explain, and provide references, as necessary.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

The table below shows the most recent returns for gas distribution utilities in these jurisdictions as compared to the previous rate decision, based on data from Regulatory Research Associates. As the table shows, the authorized ROE for gas companies in these jurisdictions range from 8.80% to 10.20%, while the allowed equity ratios range from 48.0% to 54.8%. These equity ratios are 12 to 18.8 percentage points higher than Enbridge Gas's deemed equity ratio of 36.0%. Concentric has not performed a review of the extent to which regulatory investigations of the role of natural gas distribution companies have been reflected in approved common equity ratios or allowed ROEs in the jurisdictions noted, and evidence of such consideration would depend on the timing of the associated regulatory orders, whether the cases were fully litigated or settled, and the disclosure of the regulator of the specific business risks considered in their analyses.

Company	State	Decision Date	Authorized ROE	Equity Ratio
San Diego Gas and Electric	CA	11/3/22	10.20%	52.00%
San Diego Gas and Electric	CA	10/26/17	10.20%	52.00%
Southern California Gas	CA	12/15/22	9.80%	52.00%
Southern California Gas	CA	10/30/17	10.20%	52.00%
Public Service Co. of Colorado	CO	10/25/22	9.20%	53.78%
Public Service Co. of Colorado	CO	12/21/18	9.35%	54.60%
Boston Gas	MA	9/30/21	9.70%	53.44%
Boston Gas	MA	9/28/18	9.50%	53.04%
Eversource Gas	MA	10/7/20	9.70%	53.25%
Eversource Gas	MA	10/7/15	9.55%	53.54%
NSTAR Gas	MA	10/30/20	9.90%	54.77%
NSTAR Gas	MA	10/30/15	9.80%	52.10%
Brooklyn Union Gas	NY	8/12/21	8.80%	48.00%
Brooklyn Union Gas	NY	12/15/16	9.00%	48.00%
Central Hudson Gas & Electric	NY	11/18/21	9.00%	50.00%
Central Hudson Gas & Electric	NY	6/17/15	9.00%	48.00%
Consolidated Edison of NY	NY	1/16/20	8.80%	48.00%
Consolidated Edison of NY	NY	1/24/17	9.00%	48.00%
KeySpan Gas East	NY	8/12/21	8.80%	48.00%
KeySpan Gas East	NY	12/15/16	9.00%	48.00%
Niagara Mohawk Power	NY	1/20/22	9.00%	48.00%
Niagara Mohawk Power	NY	3/15/18	9.00%	48.00%
Orange and Rockland Utilities	NY	4/14/22	9.20%	48.00%
Orange and Rockland Utilities	NY	10/15/15	9.00%	48.00%

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 32 of 164

Question(s):

Concentric states the following on the referenced page:

“While Enbridge benefits from the estimated 5-basis point “greenium,” the SLB issuance also includes a 50-basis point penalty if Enbridge fails to meet the GHG emission reduction milestones.”

- a) Please provide the source document for this statement.
- b) Please provide the methodology used for the estimation of the “greenium” (5 basis points) and the penalty (50 basis points”).

Response:

- a) Please see Attachment 1 for the short form prospectus.
- b) At the time of the offering, investors looked to Enbridge’s 3.125% 2029 notes and 4.000% 2049 bonds to determine fair value. As such, the “greenium” on the 12 Year tranche attributed to the Company’s SLB framework was determined to be negative 5 bps.

In 2021 the average step up per year of maturity on SLB’s was ~10bps per year which informed Enbridge’s approach to incorporating a 50bps step up on its SLB emissions KPI.

- $50\text{bps} * 2.5 \text{ years of coupon step ups} = 125\text{bps cumulative step up}$
- $125\text{bps}/12.1 \text{ year maturity} = \sim 10\text{bps}$

This 10bps Step up/Maturity trend for SLB’s has continued post 2021.

Filed Pursuant to Rule 424(b)(5)
Registration No. 333-231553

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered	Maximum Offering Price Per Security	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee ⁽¹⁾⁽²⁾
2.500% Sustainability-Linked Senior Notes due 2033	\$1,000,000,000	99.584%	\$995,840,000.00	\$108,646.14
Guarantees of 2.500% Sustainability-Linked Senior Notes due 2033	—	—	—	(3)
3.400% Senior Notes due 2051	\$500,000,000	99.754%	\$498,770,000.00	\$54,415.81
Guarantees of 3.400% Senior Notes due 2051	—	—	—	(3)

- (1) Calculated in accordance with Rule 457(r) of the Securities Act of 1933, as amended. The total registration fee due for this offering is US\$163,061.95.
- (2) Pursuant to Rule 457(p) under the Securities Act of 1933, as amended, US\$730,170 was previously paid by the Registrant in connection with the registration of unissued securities under the Registrant's F-10 shelf registration statement (File No. 333-220471), filed on September 15, 2017 and under the Registrant's F-3 shelf registration statement (File No. 333-221507), filed on November 13, 2017 and became effective on November 22, 2017, and was carried forward to the Registrant's S-3 shelf registration statement (File No. 333-223094), filed on February 20, 2018, of which US\$549,645 was further carried forward to the Registrant's S-3 shelf registration statement (File No. 333-231553), filed on May 17, 2019. The US\$163,061.95 filing fee with respect to the 2.500% Sustainability-Linked Senior Notes due 2033 and 3.400% Senior Notes due 2051 offered and sold hereby pursuant to this registration statement is partially offset against those filing fees carried forward in the amount of US\$9,315. A filing fee of US\$153,746.95 is being paid in connection with this offering.
- (3) Pursuant to Rule 457(n), no separate fee is payable with respect to the guarantees of the notes.

Prospectus Supplement
June 24, 2021
(To Prospectus Dated May 17, 2019)

US\$ 1,500,000,000



Enbridge Inc.

US\$1,000,000,000 2.500% Sustainability-Linked Senior Notes due 2033
US\$500,000,000 3.400% Senior Notes due 2051

Fully and Unconditionally Guaranteed by
Enbridge Energy Partners, L.P. and Spectra Energy Partners, LP

We are offering US\$1,000,000,000 aggregate principal amount of 2.500% Sustainability-Linked Senior Notes due 2033 (the "Sustainability-Linked Senior Notes") and US\$500,000,000 aggregate principal amount of 3.400% Senior Notes due 2051 (the "Senior Notes" and, together with the Sustainability-Linked Senior Notes, the "Notes"). The Sustainability-Linked Senior Notes will mature on August 1, 2033 and the Senior Notes will mature on August 1, 2051. The Sustainability-Linked Senior Notes will bear interest at the rate of 2.500% per annum (the "Initial Sustainability-Linked Interest Rate"), subject to increase as described in the immediately following paragraph, payable semi-annually in arrears on February 1 and August 1, beginning on February 1, 2022, as described under "Description of the Notes and the Guarantees — Principal and Interest". The Senior Notes will bear interest at the rate of 3.400% per annum, payable semi-annually in arrears on February 1 and August 1, beginning on February 1, 2022, as described under "Description of the Notes and the Guarantees — Principal and Interest".

From and including August 1, 2026 (or if such day is not a Business Day, the next succeeding Business Day (as defined herein)) (the "First Step Up Date"), the interest rate payable on the Sustainability-Linked Senior Notes shall be increased by 5 basis

points to 2.550% per annum (the “First Step Up Interest Rate”), unless Enbridge (as defined herein) has notified the Trustee (as defined herein) in writing on or before the date that is 15 days prior to August 1, 2026 that it has determined that Enbridge has satisfied the Percentage of Racial & Ethnic Diversity Performance Target (as defined herein) and received a related Assurance Letter (as defined herein) from the External Verifier (as defined herein). From and including August 1, 2031 (or if such day is not a Business Day, the next succeeding Business Day) (the “Second Step Up Date”), the interest rate payable on the Sustainability-Linked Senior Notes shall be increased by 50 basis points to (x) 3.050% per annum if the First Step Up Interest Rate was in effect immediately prior to the Second Step Up Date or (y) 3.000% per annum if the Initial Sustainability-Linked Interest Rate was in effect immediately prior to the Second Step Up Date, unless Enbridge has notified the Trustee in writing on or before the date that is 15 days prior to August 1, 2031 that it has determined that Enbridge has satisfied the GHG Emissions Performance Target (as defined herein) and received a related Assurance Letter from the External Verifier.

We may redeem some or all of the Notes of each series at any time at the applicable redemption prices and subject to the conditions described under “Description of the Notes and the Guarantees — Redemption — Optional Redemption”. We may also redeem any series of the Notes in whole, at any time, if certain changes affecting Canadian withholding taxes occur. See “Description of the Notes and the Guarantees — Redemption — Tax Redemption”.

The Notes will be our direct, unsecured and unsubordinated obligations and will rank equally with all of our existing and future unsecured and unsubordinated debt. See “Description of the Notes and the Guarantees — General”. The guarantees of the Notes will be direct, unsecured and unsubordinated obligations of Enbridge Energy Partners, L.P. and Spectra Energy Partners, LP (together, the “Guarantors”), each an indirect, wholly-owned subsidiary of Enbridge, and will rank equally with all of the applicable Guarantor’s existing and future unsecured and unsubordinated debt. See “Description of the Notes and the Guarantees — Guarantees”.

The Notes are a new issue of securities with no established trading market. We do not intend to apply for listing of the Notes on any securities exchange.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The enforcement by investors of civil liabilities under United States federal securities laws may be affected adversely by the fact that we are incorporated and organized under the laws of Canada, that many of our officers and directors are residents of Canada, that some of the experts named in this prospectus supplement or the accompanying prospectus are residents of Canada, and that a substantial portion of our assets and said persons are located outside the United States.

Investing in the Notes involves risks. See [“Risk Factors”](#) beginning on page S-8 of this prospectus supplement.

	Per Sustainability-Linked Senior Note		Per Senior Note		Total
		Total		Total	
Public offering price	99.584%	US\$ 995,840,000	99.754%	US\$ 498,770,000	
Underwriting discounts and commissions	0.675%	US\$ 6,750,000	0.875%	US\$ 4,375,000	
Proceeds to us (before expenses)	98.909%	US\$ 989,090,000	98.879%	US\$ 494,395,000	

Interest on the Notes will accrue from June 28, 2021.

The underwriters expect to deliver the Notes to the purchasers in book-entry form through the facilities of The Depository Trust Company and its direct and indirect participants, including Euroclear Bank SA/NV, as operator of the Euroclear System (“Euroclear”), and Clearstream Banking, *société anonyme* (“Clearstream”), on or about June 28, 2021.

Sustainability-Linked Bond Structuring Advisor and Joint Book-Running Manager

Credit Suisse

Joint Book-Running Managers

BofA Securities

Citigroup

J.P. Morgan

SMBC Nikko

Barclays

Mizuho Securities

Truist Securities

Wells Fargo Securities

Co-Managers

HSBC

MUFG

Credit Agricole CIB

Deutsche Bank Securities

SOCIETE GENERALE

KeyBanc Capital Markets

Loop Capital Markets

AmeriVet Securities

Roberts & Ryan

**IMPORTANT NOTICE ABOUT INFORMATION IN
THIS PROSPECTUS SUPPLEMENT AND THE ACCOMPANYING PROSPECTUS**

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of the Notes. The second part, the accompanying prospectus, gives more general information, some of which may not apply to the Notes. The accompanying prospectus, dated May 17, 2019, is referred to as the “prospectus” in this prospectus supplement.

We are responsible for the information contained and incorporated by reference in this prospectus supplement, the accompanying prospectus and any related free writing prospectus we prepare or authorize. We have not authorized anyone to give you any other information, and we take no responsibility for any other information that others may give you. We are not making an offer of the Notes in any jurisdiction where the offer is not permitted. You should bear in mind that although the information contained in, or incorporated by reference in, this prospectus supplement or the accompanying prospectus is intended to be accurate as of the date on the front of such documents, such information may also be amended, supplemented or updated by the subsequent filing of additional documents deemed by law to be or otherwise incorporated by reference into this prospectus supplement or the accompanying prospectus and by any subsequently filed prospectus amendments.

If the description of the Notes varies between this prospectus supplement and the prospectus, you should rely on the information in this prospectus supplement.

In this prospectus supplement, all capitalized terms and acronyms used and not otherwise defined herein have the meanings provided in the prospectus. In this prospectus supplement, the prospectus and any document incorporated by reference, unless otherwise specified or the context otherwise requires, all dollar amounts are expressed in Canadian dollars or “\$”. “U.S. dollars” or “US\$” means the lawful currency of the United States. Unless otherwise indicated, all financial information included in this prospectus supplement, the prospectus and any document incorporated by reference is determined using U.S. GAAP. “U.S. GAAP” means generally accepted accounting principles in the United States. Except as set forth under “Description of the Notes and the Guarantees” and unless otherwise specified or the context otherwise requires, all references in this prospectus supplement, the prospectus and any document incorporated by reference to “Enbridge”, the “Corporation”, “we”, “us” and “our” mean Enbridge Inc. and its subsidiaries.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

The prospectus and this prospectus supplement, including the documents incorporated by reference into the prospectus and this prospectus supplement, contain both historical and forward-looking statements within the meaning of Section 27A of the U.S. Securities Act of 1933, as amended (the “U.S. Securities Act”), and Section 21E of the U.S. Securities Exchange Act of 1934, as amended (the “U.S. Exchange Act”), and forward-looking information within the meaning of Canadian securities laws (collectively, “forward-looking statements”). This information has been included to provide readers with information about the Corporation and its subsidiaries and affiliates, including management’s assessment of the Corporation’s and its subsidiaries’ future plans and operations. This information may not be appropriate for other purposes. Forward-looking statements are typically identified by words such as “anticipate”, “believe”, “estimate”, “expect”, “forecast”, “intend”, “likely”, “plan”, “project”, “target”, “goal” and similar words suggesting future outcomes or statements regarding an outlook. Forward-looking information or statements included or incorporated by reference in the prospectus and this prospectus supplement include, but are not limited to, statements with respect to the following: the Corporation’s corporate vision and strategy, including strategic priorities and enablers; the COVID-19 pandemic and the duration and impact thereof; energy intensity and related environment, social and governance (“ESG”) matters; ESG goals and targets, including those related to greenhouse gas (“GHG”) emissions reduction, diversity and inclusion and ESG reporting; the Corporation’s plans to achieve its ESG goals and targets and to monitor and report its progress thereon; expected supply of, demand for, and prices of crude oil, natural gas, natural gas liquids (“NGL”), liquified natural gas and renewable energy; energy transition; anticipated utilization of the Corporation’s existing assets; expected earnings before interest, income taxes and depreciation and amortization (“EBITDA”); expected earnings/(loss); expected future cash flows and distributable cash flow; dividend growth and payout policy; financial strength and flexibility; expectations on sources of liquidity and sufficiency of financial resources; expected strategic priorities and performance of the Liquids Pipelines, Gas Transmission and Midstream, Gas Distribution and Storage, Renewable Power Generation and Energy Services businesses; expected costs related to announced projects and projects under construction; expected in-service dates for announced projects and projects under construction and for maintenance; expected capital expenditures, investment capacity and capital allocation priorities; expected equity funding requirements for the Corporation’s commercially secured growth program; expected future growth and expansion opportunities; expectations about the Corporation’s joint venture partners’ ability to complete and finance projects under construction; expected closing of acquisitions and dispositions and the timing thereof; expected benefits of transactions, including the realization of efficiencies, synergies and cost savings; expected future actions of regulators and courts; toll and rate cases discussions and filings, including Mainline System contracting; anticipated competition; United States Line 3 Replacement Program, including anticipated in-service dates and capital costs; Line 5 dual pipelines and related litigation and other matters; and this offering, including the closing date thereof, the expected use of proceeds and the Corporation’s intention to not list the Notes on any stock exchange or other market.

Although the Corporation believes these forward-looking statements are reasonable based on the information available on the date such statements are made and processes used to prepare the information, such statements are not guarantees of future performance and readers are cautioned against placing undue reliance on forward-looking statements. By their nature, these statements involve a variety of assumptions, known and unknown risks and uncertainties and other factors, which may cause actual results, levels of activity and achievements to differ materially from those expressed or implied by such statements. Material assumptions include assumptions about the following: the COVID-19 pandemic and the duration and impact thereof; the expected supply of and demand for crude oil, natural gas, NGL and renewable energy; prices of crude oil, natural gas, NGL and renewable energy; anticipated utilization of assets; exchange rates; inflation; interest rates; availability and price of labor and construction materials; operational reliability; customer and regulatory approvals; maintenance of support and regulatory approvals for the Corporation’s projects; anticipated in-service dates; weather; the timing and closing of acquisitions and dispositions and of this offering; the realization of anticipated benefits and synergies of transactions; governmental legislation; litigation; estimated future dividends and impact of the Corporation’s dividend policy on its future cash flows; the Corporation’s credit ratings; capital project funding; hedging program; expected EBITDA; expected earnings/(loss); expected future cash flows; and expected distributable cash flow. Assumptions regarding the expected supply of and demand for crude oil, natural gas, NGL and renewable energy, and the prices of these commodities, are material to and underlie all forward-looking statements, as they may impact current and future levels of demand for the Corporation’s services. Similarly, exchange rates, inflation, interest rates and the COVID-19 pandemic impact the economies and business environments in which the Corporation operates and may impact levels of demand for the Corporation’s services and cost of inputs, and are therefore inherent in all forward-looking statements. Due to the interdependencies and correlation of these macroeconomic factors, the impact of any one assumption on a forward-looking statement cannot be determined with certainty, particularly with respect to expected EBITDA, expected earnings/(loss), expected future cash flows, expected distributable cash flow or estimated future dividends. The most relevant assumptions associated with forward-looking statements regarding announced projects and projects under construction, including estimated completion dates and expected capital expenditures, include the following: the availability and price of labor and construction materials; the effects of inflation and foreign exchange rates on labor and material costs; the effects of interest rates on borrowing costs; the impact of weather and customer, government, court and regulatory approvals on construction and in-service schedules and cost recovery regimes; and the COVID-19 pandemic and the duration and impact thereof.

The Corporation's forward-looking statements are subject to risks and uncertainties pertaining to the successful execution of the Corporation's strategic priorities, operating performance, legislative and regulatory parameters; litigation, including with respect to the Dakota Access Pipeline and the Line 5 dual pipelines; acquisitions, dispositions and other transactions and the realization of anticipated benefits therefrom; the Corporation's dividend policy; project approval and support; renewals of rights-of-way; weather; economic and competitive conditions; public opinion; changes in tax laws and tax rates; exchange rates; interest rates; commodity prices; political decisions; the supply of, demand for and prices of commodities; and the COVID-19 pandemic, including but not limited to those risks and uncertainties discussed in the prospectus, this prospectus supplement and in documents incorporated by reference into the prospectus and this prospectus supplement. The impact of any one risk, uncertainty or factor on a particular forward-looking statement is not determinable with certainty as these are interdependent and the Corporation's future course of action depends on management's assessment of all information available at the relevant time. Except to the extent required by applicable law, the Corporation assumes no obligation to publicly update or revise any forward-looking statement made in the prospectus and this prospectus supplement or otherwise, whether as a result of new information, future events or otherwise. All forward-looking statements, whether written or oral, attributable to the Corporation or persons acting on the Corporation's behalf, are expressly qualified in their entirety by these cautionary statements.

For more information on forward-looking statements, the assumptions underlying them, and the risks and uncertainties affecting them, see "Note Regarding Forward-Looking Statements" in the prospectus and "Risk Factors" in this prospectus supplement and the prospectus.

WHERE YOU CAN FIND MORE INFORMATION

The Corporation is subject to the information requirements of the U.S. Exchange Act, and in accordance therewith files reports and other information with the United States Securities and Exchange Commission (the "SEC"). Such reports and other information are available on the SEC's website at www.sec.gov and the Corporation's website at www.enbridge.com. The information contained on or accessible from the Corporation's website does not constitute a part of this prospectus and is not incorporated by reference herein. Prospective investors may read and download the documents the Corporation has filed with the SEC's Electronic Data Gathering and Retrieval system at www.sec.gov.

We have filed with the SEC a registration statement on Form S-3 relating to certain securities, including the Notes offered by this prospectus supplement. This prospectus supplement and the accompanying prospectus are a part of the registration statement and do not contain all the information in the Registration Statement. Whenever a reference is made in this prospectus supplement or the accompanying prospectus to a contract or other document, the reference is only a summary and you should refer to the exhibits that are a part of the Registration Statement for a copy of the contract or other document. You may review a copy of the Registration Statement through the SEC's website.

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference the information we file with the SEC. This means that we can disclose important information to you by referring to those documents and later information that we file with the SEC. The information that we incorporate by reference is an important part of this prospectus supplement and the accompanying prospectus. We incorporate by reference the following documents and any future filings that we make with the SEC under Sections 13(a), 13(c) and 15(d) of the U.S. Exchange Act, as amended, until the termination of the offering under this prospectus supplement:

- [Our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, filed on February 12, 2021, as amended by Amendment No. 1 on Form 10-K/A filed on March 8, 2021;](#)
- [Our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2021, filed on May 7, 2021; and](#)
- Our Current Reports on Form 8-K filed on [February 19, 2021](#), [March 8, 2021](#), [March 24, 2021](#), [May 6, 2021](#) and [June 21, 2021](#).

Any statement contained in this prospectus supplement or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. The modifying or superseding statement need not state that it has modified or superseded a prior statement or include any other information set forth in the document that it modifies or supersedes. The making of a modifying or superseding statement is not to be deemed an admission for any purposes that the modified or superseded statement, when made, constituted a misrepresentation, an untrue statement of a material fact or an omission to state a material fact that is required to be stated or that is necessary to make a statement not misleading in the light of the circumstances in which it was made. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement.

Copies of the documents incorporated herein by reference (other than exhibits to such documents, unless such exhibits are specifically incorporated by reference in such documents) may be obtained on request without charge from the Corporate Secretary of Enbridge Inc., Suite 200, 425 - 1st Street S.W., Calgary, Alberta, Canada T2P 3L8 (telephone 1-403-231-3900). Documents that we file with or furnish to the SEC are also available on the SEC's website at www.sec.gov. This site contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. The information on that website is not part of this prospectus supplement.

SUMMARY

This summary highlights information contained elsewhere in this prospectus supplement and the accompanying prospectus. It is not complete and may not contain all of the information that you should consider before investing in the Notes. You should read this entire prospectus supplement and the accompanying prospectus carefully.

The Corporation

Enbridge is a leading North American energy infrastructure company. The Corporation's core businesses include Liquids Pipelines, which transports approximately 25% of the crude oil produced in North America; Gas Transmission and Midstream, which transports approximately 20% of the natural gas consumed in the United States; Gas Distribution and Storage, which serves approximately 3.8 million retail customers in Ontario and Quebec; and Renewable Power Generation, which generates approximately 1,763 megawatts of net renewable power in North America and Europe.

Enbridge is a public company, with common shares that trade on both the Toronto Stock Exchange and the New York Stock Exchange under the symbol "ENB". The Corporation was incorporated under the *Companies Ordinance* of the Northwest Territories on April 13, 1970 and was continued under the *Canada Business Corporations Act* on December 15, 1987. Enbridge's principal executive offices are located at Suite 200, 425 - 1st Street S.W., Calgary, Alberta, Canada T2P 3L8, and its telephone number is 1-403-231-3900.

The Sustainability Performance Targets for the Sustainability-Linked Senior Notes

On June 17, 2021, the Corporation adopted a framework relating to its strategy in respect of sustainability-linked bonds (the "SLB Framework") in accordance with the Sustainability-Linked Bonds Principles 2020 (the "SLBP") administered by the International Capital Market Association. Based on the SLB Framework, the Corporation has selected the following key performance indicators and associated sustainability targets for the Sustainability-Linked Senior Notes:

GHG Intensity Level. The Corporation has established a target of achieving a reduction in GHG Intensity (as defined herein) of 35% by the year 2030, as compared to a 2018 baseline year. "GHG Intensity" is defined as the Absolute GHG Emissions per petajoule of energy delivered (throughput) by assets under the operational control of the Corporation and its Subsidiaries, which currently includes assets in the Liquids Pipelines, Gas Transmission and Midstream and Gas Distribution and Storage business units, in a fiscal year, as calculated at the end of such fiscal year. "Absolute GHG Emissions" includes both Scope 1 Emissions and Scope 2 Emissions for the applicable period. Enbridge has adopted the operational control approach (as described in the GHG Protocol (as defined under "Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up")) for calculating GHG Intensity, but reserves the right before the Environmental SPT Observation Date (as defined under "Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up") to switch to an equity share approach (as described in the GHG Protocol) to calculating GHG Intensity and Absolute GHG Emissions and adjust the 2018 baseline GHG Intensity measure accordingly in good faith.

Scope 1 Emissions result directly from the Corporation's operations, such as emissions from combustion in compressors, boilers or vehicles, as well as emissions from processing equipment (*i.e.*, fugitive and venting emissions). Scope 1 Emissions are calculated using activity data (*e.g.*, fuel consumption data from meters, operational data from work management systems, measured emissions, and engineering estimates for venting) multiplied by an operationally derived emission factor or applicable regulated default emission factors. Scope 2 Emissions result from the off-site generation of electricity, which the Corporation buys and consumes. Scope 2 emissions are calculated using current U.S. Environmental Protection Agency's Emissions & Generation Resource Integrated Database factors (for U.S. facilities) and Environment and Climate Change Canada's National Inventory Report factors (for Canadian facilities).

The Corporation’s historical GHG Intensity for the years 2018, 2019 and 2020 is shown in the table below.

Year	Historical GHG Intensity		
	2018	2019	2020
GHG Emissions Intensity (tCO₂e/PJ)^{(1) (2) (3)}	835	639	625

(1) Emissions are reported based on the operational control approach

(2) Emissions data is collected for CO₂, CH₄ and N₂O in metric tonnes and converted to tonnes of CO₂ equivalent. Data is not available for HFCs, PFCs or SF6 and is expected to be immaterial.

(3) “tCO₂e/PJ” refers to metric tonnes of carbon dioxide equivalent per energy delivered in petajoules.

Representation of Racial and Ethnic Diversity as Percentage of Workforce. The Corporation has established a goal of achieving a Percentage of Racial & Ethnic Diversity of 28% in its work force by December 31, 2025. “Percentage of Racial & Ethnic Diversity” is determined based on the total number of permanent employees of the Corporation who self-identify as ethnic or racial minorities divided by the total number of permanent employees of the Corporation, as calculated at the end of the relevant fiscal year. The Corporation’s historical Percentage of Racial & Ethnic Diversity for years 2018, 2019 and 2020 is shown in the table below.

Year	Historical Percentage of Racial & Ethnic Diversity		
	2018	2019	2020
Percentage of Racial & Ethnic Diversity⁽¹⁾	15.7%	18.6%	21.1%

(1) Data is representative of total permanent employees.

According to its SLB Framework, the Corporation has committed, among other things, that any additional sustainability-linked bonds to be issued by it that have (i) GHG Intensity or (ii) Percentage of Racial & Ethnic Diversity as key performance indicators and the same applicable Environmental SPT Observation Date or Social SPT Observation Date, respectively, must utilize a SPT (as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”) of equal or greater ambition. At the time of issuance of such a sustainability-linked bond with a SPT of greater ambition, any outstanding Sustainability-Linked Senior Notes, will have their equivalent SPT(s) adjusted to reflect such greater ambition without the need to obtain the consent of Noteholders (as defined under “Risk Factors — Risks Related to the Notes”).

For each fiscal year ending on December 31 from and including the fiscal year ending December 31, 2021, the Corporation intends to publish its annual sustainability report (the “Sustainability Report”) on its website, which discloses, among other things, (i) the GHG Intensity and (ii) the Percentage of Racial & Ethnic Diversity. The Corporation intends to secure a limited assurance by the External Verifier (as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”) under the ISAE 3000 assurance standard (or equivalent) for its GHG Intensity and Percentage of Racial & Ethnic Diversity.

The SLB Framework was reviewed by an independent consultant, which provided a second party opinion (the “Second Party Opinion”) on the relevance and scope of the selected key performance indicators and the associated sustainability performance targets and also confirmed in the Second Party Opinion the alignment with the SLBP and the stated definition of sustainability-linked bonds within the SLBP .

For the avoidance of doubt, none of the SLB Framework, the Second Party Opinion, any Sustainability Report or limited assurance by an External Verifier are, and none shall be deemed to be, incorporated by reference into and/or form a part of this prospectus supplement and the accompanying prospectus.

The SPTs are not applicable to the Senior Notes, or any other securities of the Corporation except to the extent expressly so provided in the relevant legal documentation governing such securities, and the Corporation makes no representation to any person, including any Noteholder, that the SPTs will be achieved. It will not be a breach or Event of Default under the Sustainability-Linked Senior Notes if a SPT is not met. See “Risk Factors” for further information on the risks associated with the SPTs and the Sustainability-Linked Senior Notes.

The Offering

In this section, the terms “Corporation”, “we”, “us” or “our” refer only to Enbridge Inc. and not to its subsidiaries.

Issuer	Enbridge Inc.
Guarantors	Enbridge Energy Partners, L.P. (“EEP”) and Spectra Energy Partners, LP (“SEP” and, together with EEP, the “Guarantors”). The Guarantors are indirect, wholly-owned subsidiaries of the Corporation.
Securities Offered	US\$1,000,000,000 aggregate principal amount of 2.500% Sustainability-Linked Senior Notes due 2033 (the “Sustainability-Linked Senior Notes”). US\$500,000,000 aggregate principal amount of 3.400% Senior Notes due 2051 (the “Senior Notes” and, together with the Sustainability-Linked Senior Notes, the “Notes”).
Maturity Date	The Sustainability-Linked Senior Notes will mature on August 1, 2033. The Senior Notes will mature on August 1, 2051.
Interest Rate	<p>The Sustainability-Linked Senior Notes will bear interest at a rate of 2.500% per annum (the “Initial Sustainability-Linked Interest Rate”), subject to increase as described in the immediately following paragraph, payable semi-annually on February 1 and August 1 of each year, beginning on February 1, 2022. The Senior Notes will bear interest at a rate of 3.400% per annum, payable semi-annually on February 1 and August 1 of each year, beginning on February 1, 2022.</p> <p>From and including August 1, 2026 (or if such day is not a Business Day (as defined under “Description of the Notes and the Guarantees — General”), the next succeeding Business Day) (the “First Step Up Date”), the interest rate payable on the Sustainability-Linked Senior Notes shall be increased by 5 basis points to 2.550% per annum (the “First Step Up Interest Rate”) unless we have notified the Trustee in writing on or before the date that is 15 days prior to August 1, 2026 (the “First Notification Due Date”) in the form of a Satisfaction Notification (as defined under “Description of the Notes and Guarantees — Principal and Interest — Interest Step Up”) that we have determined that we have satisfied the Percentage of Racial & Ethnic Diversity Performance Target (as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”) and received a related Assurance Letter (as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”) from the External Verifier (as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”). From and including August 1, 2031 (or if such day is not a Business Day, the next succeeding Business Day) (the “Second Step Up Date”), the interest rate payable on the Sustainability-Linked Senior Notes shall be increased by 50 basis points to (x) 3.050% per annum (the “Fully Adjusted Second Step Up Interest Rate”) if the First Step Up Interest Rate was in effect immediately prior to the Second Step Up Date or (y) 3.000% per annum (the “Partially Adjusted Second Step Up Interest Rate”) if the Initial Sustainability-Linked Interest Rate was in effect immediately prior to the Second Step Up Date, unless we have notified the Trustee in writing on or before the date that is 15 days prior to August 1, 2031 (the “Second Notification Due Date” and, with the First Notification Due Date, each a “Notification Due Date”) in the form of a Satisfaction Notification that we have determined that we have satisfied the GHG Emissions Performance Target (as defined under</p>

“Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”) and received a related Assurance Letter from the External Verifier. See “Description of the Notes and the Guarantees — Principal and Interest” in this prospectus supplement. For the avoidance of doubt, if we have provided the Trustee with the applicable Satisfaction Notification on or prior to each Notification Due Date , then the interest rate payable on the Sustainability-Linked Senior Notes shall not increase from the Initial Sustainability-Linked Interest Rate pursuant to this paragraph.

Interest on the Notes will accrue from June 28, 2021.

Interest on the Notes of each series will be computed on the basis of a 360-day year of twelve 30-day months.

Ranking of the Notes

The Notes will be our direct, unsecured and unsubordinated obligations and will rank equally with all of our existing and future unsecured and unsubordinated debt. Our business operations are conducted substantially through our subsidiaries and through our partnerships and joint ventures. The Notes will be structurally subordinated to all existing and future liabilities of our subsidiaries other than the Guarantors. See “Description of the Notes and the Guarantees — General” in this prospectus supplement.

As of March 31, 2021, the long-term debt (excluding current portion, as well as guarantees and intercompany obligations between the Corporation and its subsidiaries) of the Corporation’s subsidiaries other than the Guarantors totaled approximately \$25,786 million.

Guarantees

The Notes will be fully, unconditionally, irrevocably, absolutely and jointly and severally guaranteed by each of the Guarantors. The guarantees of the Notes will be general, unsecured, senior obligations of each of the Guarantors and will rank equally with all other existing and future unsecured and unsubordinated indebtedness of that Guarantor, other than preferred claims imposed by statute.

Pursuant to the Indenture (as defined herein) governing the Notes, the guarantees of either Guarantor will be unconditionally released and discharged automatically upon the occurrence of certain events as described under “Description of the Notes and the Guarantees — Guarantees” in this prospectus supplement.

Optional Redemption

We may redeem some or all of the Notes of each series at any time. If the redemption date in respect of any Sustainability-Linked Senior Notes is more than three months prior to the maturity date of the Sustainability-Linked Senior Notes, or if the redemption date in respect of any Senior Notes is more than six months prior to the maturity date of the Senior Notes, then the redemption price will equal the applicable “make-whole” price described in this prospectus supplement under “Description of the Notes and the Guarantees — Optional Redemption”, plus accrued and unpaid interest to the redemption date.

If the redemption date in respect of any Sustainability-Linked Senior Notes is on or after the date that is three months prior to the maturity date of the Sustainability-Linked Senior Notes or if the redemption date in respect of any Senior Notes is on or after the date that is six months prior to the maturity date of the Senior Notes, then the redemption price will equal 100% of the principal amount of the Notes being redeemed, plus accrued and unpaid interest to the redemption date.

Change in Tax Redemption

We may redeem the Notes of any series in whole, but not in part, at the redemption price equal to the principal amount of Notes being redeemed, plus accrued and unpaid interest to the redemption date, at any time in the event certain changes affecting Canadian withholding taxes occur. See “Description of the Notes and the Guarantees — Redemption — Tax Redemption” in this prospectus supplement.

Sinking Fund

The Notes will not be entitled to the benefit of a sinking fund.

Use of Proceeds

We estimate that the net proceeds of the offering of the Notes, after deducting underwriting discounts and commissions and the estimated expenses of the offering, will be approximately US\$1,482,946,253. We intend to use the net proceeds of this offering to reduce existing indebtedness of the Corporation or its subsidiaries, partially fund capital projects and, if applicable, for other general corporate purposes of the Corporation and its affiliates. See “Use of Proceeds” in this prospectus supplement.

Additional Amounts

Any payments made by us with respect to the Notes of a series will be made without withholding or deduction for Canadian taxes unless required to be withheld or deducted by law or by the interpretation or administration thereof. If we are so required to withhold or deduct for Canadian taxes with respect to a payment to the Noteholders, we will pay the additional amounts necessary so that the net amounts received by the Noteholders after the withholding or deduction is not less than the amounts that such Noteholders would have received in the absence of the withholding or deduction. See “Description of the Notes and the Guarantees — Payment of Additional Amounts” in this prospectus supplement.

Form	The Notes will be represented by one or more fully registered global notes deposited in book-entry form with, or on behalf of, The Depository Trust Company, and registered in the name of its nominee. See “Description of the Notes and the Guarantees — Book-Entry System” in this prospectus supplement. Except as described under “Description of the Notes and the Guarantees” in this prospectus supplement, Notes in certificated form will not be issued.
Trustee and Paying Agent	Deutsche Bank Trust Company Americas.
Governing Law	The Notes and the related guarantees will be, and the Indenture is, governed by the laws of the State of New York.
Risk Factors	Investing in the Notes involves risks. See “Risk Factors” beginning on page S-8 of this prospectus supplement for a discussion of factors that you should refer to and carefully consider before deciding to invest in these Notes.
Lack of Public Market for the Notes	Each series of Notes is a new issue of securities with no established trading market. We do not intend to apply for listing of either series of Notes on any securities exchange. The underwriters have advised us that they intend to make a market in the Notes as permitted by applicable laws and regulations; however, the underwriters are not obligated to make a market in the Notes, and they may discontinue their market-making activities at any time without notice.
Conflicts of Interest	We may have outstanding existing indebtedness owing to certain of the underwriters and affiliates of the underwriters, a portion of which we may repay with the net proceeds of this offering. See “Use of Proceeds” in this prospectus supplement. As a result, one or more of the underwriters or their affiliates may receive more than 5% of the net proceeds from this offering in the form of the repayment of existing indebtedness. Accordingly, this offering is being made pursuant to Rule 5121 of the Financial Industry Regulatory Authority, Inc. Pursuant to this rule, the appointment of a qualified independent underwriter is not necessary in connection with this offering, because the conditions of Rule 5121(a)(1)(C) are satisfied.

RISK FACTORS

You should consider carefully the following risks and other information contained in and incorporated by reference into this prospectus supplement and the accompanying prospectus before deciding to invest in the Notes of any series. In particular, we urge you to consider carefully the following risk factors, as well as the risk factors set forth under the heading “Item 1A. Risk Factors” in the Corporation’s [Annual Report on Form 10-K for the fiscal year ended December 31, 2020](#), incorporated by reference into this prospectus supplement and the accompanying prospectus. The following risks and uncertainties could materially and adversely affect our financial condition and results of operations. In that event, the value of our securities, including the Notes, or our ability to meet our obligations under the Notes, may be adversely affected.

Risks Related to the Notes

We are a holding company and as a result are dependent on our subsidiaries to generate sufficient cash and distribute cash to us to service our indebtedness, including the Notes.

Our ability to make payments on our indebtedness, fund our ongoing operations and invest in capital expenditures and any acquisitions will depend on our subsidiaries’ (including subsidiary partnerships and joint-ventures through which we conduct business) ability to generate cash in the future and distribute that cash to us. It is possible that our subsidiaries may not generate cash from operations in an amount sufficient to enable us to service our indebtedness, including the Notes of any series. The Notes are U.S. dollar-denominated obligations and a substantial portion of our subsidiaries’ revenues are denominated in Canadian dollars. Fluctuations in the exchange rate between the U.S. and Canadian dollars may adversely affect our ability to service or refinance our U.S. dollar-denominated indebtedness, including the Notes.

The Notes are structurally subordinated to the indebtedness of our non-Guarantor subsidiaries.

The Notes are not guaranteed by our subsidiaries (including subsidiary partnerships and joint ventures through which we conduct business) that are not Guarantors and are thus structurally subordinated to all of the debt of these subsidiaries. Additionally, each of the Guarantors will be released from its guarantees following the repayment in full or discharge or defeasance of the Guarantor’s debt securities outstanding as of January 22, 2019, or upon the occurrence of certain other events, as described under “Description of the Notes and the Guarantees — Guarantees” in this prospectus supplement, in which case the Notes will be structurally subordinated to all of the debt of that former guarantor subsidiary. The Corporation’s interests in its subsidiaries and the partnerships and joint ventures through which it conducts business generally consist of equity interests, which are residual claims on the assets of those entities after their creditors are satisfied. As at March 31, 2021, the long-term debt (excluding current portion, as well as guarantees and intercompany obligations between the Corporation and its subsidiaries) of the subsidiaries of the Corporation other than the Guarantors totaled approximately \$25,786 million.

The Indenture restricts our ability to incur liens, but places no such restriction on our subsidiaries or the partnerships and joint ventures through which we conduct business. Holders of parent company indebtedness that is secured by parent company assets will have a claim on the assets securing the indebtedness that is prior in right of payment to our general unsecured creditors, including you as a holder of the Notes (a “Noteholder”). The Indenture permits us to incur additional liens as described under “Description of the Notes and the Guarantees — Covenants — Limitation on Security Interests” in this prospectus supplement.

Your right to receive payments on the Notes is effectively subordinate to those lenders who have a security interest in the assets of the Corporation or the Guarantors.

The Notes and the related guarantees are unsecured. The Corporation or the Guarantors may incur indebtedness that is secured by certain or substantially all of their respective tangible and intangible assets, including the equity interests of each of their existing and future subsidiaries. If the Corporation or the Guarantors were unable to repay any such secured indebtedness, the creditors of those obligations could foreclose on the pledged assets to the exclusion of Noteholders, even if an event of default exists under the Indenture at such time. As at March 31, 2021, SEP and EEP had no secured indebtedness outstanding.

We may redeem the Notes of any series before they mature.

The Corporation may redeem the Notes of any series in the circumstances described under “Description of the Notes and the Guarantees — Redemption — Optional Redemption” in this prospectus supplement and the Corporation may redeem the Notes of any series in the circumstances described under “Description of the Notes and the Guarantees — Redemption — Tax Redemption” in this prospectus supplement. These redemption rights may, depending on prevailing market conditions at the time, create reinvestment risk for the Noteholders of a series of Notes in that they may be unable to find a suitable replacement investment with a comparable return to those Notes.

Federal and state statutes allow courts, under specific circumstances, to void the guarantees of the Notes by our Guarantors and require the Noteholders to return payments received from the Guarantors.

Under U.S. bankruptcy law and comparable provisions of state fraudulent transfer laws, a guarantee can be voided, or claims under the guarantee may be subordinated to all other debts of that guarantor if, among other things, the guarantor, at the time it incurred the indebtedness evidenced by its guarantee or, in some states, when payments become due under the guarantee:

- received less than reasonably equivalent value or fair consideration for the incurrence of the guarantee and was insolvent or rendered insolvent by reason of such incurrence;
- was engaged in a business or transaction for which the guarantor’s remaining assets constituted unreasonably small capital; or
- intended to incur, or believed that it would incur, debts beyond its ability to pay those debts as they mature.

A guarantee may also be voided, without regard to the above factors, if a court found that the guarantor entered into the guarantee with the actual intent to hinder, delay or defraud its creditors. A court would likely find that a guarantor did not receive reasonably equivalent value or fair consideration for its guarantee if the guarantor did not substantially benefit directly or indirectly from the issuance of the Notes. If a court were to void a guarantee with respect to the Notes of any series, the applicable Noteholders would no longer have a claim against the applicable Guarantor. Sufficient funds to repay those Notes may not be available from other sources. In addition, the court might direct you to repay any amounts that you already received in respect of those Notes from the Guarantor.

The measures of insolvency for purposes of fraudulent transfer laws vary depending upon the governing law. Generally, a guarantor would be considered insolvent if:

- the sum of its debts, including contingent liabilities, was greater than the fair saleable value of all its assets;
- the present fair saleable value of its assets was less than the amount that would be required to pay its probable liability, including contingent liabilities, as they became absolute and mature; or
- it could not pay its debts as they became due.

The guarantee for the Notes will contain a provision intended to limit the Guarantors’ liability to the maximum amount that they could incur without causing the incurrence of obligations under the guarantee to be a fraudulent conveyance or fraudulent transfer under U.S. federal or state law. This provision may not be effective to protect the guarantee from being voided under fraudulent transfer law.

We cannot provide assurance that an active trading market will develop for the Notes.

Each series of Notes will constitute a new series of securities with no established trading market. The underwriters have advised us that they intend to make a market in the Notes as permitted by applicable laws and regulations; however, the underwriters are not obligated to make a market in the Notes, and they may discontinue their market-making activities at any time without notice. Therefore, we cannot assure you that an active market for the Notes will develop or, if developed, that it will continue. We cannot assure you that the market, if any, for the Notes will be free from disruptions that may adversely affect the price at which you may sell the Notes. Future trading prices of the Notes will also depend on many other factors, including, among other things, prevailing interest rates, the market for similar securities, our financial performance and other factors. Generally, the liquidity of, and trading market for, the Notes may also be materially and adversely affected by declines in the market for similar debt securities. Such a decline may materially and adversely affect that liquidity and trading independent of our financial performance and prospects.

Additional Risks Related to the Sustainability-Linked Senior Notes

The Sustainability-Linked Senior Notes are not “green bonds,” “social bonds,” or “sustainable bonds” and may not be a suitable investment for all investors seeking exposure to assets with sustainability characteristics.

Although the interest rate relating to the Sustainability-Linked Senior Notes is subject to upward adjustment in certain circumstances as described under “Description of the Notes and the Guarantees — Principal and Interest” in this prospectus supplement, the Sustainability-Linked Senior Notes may not satisfy an investor's requirements or any future legal or quasi legal standards for investment in assets with sustainability characteristics. The Sustainability-Linked Senior Notes are not being marketed as green bonds, social bonds, or sustainable bonds since the Corporation expects to use the relevant net proceeds to reduce existing indebtedness of the Corporation or its subsidiaries, partially fund capital projects and, if applicable, for other general corporate purposes of the Corporation and its affiliates. Accordingly, the Corporation does not intend to allocate the net proceeds specifically to projects or business activities meeting environmental or sustainability criteria, or to be subject to any other limitations associated with green bonds, social bonds, or sustainable bonds.

As there is currently no clearly-defined definition (legal, regulatory or otherwise) of, nor market consensus as to what constitutes an “ESG”, “green”, “social”, “governance”, “sustainable” or equivalently-labelled target or as to what precise attributes are required for a particular target to be defined as such or what a “sustainability-linked” bond is (and, in addition, the requirements of any such label may evolve from time to time), no assurance is or can be given to investors by the Corporation, the underwriters, any second party opinion providers or any external verifier that the Sustainability-Linked Senior Notes will meet any or all investor expectations regarding the Sustainability-Linked Senior Notes or the Corporation’s targets and goals qualifying as “sustainable” or that no other adverse consequences will occur in connection with the Corporation striving to achieve such targets and goals.

Moreover, the Second Party Opinion provider and providers of similar opinions and certifications are not currently subject to any specific regulatory or other regime or oversight. Any such opinion or certification is not, nor should it be deemed to be, a recommendation by the Corporation, any underwriter, any second party opinion providers or any other person to buy, sell or hold the Sustainability-Linked Senior Notes. Noteholders of the Sustainability-Linked Senior Notes have no recourse against the Corporation, any of the underwriters or the provider of any such opinion or certification in respect of the contents of any such opinion or certification, which is only current as of the date it was initially issued. No assurance or representation is given as to the suitability or reliability for any purpose whatsoever of any opinion of any third party (whether or not solicited by us, including the Second Party Opinion) that may be made available in connection with our SLB Framework or the Sustainability-Linked Senior Notes. Any such opinion may not reflect the potential impact of all risks related to the structure, market, regulatory backdrop, and matters related to the additional risk factors discussed herein and other factors that may affect the value of the Sustainability-Linked Senior Notes. The Corporation does not assume any obligation or responsibility to release any update or revision to the SLB Framework to reflect events or circumstances after the date of its publication nor procure any update or revision of any second party opinion. For the avoidance of doubt, any such opinion is not and shall not be deemed to be incorporated into and/or form part of this prospectus supplement and the accompanying prospectus. Prospective investors must determine for themselves the relevance of any such opinion or certification and/or the information contained therein and/or the provider of such opinion or certification for the purpose of any investment in the Sustainability-Linked Senior Notes. Any withdrawal of any opinion or certification or any such opinion or certification attesting that the Corporation is not complying in whole or in part with any matters that are the subject of such opinion or certification may have a material adverse effect on the value of the Sustainability-Linked Senior Notes and/or result in adverse consequences for certain investors with portfolio mandates to invest in securities to be used for a particular purpose.

The methodology used by the Corporation to calculate its Scope 1 Emissions, Scope 2 Emissions and GHG Intensity may change over time.

As at the date of this prospectus supplement, the Corporation uses the GHG Protocol (as defined below) and an internally developed methodology to calculate Scope 1 Emissions, Scope 2 Emissions and its GHG Intensity. Scope 1 Emissions, Scope 2 Emissions and GHG Intensity are each defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”.

The industry-wide methodologies, including the GHG Protocol and other sectorial standards and guidelines, on which the Corporation bases its methodology, may change over time, and the Corporation may unilaterally decide to revise and update the methodology it uses to calculate GHG Intensity to reflect such changes and/or developments in the Corporation’s ability to measure GHG emissions and/or energy throughput or change from an operational control approach to an equity share approach, all of which may impact, positively or negatively, the ability of the Corporation to satisfy the SPTs (as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”), which could in turn adversely affect the market price of the Sustainability-Linked Senior Notes and/or the reputation of the Corporation (see “— Failure to satisfy the SPTs may have a material impact on the market price of the Sustainability-Linked Senior Notes and could expose the Corporation to reputational risks”). Additionally, any such change could also result in the Corporation's achieving or failing to achieve the GHG Intensity Performance Target and therefore impact whether the Partially Adjusted Second Step Up Interest Rate or the Fully Adjusted Second Step Up Interest Rate (each as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”) applies to the Sustainability-Linked Senior Notes in the future.

Each of such circumstances could have a material adverse effect on the Corporation, its business prospects, its financial condition or its results of operations.

We may not satisfy the SPTs and there can be no assurances as to whether the interest rate in respect of the Sustainability-Linked Senior Notes will be subject to adjustment. Failure to satisfy the SPTs may have a material impact on the market price of the Sustainability-Linked Senior Notes and could expose the Corporation to reputational risks.

Should we satisfy both of the SPTs (as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”), holders of Notes will not be entitled to an increase in the interest rate on the Sustainability-Linked Senior Notes on account of the applicable SPTs. Should we fail to satisfy one or both of the SPTs, we will be required to pay an increased interest rate on the Sustainability-Linked Senior Notes, which may have an adverse impact on our liquidity and financial position. No breach or Event of Default shall occur under the Sustainability-Linked Senior Notes (or, for the avoidance of doubt, the Senior Notes), nor will the Corporation be required to repurchase or redeem such Sustainability-Linked Senior Notes, if the Corporation fails to meet the SPTs.

At the end of 2020, the Corporation achieved a Percentage of Racial & Ethnic Diversity of approximately 21.1%. The Percentage of Racial & Ethnic Diversity Performance Target is to achieve a Percentage of Racial & Ethnic Diversity of 28% by 2025. At the end of 2020, the Corporation achieved a reduction of GHG Intensity of approximately 25.1%, relative to the 2018 baseline year. The GHG Intensity Performance Target is to achieve a reduction in GHG Intensity of 35% by 2030, as compared to the 2018 baseline year. Although the Corporation intends to meet the GHG Intensity Performance Target (and its other GHG-related targets) and the Percentage of Racial & Ethnic Diversity Performance Target (each as defined under “Description of the Notes and the Guarantees — Principal and Interest — Interest Step Up”), achieving the SPTs may require the Corporation to expend significant resources. There can be no assurance of the extent to which any of the SPTs will be achieved, that the Corporation will continue to work towards maintaining the SPTs even if a SPT was previously achieved, or that any future investments it makes in furtherance of achieving such targets and goals will meet investor expectations or any binding or non-binding legal standards regarding sustainability performance, whether by any present or future applicable law or regulation or by its own by-laws or other governing rules or investment portfolio mandates, in particular with regard to any direct or indirect environmental, sustainability or social impact.

Any of the above could adversely impact the trading price of the Notes and the price at which a Noteholder will be able to sell the Notes in such circumstance prior to maturity may be at a discount, which could be substantial, from the issue price or the purchase price paid by such Noteholder.

In addition, a failure by the Corporation to satisfy any of the SPTs or any such similar sustainability performance targets or goals that the Corporation may choose to include in any future financings would not only result in increased interest payments under the Sustainability-Linked Senior Notes or other relevant financing arrangements, but could also harm the Corporation's reputation. Climate-related issues and workforce diversity are ESG topics that are, in particular, receiving heightened attention from investors, shareholders, lawmakers and regulators, including the SEC. Furthermore, the Corporation's efforts in satisfying the SPTs, or the Corporation's other projects or investments, may become controversial or be criticized by activist groups or other stakeholders. Each of such circumstances could have a material adverse effect on the Corporation, its business, its financial condition or its results of operations.

Competition to recruit a diverse and inclusive workforce may result in a failure to meet the Percentage of Racial & Ethnic Diversity Performance Target and may have an adverse effect on the Corporation's business

A skilled, diverse and inclusive workforce is important to the continued successful operation of the Corporation. We compete to hire new personnel in the regions in which we operate and then to develop and retain their skills and competencies. Increased focus by shareholders, investors, proxy advisors and other stakeholders on workforce diversity and inclusion have resulted in increased pressure on companies to recruit, hire, and retain a diverse and inclusive workforce. Failure to hire and retain a diverse workforce could result in a failure to meet the Percentage of Racial & Ethnic Diversity Performance Target, requiring the Corporation to pay an increased interest rate on the Sustainability-Linked Senior Notes. In addition, failure to attract or retain a diverse workforce in accordance with the Percentage of Racial & Ethnic Diversity Performance Target may result in increased scrutiny by investors, shareholders, or other stakeholders of the Corporation's overall corporate governance. With regard to the Percentage of Racial & Ethnic Diversity Performance Target, the word "target" and any percentage target listed are aspirational goals which the Corporation intends to achieve in a manner compliant with state, local, provincial and federal applicable law, including but not limited to United States federal regulations and Equal Employment Opportunity Commission, Department of Labor and Office of Federal Contract Programs guidance.

CONSOLIDATED CAPITALIZATION

The following table summarizes our consolidated capitalization as of March 31, 2021 on an actual basis and on an as adjusted basis to give effect to the issuance and sale of the Notes described in this prospectus supplement, without giving effect to the application of the net proceeds thereof. See “Use of Proceeds” in this prospectus supplement.

You should read this table together with our “Management’s Discussion and Analysis of Financial Condition and Results of Operations”, the consolidated financial statements and related notes thereto and the unaudited consolidated financial statements for the three months ended March 31, 2021 and the related notes thereto in our [Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2021](#), which are incorporated by reference in this prospectus supplement and the accompanying prospectus. All U.S. dollar amounts in the following table have been converted to Canadian dollars using the exchange rate on March 31, 2021 of US\$0.7952 per \$1.00 as reported on the Bank of Canada website.

	As of March 31, 2021	
	Actual	As Adjusted for the Notes
	(millions of dollars)	
Long-term debt:		
Long-term debt (excluding current portion) ⁽¹⁾	\$ 62,688	\$ 62,688
Sustainability-Linked Senior Notes offered hereby (US\$1,000,000,000)	—	1,258
Senior Notes offered hereby (US\$500,000,000)	—	629
Total long-term debt	62,688	64,575
Shareholders’ equity:		
Preference shares	7,747	7,747
Common shares	64,772	64,772
Additional paid-in capital	324	324
Deficit	(8,093)	(8,093)
Accumulated other comprehensive loss	(1,675)	(1,675)
Reciprocal shareholding	(17)	(17)
Total Enbridge Inc. shareholders’ equity	63,058	63,058
Total capitalization	\$ 125,746	\$ 127,633

(1) As at March 31, 2021, long-term debt includes \$10,614 million of outstanding commercial paper borrowings and credit facility draws and excludes the Notes offered hereby.

USE OF PROCEEDS

We estimate that the net proceeds of this offering of the Notes, after deducting underwriting discounts and commissions and the estimated expenses of this offering, will be approximately US\$1,482,946,253. We intend to use the net proceeds to reduce existing indebtedness of the Corporation or its subsidiaries, partially fund capital projects and, if applicable, for other general corporate purposes of the Corporation and its affiliates. The Corporation may invest funds that it does not immediately require in short-term marketable debt securities.

The Corporation does not intend to allocate the net proceeds from this offering of the Notes, including from the Sustainability-Linked Senior Notes, specifically to projects or business activities meeting environmental or sustainability criteria, or to be subject to any other limitations associated with green bonds, social bonds, or sustainable bonds.

We may have outstanding existing indebtedness owing to certain of the underwriters and affiliates of the underwriters, a portion of which we may repay with the net proceeds of this offering. As a result, one or more of the underwriters or their affiliates may receive a portion of the net proceeds of this offering. See “Underwriting” in this prospectus supplement.

DESCRIPTION OF THE NOTES AND THE GUARANTEES

The following description of the terms of the Notes and the guarantees supplements, and to the extent inconsistent therewith supersedes, the description of the general terms and provisions of debt securities and guarantees under the heading “Description of Debt Securities and Guarantees” in the accompanying prospectus, and should be read in conjunction with that description. In this section, the terms “Corporation”, “Enbridge”, “we”, “us” or “our” refer only to Enbridge Inc. and not to its subsidiaries and the term “Guarantors” refers to SEP and EEP.

The Notes of each series will be issued under an indenture (as amended and supplemented from time to time, the “Indenture”), dated as of February 25, 2005, among the Corporation, the Guarantors and Deutsche Bank Trust Company Americas, as Trustee. The Notes will not be offered or sold to persons in Canada pursuant to this prospectus supplement. The Trustee will initially serve as paying agent for the Notes. The following summary of certain provisions of the Indenture and the Notes does not purport to be complete and is qualified in its entirety by reference to the actual provisions of the Indenture.

General

The Trustee under the Indenture is referred to in this section as the “Trustee”, which term shall include, unless the context otherwise requires, its successors and assigns. Capitalized terms used but not defined in this section shall have the meanings given to them in the Indenture.

The Notes will be direct, unsecured and unsubordinated obligations of the Corporation, issued under the Indenture and will rank equally with all other existing and future unsecured and unsubordinated indebtedness of the Corporation other than preferred claims imposed by statute. The Notes will be guaranteed by both Guarantors. See “— Guarantees” in this prospectus supplement. In addition, our business operations are conducted substantially through our subsidiaries and through partnerships and joint ventures. The Notes will be structurally subordinated to all existing and future liabilities of our subsidiaries other than the Guarantors. As of March 31, 2021, the long-term debt (excluding current portion, as well as guarantees and intercompany obligations between the Corporation and its subsidiaries) of the Corporation’s subsidiaries other than the Guarantors totaled approximately \$25,786 million. At March 31, 2021, as determined under U.S. GAAP, the Corporation’s total consolidated long-term debt and long-term debt due within one year was, in aggregate principal amount, approximately \$62,688 million (excluding the Notes and the Corporation’s proportionate share of non-recourse debt of joint ventures), none of which was secured debt. There are no terms of the Indenture that limit the ability of the Corporation or its subsidiaries, partnerships or joint ventures to issue preferred stock or incur additional indebtedness, including in the case of the Corporation and its subsidiaries, partnerships and joint ventures, indebtedness that ranks, either effectively or by contract, senior to the Notes. See “— Covenants” in this prospectus supplement. Nonetheless, we do not expect either Guarantor to issue any preferred stock or any additional debt after the date of this prospectus supplement.

The Notes may be redeemed by the Corporation prior to maturity as described below under “Redemption — Optional Redemption”.

The Notes will be subject to the provisions of the Indenture relating to Defeasance and Covenant Defeasance as described under the heading “— Defeasance” in this prospectus supplement.

The provisions of the Indenture relating to the payment of additional amounts in respect of Canadian withholding taxes in certain circumstances and relating to the redemption of the Notes in the event of specified changes in Canadian withholding tax law on or after the date of this prospectus supplement will apply to the Notes. See “— Payment of Additional Amounts” and “— Redemption — Tax Redemption” in this prospectus supplement.

The Notes will not be entitled to the benefit of any sinking fund, will not be convertible into other securities of the Corporation in lieu of payment of principal and will not be listed on any automated quotation system, and we do not intend to apply for listing of the Notes on any securities exchange.

The Notes will be denominated in U.S. dollars, and payments of principal of, and premium, if any, and interest on, the Notes will be made in U.S. dollars in the manner and on terms set out in the Indenture. Payments of principal of, and premium, if any, and interest on, the Notes will be made by the Corporation through the Trustee to the Depository. See “— Book-Entry System” in this prospectus supplement.

“Business Day” means each Monday, Tuesday, Wednesday, Thursday and Friday which is not a day on which banking institutions in the City of New York and in the applicable Place of Payment, if other than the City of New York, are authorized or obligated by law or executive order to close. The initial Place of Payment for the Notes will be the Trustee’s corporate trust office in The City of New York.

The Corporation may, at any time, and from time to time in accordance with the terms of the Indenture, issue additional Notes of any series in unlimited amounts having the same terms as the Sustainability-Linked Senior Notes or Senior Notes, as the case may be, and such additional Notes will, together with the then outstanding Sustainability-Linked Senior Notes or Senior Notes, as the case may be and any notes which may be issued in exchange or substitution therefor, constitute a single series of notes under the Indenture.

Principal and Interest

The Sustainability-Linked Senior Notes will be issued as a series of debt securities under the Indenture in an aggregate principal amount of US\$1,000,000,000. The Sustainability-Linked Senior Notes will mature on August 1, 2033 and will bear interest at a rate of 2.500% per annum (the “Initial Sustainability Linked Interest Rate”), subject to increase as described under “—Interest Step Up” below, payable semi-annually in arrears on February 1 and August 1 of each year, commencing February 1, 2022 (each, a “Sustainability-Linked Notes Interest Payment Date”), to the persons in whose names the Sustainability-Linked Senior Notes are registered at the close of business on the preceding January 15 or July 15, respectively. Interest on the Sustainability-Linked Senior Notes will be computed on the basis of a 360-day year of twelve 30-day months.

The Senior Notes will be issued as a series of debt securities under the Indenture in an aggregate principal amount of US\$500,000,000. The Senior Notes will mature on August 1, 2051 and will bear interest at a rate of 3.400% per annum, payable semi-annually in arrears on February 1 and August 1 of each year, commencing February 1, 2022 (each, a “Senior Notes Interest Payment Date” and, together with the Sustainability-Linked Notes Interest Payment Date, the “Interest Payment Dates”), to the persons in whose names the Senior Notes are registered at the close of business on the preceding January 15 or July 15, respectively. Interest on the Senior Notes will be computed on the basis of a 360-day year of twelve 30-day months.

Interest payments for the Sustainability-Linked Senior Notes will include accrued interest from and including the date of issue or from and including the last date in respect of which interest has been paid, as the case may be, to, but excluding, the Sustainability-Linked Notes Interest Payment Date, or the date of maturity, as the case may be. Interest payments for the Senior Notes will include accrued interest from and including the date of issue or from and including the last date in respect of which interest has been paid, as the case may be, to, but excluding, the Senior Notes Interest Payment Date, or the date of maturity, as the case may be. If any Interest Payment Date or the applicable maturity date of the Notes falls on a day that is not a Business Day, the related payment of principal of, premium, if any, or interest thereon will be postponed to the next succeeding Business Day, and no interest on that payment will accrue for the period from and after that Interest Payment Date or the applicable maturity date, as the case may be.

Interest Step Up

From and including August 1, 2026 (or if such day is not a Business Day, the next succeeding Business Day) (the “First Step Up Date”), the interest rate payable on the Sustainability-Linked Senior Notes shall be increased by 5 basis points to 2.550% per annum (the “First Step Up Interest Rate”) unless we have notified the Trustee in writing on or before the date that is 15 days prior to August 1, 2026 (the “First Notification Due Date”) in the form of an officers’ certificate (the “Satisfaction Notification”) certifying that such officers have determined that we have satisfied the Percentage of Racial & Ethnic Diversity Performance Target and received a related assurance letter from the External Verifier (an “Assurance Letter”). From and including August 1, 2031 (or if such day is not a Business Day, the next succeeding Business Day) (the “Second Step Up Date”), the interest rate payable on the Sustainability-Linked Senior Notes shall be increased by 50 basis points to (x) 3.050% per annum (the “Fully Adjusted Second Step Up Interest Rate”) if the First Step Up Interest Rate was in effect immediately prior to the Second Step Up Date or (y) 3.000% per annum (the “Partially Adjusted Second Step Up Interest Rate”) if the Initial Sustainability-Linked Interest Rate was in effect immediately prior to the Second Step Up Date, unless we have provided a Satisfaction Notification to the Trustee in writing on or before the date that is 15 days prior to August 1, 2031 (the “Second Notification Due Date” and, with the First Notification Due Date, each a “Notification Due Date”) that we have determined that we have satisfied the GHG Emissions Performance Target (as defined herein) and received a related Assurance Letter from the External Verifier. For the avoidance of doubt, if we have provided the Trustee with the applicable Satisfaction Notification on or prior to each Notification Due Date, then the interest rate payable on the Sustainability-Linked Senior Notes shall not increase from the Initial Sustainability-Linked Interest Rate pursuant to this paragraph.

The interest rate applicable to the Sustainability-Linked Senior Notes will only be adjusted on the First Step Up Date and the Second Step Up Date based upon the satisfaction or non-satisfaction of a SPT on or prior to the applicable Notification Due Date. Any satisfaction of a SPT subsequent to the applicable Notification Due Date or cessation of satisfaction, or any failure to satisfy a SPT subsequent to the applicable Notification Due Date will not result in an adjustment to the interest rate payable on the Sustainability-Linked Senior Notes.

The Trustee shall not be obliged to monitor, inquire or verify as to whether a SPT has been satisfied. With respect to the rate at which the Sustainability-Linked Senior Notes will bear interest, the Trustee shall be fully protected in conclusively relying upon the Satisfaction Notification delivered to the Trustee by the Corporation on or prior to the applicable Notification Due Date, which sets out, among other things, the interest rate for the Sustainability-Linked Senior Notes.

Certain definitions:

“Absolute GHG Emissions” means, for any period, the total aggregate amount of Scope 1 Emissions and Scope 2 Emissions for such period, which, for greater certainty, will not include the purchase of carbon offsets.

“Environmental SPT Observation Date” means December 31, 2030.

“External Verifier” means one or more qualified independent public accountants or environmental consultants (solely with respect to verifying the GHG Intensity Performance Target) of recognized national standing designated from time to time by the Corporation to provide limited assurance on the Corporation’s GHG Intensity and/or Percentage of Racial & Ethnic Diversity.

“GHG Intensity” means the Absolute GHG Emissions per petajoule of energy delivered (throughput) by assets under the operational control of the Corporation and its Subsidiaries in a fiscal year, as calculated at the end of such fiscal year in accordance with the Corporation’s internal throughput calculation methodology. The Corporation may elect, without the consent of the Noteholders, to switch from the operational control method for calculating GHG Intensity to an equity share method and make, in good faith, adjustments to the 2018 baseline GHG Intensity and the Corporation’s internal methodology for calculating energy throughput and Absolute GHG Emissions in order to account for such switch.

“GHG Intensity Performance Reference Period” means the fiscal year of the Corporation ending December 31, 2030.

“GHG Intensity Performance Target” means a reduction of GHG Intensity of 35% during the GHG Intensity Performance Reference Period relative to the GHG Intensity for the Corporation’s 2018 fiscal year, provided that if the Corporation subsequently issues sustainability-linked notes linked to the same GHG Intensity Performance Target and the same Environmental SPT Observation Date, but with a higher reduction target, the GHG Intensity Performance Target shall be automatically adjusted upward to equal the GHG Intensity reduction percentage required by such subsequent sustainability-linked notes.

“GHG Protocol” means the second (2nd) revised edition of the GHG Protocol Corporate Accounting and Reporting Standard of the World Business Council for Sustainable Development and World Resources Institute available at <https://ghgprotocol.org/sites/default/files/standards/ghg-protocolrevised.pdf>. The information contained on this website does not constitute a part of this prospectus supplement and is not incorporated by reference herein. In the event an updated version of the GHG Protocol is published, the Corporation may elect at its option to apply such revised version for the purposes of calculating Absolute GHG Emissions.

“Percentage of Racial & Ethnic Diversity” means the total number of permanent employees of the Corporation who self-identify as ethnic or racial minorities divided by the total number of permanent employees of the Corporation, as calculated by the Corporation at the end of the fiscal year ending on the Social SPT Observation Date.

“Percentage of Racial & Ethnic Diversity Performance Target” means achieving a Percentage of Racial & Ethnic Diversity equal to or exceeding 28%, provided that if the Corporation subsequently issues sustainability-linked notes linked to the same Percentage of Racial & Ethnic Diversity performance target and the same Social SPT Observation Date, but with a higher percentage target, the Percentage of Racial & Ethnic Diversity Performance Target shall be automatically adjusted upward to equal the Percentage of Racial & Ethnic Diversity required by such subsequent sustainability-linked notes.

“Scope 1 Emissions” means, for any period, direct greenhouse gas emissions or equivalent CO₂ emissions occurring from sources that are controlled by the Corporation and its Subsidiaries in the operation of their business, which are determined by the Corporation in accordance with the GHG Protocol and the Corporation’s internally developed methodology.

“Scope 2 Emissions” means, for any period, indirect greenhouse gas emissions or equivalent CO₂ emissions occurring from the generation of purchased and imported electricity consumed by the Corporation and its Subsidiaries in the operation of their business, which are determined by the Corporation in accordance with the GHG Protocol and the Corporation’s internally developed methodology.

“Social SPT Observation Date” means December 31, 2025.

“SPTs” means the GHG Intensity Performance Target and the Percentage of Racial & Ethnic Diversity Performance Target.

“Subsidiary” means, solely with respect to the definitions of “Scope 1 Emissions” and “Scope 2 Emissions”, with respect to the Corporation: (a) any corporation of which at least a majority of the outstanding shares having by the terms thereof ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether at the time shares of any other class or classes of such corporation might have voting power by reason of the happening of any contingency, unless the contingency has occurred and then only for as long as it continues) is at the time directly, indirectly or beneficially owned or controlled by the Corporation or one or more of its Subsidiaries, or by the Corporation and one or more of its Subsidiaries; (b) any partnership of which, at the time, the Corporation or one or more of its Subsidiaries, or the Corporation and one or more of its Subsidiaries: (i) directly, indirectly or beneficially own or control more than 50% of the income, capital, beneficial or ownership interests (however designated) thereof; and (ii) is a general partner (or the general partner of a general partner), in the case of limited partnerships, or is a partner or has authority to bind the partnership, in all other cases; or (c) any other person of which at least a majority of the income, capital, beneficial or ownership interests (however designated) are at the time directly, indirectly or beneficially owned or controlled by the Corporation, or one or more of its Subsidiaries, or the Corporation and one or more of its Subsidiaries.

Guarantees

Each of the Guarantors fully, unconditionally, irrevocably, absolutely and jointly and severally guarantees to each Noteholder of each series the due and punctual payment of the principal of, and premium, if any, and interest on the Notes and all other amounts due and payable by the Corporation under the Indenture and the Notes, when and as such principal, premium, if any, interest and other amounts shall become due and payable, whether at the stated maturity or by declaration or acceleration, call for redemption or otherwise, subject to limitations on amount so that such guarantee does not constitute a fraudulent conveyance or fraudulent transfer under federal or state law, as set forth in the Indenture. The guarantees of the Notes will be general, unsecured, senior obligations of each of the Guarantors and will rank equally with all other existing and future unsecured and unsubordinated indebtedness of that Guarantor, other than preferred claims imposed by statute.

Pursuant to the Indenture, the guarantees of either Guarantor will be unconditionally released and discharged automatically upon the occurrence of any of the following events:

- any direct or indirect sale, exchange or transfer, whether by way of merger, sale or transfer of equity interests or otherwise, to any person that is not an affiliate of the Corporation, of any of the Corporation's direct or indirect limited partnership or other equity interests in that Guarantor as a result of which that Guarantor ceases to be a consolidated subsidiary of the Corporation;
- the merger of that Guarantor into the Corporation or the other Guarantor or the liquidation and dissolution of that Guarantor;
- with respect to any series of the Notes, the repayment in full or discharge or defeasance of Notes of that series as contemplated by the Indenture;
- with respect to EEP, the repayment in full or discharge or defeasance of each series of debt securities of EEP outstanding as of January 22, 2019, all of which are guaranteed by the Corporation pursuant to the Seventeenth Supplemental Indenture, dated as of January 22, 2019, among EEP, the Corporation and U.S. Bank National Association, as trustee; or
- with respect to SEP, the repayment in full or discharge or defeasance of each series of debt securities of SEP outstanding as of January 22, 2019, all of which are guaranteed by the Corporation pursuant to the Eighth Supplemental Indenture, dated as of January 22, 2019, among SEP, the Corporation and Wells Fargo Bank, National Association, as trustee.

The Trustee

Deutsche Bank Trust Company Americas (the "Trustee") is the Trustee under the Indenture governing the Notes. An affiliate of the Trustee is a lender under certain of the credit facilities of Enbridge and its subsidiary, Enbridge (U.S.) Inc., described under "Underwriting" in this prospectus supplement, and affiliates of the Trustee may have further commercial banking, advisory and other relationships with Enbridge and its subsidiaries.

Redemption

Optional Redemption

The Notes of each series will be redeemable, in whole or in part, at our option at any time or from time to time.

The redemption price for the Sustainability-Linked Senior Notes to be redeemed on any redemption date that is more than three months prior to the maturity date of the Sustainability-Linked Senior Notes will be equal to the greater of (i) 100% of the principal amount of the Sustainability-Linked Senior Notes to be redeemed and (ii) the Sustainability Make Whole Redemption Amount, plus, in either case, accrued and unpaid interest on the principal amount being redeemed to the date of redemption. The redemption price for the Sustainability-Linked Senior Notes to be redeemed on any redemption date that is on or after the date that is three months prior to the maturity date of the Sustainability-Linked Senior Notes will be equal to 100% of the principal amount of the Sustainability-Linked Senior Notes being redeemed, plus accrued and unpaid interest on the principal amount being redeemed to the date of redemption.

The redemption price for the Senior Notes to be redeemed on any redemption date that is more than six months prior to the maturity date of the Senior Notes will be equal to the greater of (i) 100% of the principal amount of the Senior Notes to be redeemed and (ii) the sum of the present values of the remaining scheduled payments of principal and interest on the Senior Notes to be redeemed (assuming that those Senior Notes matured on February 1, 2051, the date that is six months prior to the maturity date of the Senior Notes), not including any portion of the payments of interest accrued as of the date of redemption, discounted to the redemption date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Adjusted Treasury Rate (as defined below) plus 20 basis points, plus, in either case, accrued and unpaid interest on the principal amount being redeemed to the date of redemption. The redemption price for the Senior Notes to be redeemed on any redemption date that is on or after the date that is six months prior to the maturity date of the Senior Notes will be equal to 100% of the principal amount of the Senior Notes being redeemed, plus accrued and unpaid interest on the principal amount being redeemed to the date of redemption.

Notwithstanding the foregoing, installments of interest on the Notes being redeemed that are due and payable on applicable Interest Payment Dates falling on or prior to the relevant redemption date will be payable to the holders of the applicable Notes registered at the close of business on the relevant record dates according to the terms and provisions of the Indenture.

Notice of any redemption will be delivered by first-class mail at least 10 days, but not more than 60 days, before the redemption date to each holder of the Notes to be redeemed. If less than all the Notes of any series are to be redeemed, the Notes of the series to be redeemed will be made on a *pro rata* basis.

Unless we default in payment of the redemption price, on and after the redemption date, interest will cease to accrue on the Notes of the series or portions of the series of Notes called for redemption.

If any Note is redeemed in part, the notice of redemption relating to that Note shall state the portion of the principal amount thereof to be redeemed; *provided* that no Note in an aggregate principal amount of \$1,000 or less shall be redeemed in part. A replacement Note in the principal amount equal to the unredeemed portion thereof will be issued in the name of the holder thereof upon cancellation of the original Note being redeemed.

In connection with the optional redemption of the Notes of any series, the following defined terms apply:

“Adjusted Treasury Rate” means, with respect to any redemption date, the rate per annum equal to the semi-annual equivalent yield to maturity or interpolated (on a day count basis) of the Comparable Treasury Issue (as defined below), assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price (as defined below) for the redemption date.

“Comparable Treasury Issue” means the United States Treasury security or securities selected by the Quotation Agent (as defined below) as having an actual or interpolated maturity comparable to the remaining term of the Notes to be redeemed (assuming that such Notes matured (i) with respect to the Sustainability-Linked Senior Notes, May 1, 2033, the date that is three months prior to the maturity date of the Sustainability-Linked Senior Notes and (ii) with respect to the Senior Notes, February 1, 2051, the date that is six months prior to the maturity date of the Senior Notes) that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of comparable maturity to the remaining term of the Notes to be redeemed.

“Comparable Treasury Price” means, with respect to any redemption date, (i) the average of the Reference Treasury Dealer Quotations (as defined below) for such redemption date, after excluding the highest and lowest such Reference Treasury Dealer Quotations, or (ii) if the Quotation Agent obtains fewer than four such Reference Treasury Dealer Quotations, the average of all such quotations.

“Quotation Agent” means one of the Reference Treasury Dealers, which is appointed by us.

“Reference Treasury Dealer” means each of Credit Suisse Securities (USA) LLC, BofA Securities, Inc., Citigroup Global Markets Inc., J.P. Morgan Securities LLC and a Primary Treasury Dealer (as defined below) selected by SMBC Nikko Securities America, Inc. and their respective successors; *provided, however*, that if such entity or its successor shall cease to be a primary U.S. Government securities dealer in New York City (a “Primary Treasury Dealer”), we shall substitute therefor another nationally recognized investment banking firm that is a Primary Treasury Dealer.

“Reference Treasury Dealer Quotations” means, with respect to each Reference Treasury Dealer and any redemption date, the average, as determined by the Reference Treasury Dealer, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Quotation Agent by such Reference Treasury Dealer at 3:30 p.m. (New York time) on the third Business Day preceding such redemption date.

“Second Step Up Interest Rate” means, (i) if the First Step Up Interest Rate was in effect (or deemed to be in effect) immediately prior to the Second Step Up Date, the Fully Adjusted Second Step Up Interest Rate or (ii) if the Initial Sustainability-Linked Interest Rate was in effect (or deemed to be in effect) immediately prior to the Second Step Up Date, the Partially Adjusted Second Step Up Interest Rate.

“Sustainability Make Whole Redemption Amount” means the sum of the present values of the remaining scheduled payments of principal and interest on the Sustainability-Linked Senior Notes to be redeemed (assuming that those Sustainability-Linked Senior Notes matured on May 1, 2033, the date that is three months prior to the maturity date of the Sustainability-Linked Senior Notes), not including any portion of the payments of interest accrued as of the date of redemption (calculated at the Initial Sustainability-Linked Interest Rate (i) until the First Step Up Date, at which point, the interest rate shall be deemed to be the First Step Up Interest Rate, unless the Corporation has provided the Trustee with the applicable Satisfaction Notification with respect to the Percentage of Racial & Ethnic Diversity Performance Target on or prior to the First Notification Due Date, in which case the interest rate shall remain at the Initial Sustainability-Linked Interest Rate and (ii) until the Second Step Up Date, at which point, the interest rate shall be deemed to be increased to the Second Step Up Interest Rate, unless the Corporation has provided the Trustee with the applicable Satisfaction Notification with respect to the GHG Emissions Performance Target on or prior to the Second Notification Due Date, in which case the interest rate shall remain at the interest rate it deemed to be applicable immediately prior to the Second Step Up Date pursuant to clause (i) of this paragraph, discounted to the redemption date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Adjusted Treasury Rate (as defined above) plus 17 basis points.

Tax Redemption

Each series of the Notes will be subject to redemption at any time at a redemption price equal to the principal amount of the Notes of that series, together with accrued and unpaid interest to the date fixed for redemption, upon the giving of the notice as described below, if the Corporation (or its successor) determines that (1) as a result of (A) any amendment to or change (including any announced prospective change) in the laws or related regulations of Canada (or the Corporation’s successors’ jurisdiction of organization) or of any applicable political subdivision or taxing authority or (B) any amendment to or change in an interpretation or application of such laws or regulations by any legislative body, court, governmental agency or regulatory authority announced or becoming effective on or after the date hereof, the Corporation has or will become obligated to pay, on the next Interest Payment Date for the Notes of that series, additional amounts with respect to any Note of that series as described under “— Payment of Additional Amounts”, or (2) on or after the date of this prospectus supplement, any action has been taken by any taxing authority of, or any decision has been rendered by a court in, Canada (or the Corporation’s successors’ jurisdiction of organization) or any applicable political subdivision or taxing authority, including any of those actions specified in (1) above, whether or not the action was taken or decision rendered with respect to the Corporation, or any change, amendment, application or interpretation is officially proposed, which, in the opinion of the Corporation’s counsel, will result in the Corporation becoming obligated to pay, on the next Interest Payment Date for the Notes of that series, additional amounts with respect to any Note of such series of Notes, and the Corporation has determined that the obligation cannot be avoided by the use of reasonable available measures. Notice of redemption of Notes of any series will be given once not more than 60 nor less than 10 days prior to the date fixed for redemption and will specify the date fixed for redemption.

Provision of Financial Information

The Corporation will file with the Trustee, within 15 days after the same are so required to be filed with the SEC, copies of its annual report and of the information, documents and other reports (or copies of such portions of any of the foregoing as the SEC may by rules and regulations prescribe) which the Corporation is required to file with the SEC pursuant to Section 13 or 15(d) of the U.S. Exchange Act. If the Corporation is not required to file such information, documents or reports with the SEC, then the Corporation will file with the Trustee such periodic reports as the Corporation files with the securities commission or corresponding securities regulatory authority in each of the Provinces of Canada within 15 days after the same are so required to be filed with such securities commissions or securities regulatory authorities.

Covenants

The Indenture contains promises by the Corporation, called “covenants” for the benefit of the Noteholders. The Corporation will make the covenants described under the headings “— Limitation on Security Interests” and “— Other Indenture Covenants” for the Noteholders.

Limitation on Security Interests

The Corporation agrees in the Indenture, for the benefit of the Noteholders, that it will not create, assume or otherwise have outstanding any Security Interest on its assets securing any Indebtedness unless the obligations of the Corporation in respect of the Notes then outstanding shall be secured equally and ratably therewith.

This covenant has significant exceptions which allow the Corporation to incur or allow to exist over its properties and assets Permitted Encumbrances (as defined in the Indenture), which include, among other things:

- (a) Security Interests existing on the date of the first issuance of the Notes by the Corporation under the Indenture or arising after that date under contractual commitments entered into prior to that date;
- (b) Security Interests securing Purchase Money Obligations;
- (c) Security Interests securing Non-Recourse Debt;
- (d) Security Interests in favor of the Corporation’s subsidiaries;
- (e) Security Interests existing on property of a corporation which is merged into, or amalgamated or consolidated with, the Corporation or the property of which is acquired by the Corporation;
- (f) Security Interests securing Indebtedness to banks or other lending institutions incurred in the ordinary course of business, repayable on demand or maturing within 18 months of incurrence or renewal or extension;
- (g) Security Interests on or against cash or marketable debt securities pledged to secure Financial Instrument Obligations;

- (h) Security Interests in respect of certain:
- (1) liens for taxes, assessments and workmen's compensation assessments, unemployment insurance or other social security obligations,
 - (2) liens and certain rights under leases,
 - (3) obligations affecting the property of the Corporation to governmental or public authorities, with respect to franchises, grants, licenses or permits and title defects arising because structures or facilities are on lands held by the Corporation under government grant, subject to a materiality threshold,
 - (4) liens in connection with contracts, bids, tenders or expropriation proceedings, surety or appeal bonds, costs of litigation, public and statutory obligations, liens or claims incidental to current construction, builders', mechanics', laborers', materialmen's, warehousemen's, carriers' and other similar liens,
 - (5) rights of governmental or public authorities under statute or the terms of leases, licenses, franchises, grants or permits,
 - (6) undetermined or inchoate liens incidental to the operations of the Corporation,
 - (7) Security Interests contested in good faith by the Corporation or for which payment is deposited with the Trustee,
 - (8) easements, rights-of-way and servitudes,
 - (9) security to public utilities, municipalities or governmental or other public authorities,
 - (10) liens and privileges arising out of judgments or awards, and
 - (11) other liens of a nature similar to those described above which do not in the opinion of the Corporation materially impair the use of the subject property or the operation of the business of the Corporation or the value of the property for the Corporation's business; and
- (i) extensions, renewals, alterations and replacements of the permitted Security Interests referred to above; provided the extension, renewal, alteration or replacement of such Security Interest is limited to all or any part of the same property that secured the Security Interest extended, renewed, altered or replaced (plus improvements on such property) and the principal amount of the Indebtedness secured thereby is not increased.

In addition, the Indenture permits the Corporation to incur or allow to exist any other Security Interest or Security Interests if the amount of Indebtedness secured under the Security Interest or Security Interests does not exceed 5% of the Corporation's Consolidated Net Tangible Assets.

The Indenture covenant restricting Security Interests will not restrict the Corporation's ability to sell its property and other assets and will not restrict any subsidiary of the Corporation from creating, assuming or otherwise having outstanding any Security Interests on its assets.

Other Indenture Covenants

The Corporation will covenant with respect to the Notes to (1) duly and punctually pay amounts due on the Notes; (2) maintain an office or agency where the Notes may be presented or surrendered for payment, where the Notes may be surrendered for registration of transfer or exchange and where notices and demands to the Corporation may be served; (3) deliver to the Trustee, within 120 days after the end of each fiscal year, a certificate stating whether or not the Corporation is in default under the Indenture; (4) pay before delinquency, taxes, assessments and governmental charges and lawful claims for labor, materials and supplies which, if unpaid, might by law become a lien upon the property of the Corporation, subject to the right of the Corporation to contest the validity of a charge, assessment or claim in good faith; and (5) maintain and keep in good condition properties used or useful in the conduct of its business and make necessary repairs and improvements as in the judgment of the Corporation are necessary to carry on the Corporation's business; provided, that the Corporation may discontinue operating or maintaining any of its properties if, in the judgment of the Corporation, the discontinuance is desirable in the conduct of the Corporation's business and not disadvantageous in any material respect to the Noteholders.

Subject to the provision described under the heading “— Mergers, Consolidations and Sales of Assets” below, the Corporation will also covenant that it will do all things necessary to preserve and keep in full force and effect its existence, rights and franchises; provided that the Corporation is not required to preserve any right or franchise if the board of directors of the Corporation determines that preservation of the right or franchise is no longer desirable in the conduct of the business of the Corporation and that its loss is not disadvantageous in any material respect to the Noteholders.

Waiver of Covenants

The Corporation may omit in any particular instance to comply with any term, provision or condition in any covenant in respect of a series of the Notes, if before the time for such compliance the holders of a majority of the principal amount of the outstanding notes of that series of the Notes waive compliance with the applicable term, provision or condition.

Mergers, Consolidations and Sales of Assets

The Corporation may not consolidate or amalgamate with or merge into, or enter into any statutory arrangement for such purpose with, any other person or convey, transfer or lease its properties and assets substantially as an entirety to any person, unless, among other requirements:

- (a) the successor to the consolidation, amalgamation, merger or arrangement is a corporation, partnership or trust organized under the laws of Canada, or any Province or Territory thereof, the United States of America, or any State thereof or the District of Columbia, and expressly assumes the obligation to pay the principal of and any premium and interest on all of the Notes and perform or observe the covenants and obligations contained in the Indenture;
- (b) immediately after giving effect to the transaction, no event of default, or event which, after notice or lapse of time or both, would become an event of default, will have happened and be continuing; and
- (c) if, as a result of any such consolidation, amalgamation, merger or arrangement, properties or assets of the Corporation would become subject to a mortgage, pledge, lien, security interest or other encumbrance which would not be permitted by the Indenture, the Corporation or such successor, as the case may be, shall take such steps as shall be necessary effectively to secure the Notes equally and ratably with (or prior to) all indebtedness secured thereby.

Upon any consolidation, amalgamation, merger or arrangement of the Corporation or conveyance, transfer or lease of properties and assets of the Corporation substantially as an entirety, the successor to the Corporation will succeed to every right and power of the Corporation under the Indenture, and, except in the case of a lease, the Corporation will be relieved of all obligations and covenants under the Indenture and the Notes.

Payment of Additional Amounts

The Corporation will, subject to the exceptions and limitations set forth below, pay to any Noteholder of any series of Notes who is a non-resident of Canada under the *Income Tax Act* (Canada) (“Tax Act”) such additional amounts as may be necessary so that every net payment on the Notes held by such Noteholder, after deduction or withholding by the Corporation or any of its paying agents for or on account of any present or future tax, assessment or other governmental charge (including penalties, interest and other liabilities related thereto) imposed by the government of Canada (or any political subdivision or taxing authority thereof or therein) (collectively, “Canadian Taxes”) upon or as a result of such payment, will not be less than the amount provided in those Notes to be then due and payable (and the Corporation will remit the full amount withheld to the relevant authority in accordance with applicable law). However, the Corporation will not be required to make any payment of additional amounts:

- (a) to any person in respect of whom such taxes are required to be withheld or deducted as a result of such person or any other person that has a beneficial interest in respect of any payment under those Notes (i) not dealing at arm’s length with the Corporation (within the meaning of the Tax Act), (ii) being a “specified shareholder” (as defined in subsection 18(5) of the Tax Act) of the Corporation, or (iii) not dealing at arm’s length (for the purposes of the Tax Act) with such a “specified shareholder”;
- (b) to any person by reason of such person being connected with Canada (otherwise than merely by holding or ownership of those Notes or receiving any payments or exercising any rights thereunder), including without limitation a non-resident insurer who carries on an insurance business in Canada and in a country other than Canada;
- (c) for or on account of any tax, assessment or other governmental charge which would not have been so imposed but for: (i) the presentation by the holder of those Notes on a date more than 30 days after the date on which such payment became due and payable or the date on which payment thereof is duly provided for, whichever occurs later; or (ii) the holder’s failure to comply with any certification, identification, information, documentation or other reporting requirements if compliance is required by law, regulation, administrative practice or an applicable treaty as a precondition to exemption from or a reduction in the rate of deduction or withholding of, any such taxes, assessment or charge;
- (d) for or on account of any estate, inheritance, gift, sales, transfer, personal property tax or any similar tax, assessment or other governmental charge;
- (e) for or on account of any tax, assessment or other governmental charge required to be withheld by any paying agent from any payment to a person on those Notes if such payment can be made to such person without such withholding by at least one other paying agent the identity of which is provided to such person;
- (f) for or on account of any tax, assessment or other governmental charge which is payable otherwise than by withholding from a payment on those Notes;
- (g) any withholding or deduction imposed pursuant to: (i) Sections 1471 to 1474 of the U.S. Internal Revenue Code of 1986, as amended (“FATCA”), or any successor version thereof, or any similar legislation imposed by any other governmental authority, (ii) any treaty, law, regulation or other official guidance enacted by Canada implementing FATCA or an intergovernmental agreement with respect to FATCA or any similar legislation imposed by any other governmental authority, or (iii) any agreement between the Corporation or the Guarantors and the United States or any authority thereof implementing FATCA; or
- (h) for any combination of items (a), (b), (c), (d), (e), (f) and (g);

nor will additional amounts be paid with respect to any payment on those Notes to a Noteholder who is a fiduciary or partnership or other than the sole beneficial owner of such payment to the extent such payment would be required by the laws of Canada (or any political subdivision thereof) to be included in the income for Canadian federal income tax purposes of a beneficiary or settlor with respect to such fiduciary or a member of such partnership or a beneficial owner who would not have been entitled to payment of the additional amounts had such beneficiary, settlor, member or beneficial owner been the Noteholder of such Notes.

The Corporation will furnish to the Noteholders, within 30 days after the date of the payment of any Canadian Taxes is due under applicable law, certified copies of tax receipts or other documents evidencing such payment.

Wherever in the Notes or Indenture there is mentioned, in any context, the payment of principal (and premium, if any), interest or any other amount payable under or with respect to the Notes, such mention shall be deemed to include mention of the payment of additional amounts to the extent that, in such context additional amounts are, were or would be payable in respect thereof.

Events of Default

The following events are defined in the Indenture as “Events of Default” with respect to each series of the Notes:

- (a) the failure of the Corporation to pay when due the principal of or premium (if any) on any notes of such series of the Notes;
- (b) the failure of the Corporation, continuing for 30 days, to pay any interest due on any notes of such series of the Notes;
- (c) the breach or violation of any covenant or condition (other than as referred to in (a) and (b) above), which continues for a period of 60 days after notice from the Trustee or from holders of at least 25% of the principal amount of all outstanding notes of such series of the Notes, if such covenant or condition applies to such series of the Notes;
- (d) default in payment at maturity, including any applicable grace period, or default in the performance or observance of any other covenant, term, agreement or condition with respect to any single item of Indebtedness in an amount in excess of 5% of Consolidated Shareholders’ Equity or with respect to more than two items of Indebtedness in an aggregate amount in excess of 10% of Consolidated Shareholders’ Equity and, if such Indebtedness has not already matured in accordance with its terms, such Indebtedness has been accelerated, if such Indebtedness has not been discharged or such acceleration shall not have been rescinded or annulled within a period of 10 days after there shall have been given, by registered or certified mail, to the Corporation by the Trustee or to the Corporation and the Trustee by the holders of at least 25% of the principal amount of the outstanding notes of such series of the Notes a written notice specifying the default and requiring the Corporation to cause such Indebtedness to be discharged or cause such acceleration to be rescinded or annulled, provided that if the Indebtedness is discharged or the applicable default under the Indebtedness is waived by the persons entitled to do so, then the Event of Default under the Indenture will be deemed waived; or
- (e) certain events of bankruptcy, insolvency or reorganization involving the Corporation.

If an Event of Default occurs and is continuing with respect to any series of the Notes, then in every such case the Trustee or the holders of at least 25% of the aggregate principal amount of the outstanding notes of such affected series of the Notes may declare the entire principal amount of such series of the Notes and all interest thereon to be immediately due and payable. However, at any time after a declaration of acceleration with respect to any series of the Notes has been made, but before a judgment or decree for payment of the money due has been obtained, the holders of a majority in principal amount of the outstanding notes of such series of the Notes, by written notice to the Corporation and the Trustee under certain circumstances (which include payment or deposit with the Trustee of outstanding principal, premium and interest), may rescind and annul such acceleration.

The Indenture provides that, subject to the duty of the Trustee during default to act with the required standard of care, the Trustee shall be under no obligation to exercise any of its rights and powers under the Indenture at the request or direction of any of the Noteholders, unless such Noteholders shall have offered to the Trustee reasonable indemnity. Subject to such provisions for indemnification of the Trustee and certain other limitations set forth in the Indenture, the holders of a majority in principal amount of the outstanding notes of a series of the Notes affected by an Event of Default shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee, with respect to the notes of such series of the Notes.

No Noteholder of any series of Notes will have any right to institute any proceeding with respect to the Indenture (including the guarantees thereof), or for the appointment of a receiver or a Trustee, or for any other remedy thereunder, unless (a) such Noteholder has previously given to the Trustee written notice of a continuing Event of Default with respect to the notes of such series of the Notes, (b) the holders of at least 25% of the aggregate principal amount of the outstanding notes of such series of the Notes have made written request, and such Noteholder or Noteholders have offered reasonable indemnity, to the Trustee to institute such proceeding as Trustee, and (c) the Trustee has failed to institute such proceeding, and has not received from the holders of a majority in aggregate principal amount of the outstanding notes of such series of the Notes a direction inconsistent with such request, within 60 days after such notice, request and offer. However, such limitations do not apply to a suit instituted by a Noteholder for the enforcement of payment of the principal of or any premium or interest on such Notes on or after the applicable due date specified in such Notes.

Modification and Waiver

Modifications and amendments of the Indenture may be made by the Corporation and the Trustee with the consent of the holders of a majority of the principal amount of the outstanding debt securities of each series issued under the Indenture (including each series of the Notes) affected by such modification or amendment; provided, however, that no such modification or amendment may, without the consent of the holder of each outstanding debt security of such affected series: (1) change the stated maturity of the principal of, or any installment of interest, if any, on any debt security; (2) reduce the principal amount of, or the premium, if any, or the rate of interest, if any, on any debt security; (3) change the Place of Payment; (4) change the currency or currency unit of payment of principal of (or premium, if any) or interest, if any, on any debt security; (5) impair the right to institute suit for the enforcement of any payment on or with respect to any debt security; (6) adversely affect any right to convert or exchange any debt security; (7) reduce the percentage of principal amount of outstanding debt securities of such series, the consent of the holders of which is required for modification or amendment of the Indenture or for waiver of compliance with certain provisions of the Indenture or for waiver of certain defaults; (8) modify the provisions of the Indenture relating to subordination in a manner that adversely affects the rights of the holders of debt securities; or (9) modify any provisions of the Indenture relating to the modification and amendment of the Indenture or the waiver of past defaults or covenants except as otherwise specified in the Indenture.

The holders of a majority of the principal amount of any series of the Notes may on behalf of the Noteholders of that series of the Notes waive, insofar as that series of the Notes is concerned, compliance by the Corporation with certain restrictive provisions of the Indenture, including the covenants and events of default. The holders of a majority in principal amount of any series of the Notes may waive any past default under the Indenture with respect to that series of the Notes, except a default in the payment of the principal of (or premium, if any) and interest, if any, on that series of the Notes or in respect of a provision which under the Indenture cannot be modified or amended without the consent of the holder of each outstanding note of that series of Notes. The Indenture or the Notes may be amended or supplemented, without the consent of any holder of debt securities, in order, among other purposes, to cure any ambiguity or inconsistency or to make any change that does not have an adverse effect on the rights of any holder of the debt securities.

Defeasance

The Indenture provides that, at its option, the Corporation will be discharged from any and all obligations in respect of the outstanding notes of any series of the Notes upon irrevocable deposit with the Trustee, in trust, of money and/or United States government securities which will provide money in an amount sufficient in the opinion of a nationally recognized firm of independent public accountants to pay the principal of and premium, if any, and each installment of interest, if any, on the outstanding notes of such series of Notes (“Defeasance”) (except with respect to the authentication, transfer, exchange or replacement of Notes or the maintenance of a place of payment and certain other obligations set forth in the Indenture). Such trust may only be established if among other things (1) the Corporation has delivered to the Trustee an opinion of counsel in the United States stating that (a) the Corporation has received from, or there has been published by, the Internal Revenue Service a ruling, or (b) since the date of execution of the Indenture, there has been a change in the applicable United States federal income tax law, in either case to the effect that the holders of the outstanding notes of such series of the Notes will not recognize income, gain or loss for United States federal income tax purposes as a result of such Defeasance and will be subject to United States federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Defeasance had not occurred; (2) the Corporation has delivered to the Trustee an opinion of counsel in Canada or a ruling from the Canada Revenue Agency (“CRA”) to the effect that the holders of the outstanding notes of such series of the Notes will not recognize income, gain or loss for Canadian federal, provincial or territorial income or other tax purposes as a result of such Defeasance and will be subject to Canadian federal or provincial income and other tax on the same amounts, in the same manner and at the same times as would have been the case had such Defeasance not occurred (and for the purposes of such opinion, such Canadian counsel shall assume that holders of the outstanding notes of such series of the Notes include holders who are not resident in Canada); (3) no Event of Default or event that, with the passing of time or the giving of notice, or both, shall constitute an Event of Default shall have occurred and be continuing on the date of such deposit; (4) the Corporation is not an “insolvent person” within the meaning of the *Bankruptcy and Insolvency Act* (Canada); (5) the Corporation has delivered to the Trustee an opinion of counsel to the effect that such deposit shall not cause the Trustee or the trust so created to be subject to the *United States Investment Company Act of 1940*, as amended; and (6) other customary conditions precedent are satisfied. The Corporation may exercise its Defeasance option notwithstanding its prior exercise of its Covenant Defeasance option described in the following paragraph if the Corporation meets the conditions described in the preceding sentence at the time the Corporation exercises the Defeasance option.

The Indenture provides that, at its option, the Corporation may omit to comply with certain covenants, including certain of the covenants described above under the heading “Covenants”, and such omission shall not be deemed to be an Event of Default under the Indenture and the outstanding Notes upon irrevocable deposit with the Trustee, in trust, of money and/or United States government securities which will provide money in an amount sufficient in the opinion of a nationally recognized firm of independent public accountants to pay the principal of and premium, if any, and each installment of interest, if any, on the outstanding Notes (“Covenant Defeasance”). If the Corporation exercises its Covenant Defeasance option, the obligations under the Indenture other than with respect to such covenants and the Events of Default other than with respect to such covenants shall remain in full force and effect. Such trust may only be established if, among other things, (1) the Corporation has delivered to the Trustee an opinion of counsel in the United States to the effect that the holders of the outstanding Notes will not recognize income, gain or loss for United States federal income tax purposes as a result of such Covenant Defeasance and will be subject to United States federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Covenant Defeasance had not occurred; (2) the Corporation has delivered to the Trustee an opinion of counsel in Canada or a ruling from the CRA to the effect that the holders of such outstanding Notes will not recognize income, gain or loss for Canadian federal, provincial or territorial income or other tax purposes as a result of such Covenant Defeasance and will be subject to Canadian federal or provincial income and other tax on the same amounts, in the same manner and at the same times as would have been the case had such Covenant Defeasance not occurred (and for the purposes of such opinion, such Canadian counsel shall assume that holders of the outstanding Notes include holders who are not resident in Canada); (3) no Event of Default or event that, with the passing of time or the giving of notice, or both, shall constitute an Event of Default shall have occurred and be continuing on the date of such deposit; (4) the Corporation is not an “insolvent person” within the meaning of the *Bankruptcy and Insolvency Act* (Canada); (5) the Corporation has delivered to the Trustee an opinion of counsel to the effect that such deposit shall not cause the Trustee or the trust so created to be subject to the *United States Investment Company Act of 1940*, as amended; and (6) other customary conditions precedent are satisfied.

Book-Entry System

The Notes will be represented by fully registered global securities (the “Global Securities”) registered in the name of Cede & Co. (the nominee of The Depository Trust Company (the “Depository”), or such other name as may be requested by an authorized representative of the Depository. The authorized minimum denominations of each Note will be US\$2,000 and integral multiples of US\$1,000 in excess thereof. Accordingly, Notes may be transferred or exchanged only through the Depository and its participants. Except as described below, owners of beneficial interests in the Global Securities will not be entitled to receive Notes in definitive form. Account holders in the Euroclear or Clearstream clearance systems may hold beneficial interests in the Notes through the accounts that each of these systems maintains as a participant in the Depository. So long as the Depository for a Global Security or its nominee is the registered owner of the Global Security, such Depository or such nominee, as the case may be, will be considered the sole owner or holder of the Notes represented by the Global Security for all purposes under the Indenture. Except as provided below, owners of beneficial interests in a Global Security will not be entitled to have the Notes represented by the Global Security registered in their names, will not receive or be entitled to receive physical delivery of the Notes of such series in definitive form and will not be considered the owners or holders thereof under the Indenture. Beneficial Owners (as defined below) will not receive certificates representing their ownership interests in the Notes except in the event that use of the book-entry system for the Notes is discontinued or if there shall have occurred and be continuing an event of default under the Indenture. The Depository will have no knowledge of the actual beneficial owners of the Notes; the Depository’s records will reflect only the identity of the direct participants to whose accounts the Notes are credited, which may or may not be the beneficial owners. The Direct Participants and Indirect Participants (as each is defined below) will remain responsible for keeping account of their holdings on behalf of their customers.

Each person owning a beneficial interest in a Global Security must rely on the procedures of the Depository and, if such person is not a participant, on the procedures of the participant through which such person owns its interest in order to exercise any rights of a Noteholder under the Indenture. The laws of some jurisdictions require that certain purchasers of securities take physical delivery of such securities in certificated form. Such limits and such laws may impair the ability to transfer beneficial interests in a Global Security representing the Notes.

The Depository

The following is based on information furnished by the Depository: The Depository is a limited-purpose trust company organized under the New York Banking Law, a “banking organization” within the meaning of the New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the U.S. Exchange Act. The Depository holds securities that its participants (“Participants”) deposit with the Depository. The Depository also facilitates the settlement among Participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in Participants’ accounts, thereby eliminating the need for physical movement of securities certificates. These direct Participants (“Direct Participants”) include securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. Access to the Depository’s system is also available to others such as securities brokers and dealers, banks and trust companies that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly (“Indirect Participants”). The rules applicable to the Depository and its Participants are on file with the SEC.

Purchases of the Notes under the Depository’s system must be made by or through Direct Participants, which will receive a credit for such Notes on the Depository’s records. The ownership interest of each actual purchaser of each Note represented by a Global Security (“Beneficial Owner”) is in turn to be recorded on the Direct and Indirect Participants’ records. Beneficial Owners will not receive written confirmation from the Depository of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participants through which such Beneficial Owner entered into the transaction. Transfers of ownership interests in a Global Security representing Notes are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners of a Global Security representing the Notes will not receive Notes in definitive form representing their ownership interests therein, except in the event that use of the book-entry system for such Notes is discontinued.

To facilitate subsequent transfers, the Global Securities representing the Notes which are deposited with the Depository are registered in the name of the Depository's nominee, Cede & Co., or such other name as may be requested by an authorized representative of the Depository. The deposit of Global Securities with the Depository and their registration in the name of Cede & Co. or such other nominee effect no change in beneficial ownership. The Depository has no knowledge of the actual Beneficial Owners of the Global Securities representing the Notes; the Depository's records reflect only the identity of the Direct Participants to whose accounts such Notes are credited, which may or may not be the Beneficial Owners. The Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by the Depository to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of the Notes may wish to take certain steps to augment transmission to them of notices of significant events with respect to the Notes, such as redemptions, tenders, defaults and proposed amendments to the Indenture.

Any redemption notices relating to the Notes will be sent to the Depository. If less than all of the Notes are being redeemed, the Depository may determine by lot the amount of the interest of each Direct Participant in the Notes to be redeemed. Neither the Depository nor its nominee will consent or vote with respect to the Notes unless authorized by a Direct Participant in accordance with the Depository's procedures. Under its procedures, the Depository may send a proxy to the Corporation as soon as possible after the record date for a consent or vote. The proxy would assign the Depository's nominee's consenting or voting rights to those Direct Participants to whose accounts the Notes are credited on the relevant record date.

Neither the Depository nor Cede & Co. (nor such other nominee of the Depository) will consent or vote with respect to the Global Securities representing the Notes. Under its usual procedures, the Depository mails an "omnibus proxy" to the Corporation as soon as possible after the applicable record date. The omnibus proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Notes are credited on the applicable record date (identified in a listing attached to the omnibus proxy).

Principal, premium, if any, and interest payments on the Global Securities representing the Notes will be made to Cede & Co. (or such other nominee as may be requested by an authorized representative of the Depository). The Depository's practice is to credit Direct Participants' accounts, upon the Depository's receipt of funds and corresponding detail information from the Corporation or the Trustee, on the applicable payment date in accordance with their respective holdings shown on the Depository's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name", and will be the responsibility of such Participant and not of the Depository, the Trustee or the Corporation, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal, premium, if any, and interest to Cede & Co. (or such other nominee as may be requested by an authorized representative of the Depository) is the responsibility of the Corporation or the Trustee, disbursement of such payments to Direct Participants shall be the responsibility of the Depository, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

The Depository may discontinue providing its services as securities depository with respect to the Notes at any time by giving reasonable notice to the Corporation or the Trustee. Under such circumstances, in the event that a successor securities depository is not obtained, Notes in definitive form are required to be printed and delivered to each Noteholder. No Global Security may be exchanged in whole or in part, and no transfer of a Global Security in whole or in part may be registered, in the name of any person other than the Depository for the Global Security or its nominee unless (1) the Depository (A) has notified the Corporation that it is unwilling or unable to continue as Depository for the Global Security or (B) has ceased to be a clearing agency registered under the U.S. Exchange Act, or (2) there shall have occurred and be continuing an event of default under the Indenture. Except for certain restrictions set forth in the Indenture, no service charge will be made for any registration of transfer or exchange of the Notes, but the Corporation may, in certain instances, require a sum sufficient to cover any tax or other governmental charges payable in connection with these transactions. The Corporation shall not be required to: (i) issue, register the transfer of or exchange Notes during a period beginning at the opening of business 15 days before the mailing of a notice of redemption of Notes to be redeemed and ending at the close of business on the day of mailing of the relevant notice of redemption; (ii) register the transfer of or exchange the Notes, or a portion thereof, called for redemption, except the unredeemed portion of the Notes being redeemed in part; or (iii) issue, register the transfer of or exchange any Notes which have been surrendered for repayment at the option of the holder, except the portion, if any, thereof not to be so repaid.

The Corporation may decide to discontinue use of the system of book-entry transfers through the Depository (or a successor securities depository). In that event, Notes in definitive form will be printed and delivered.

Settlement for the Notes will be made in immediately available funds. Secondary market trading in the Notes will be settled in immediately available funds.

The information in this section concerning the Depository and the Depository's book-entry system has been obtained from sources that the Corporation believes to be reliable, but is subject to any changes to the arrangements between the Corporation and the Depository and any changes to such procedures that may be instituted unilaterally by the Depository.

Euroclear

Euroclear is incorporated under the laws of Belgium as a bank and is subject to regulation by the Belgian Banking, Finance and Insurance Commission (La Commission Bancaire, Financière et des Assurances) and the National Bank of Belgium (Banque Nationale de Belgique). Euroclear holds securities for its customers and facilitates the clearance and settlement of securities transactions among them. It does so through simultaneous electronic book-entry delivery against payment, thereby eliminating the need for physical movement of certificates. Euroclear provides other services to its customers, including credit, custody, lending and borrowing of securities and tri-party collateral management. It interfaces with the domestic markets of several countries. Euroclear customers include banks, including central banks, securities brokers and dealers, trust companies and clearing corporations and may include certain other professional financial intermediaries. Indirect access to the Euroclear system is also available to others that clear through Euroclear customers or that have custodial relationships with Euroclear customers. All securities in Euroclear are held on a fungible basis. This means that specific certificates are not matched to specific securities clearance accounts.

The information in this section concerning Euroclear has been obtained from sources that the Corporation believes to be reliable, but is subject to any changes that may be instituted unilaterally by Euroclear.

Clearstream

Clearstream is a duly licensed bank organized as a société anonyme incorporated under the laws of Luxembourg and is subject to regulation by the Luxembourg Commission for the Supervision of the Financial Sector (Commission de Surveillance du Secteur Financier). Clearstream holds securities for its customers and facilitates the clearance and settlement of securities transactions among them. It does so through electronic book-entry transfers between the accounts of its customers. This eliminates the need for physical movement of securities. Clearstream provides other services to its customers, including safekeeping, administration, clearance and settlement of internationally traded securities and lending and borrowing of securities. It interfaces with the domestic markets in over 30 countries through established depository and custodial relationships. Clearstream's customers include worldwide securities brokers and dealers, banks, trust companies and clearing corporations and may include professional financial intermediaries. Its U.S. customers are limited to securities brokers and dealers and banks. Indirect access to the Clearstream system is also available to others that clear through Clearstream customers or that have custodial relationships with its customers, such as banks, brokers, dealers and trust companies.

The information in this section concerning Clearstream has been obtained from sources that the Corporation believes to be reliable, but is subject to any changes that may be instituted unilaterally by Clearstream.

Global Clearance and Settlement Procedures

Cross market transfers between persons holding directly or indirectly through the Depository, on the one hand, and directly or indirectly through Euroclear or Clearstream, on the other, will be effected through the Depository in accordance with Depository rules on behalf of the relevant European international clearing system by its U.S. depository; however, such cross market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in such system in accordance with its rules and procedures and within its established deadlines (European time). The relevant European international clearing system will, if the transaction meets its settlement requirements, deliver instructions to its U.S. depository to take action to effect final settlement on its behalf by delivering or receiving Notes through the Depository, and making or receiving payment in accordance with normal procedures for same day funds settlement applicable to the Depository. Clearstream participants and Euroclear participants may not deliver instructions directly to their respective U.S. depositories.

Because of time zone differences, credits of Notes received through Clearstream or Euroclear as a result of a transaction with a Depository participant will be made during subsequent securities settlement processing and dated the business day following the Depository settlement date. Such credits or any transactions in such Notes settled during that processing will be reported to the relevant Euroclear participants or Clearstream participants on that following business day. Cash received in Clearstream or Euroclear as a result of sales of Notes by or through a Clearstream participant or a Euroclear participant to a Depository participant will be received with value on the Depository settlement date but will be available in the relevant Clearstream or Euroclear cash account only as of the business day following settlement with the Depository.

Although the Depository, Clearstream and Euroclear have agreed to the foregoing procedures in order to facilitate transfers of Notes among participants of the Depository, Clearstream and Euroclear, they are under no obligation to perform or continue to perform those procedures and those procedures may be modified or discontinued at any time. Neither we nor the paying agent will have any responsibility for the performance by the Depository, Euroclear or Clearstream or their respective direct or indirect participants of their obligations under the rules and procedures governing their operations.

Consent to Jurisdiction and Service

Under the Indenture, the Corporation agrees to appoint Enbridge (U.S.) Inc., as its authorized agent for service of process in any suit or proceeding arising out of or relating to the Notes or the Indenture in connection with the Notes and for actions brought under federal or state securities laws in any federal or state court located in the city of New York, and irrevocably submits to such jurisdiction.

Governing Law

The Notes, the related guarantees and the Indenture will be governed by and construed in accordance with the laws of the State of New York.

Definitions

The Indenture contains, among others, definitions substantially to the following effect:

“*Consolidated Net Tangible Assets*” means all consolidated assets of the Corporation as shown on the most recent audited consolidated balance sheet of the Corporation, less the aggregate of the following amounts reflected upon such balance sheet:

- (a) all goodwill, deferred assets, trademarks, copyrights and other similar intangible assets;

- (b) to the extent not already deducted in computing such assets and without duplication, depreciation, depletion, amortization, reserves and any other account which reflects a decrease in the value of an asset or a periodic allocation of the cost of an asset; *provided*, that no deduction shall be made under this paragraph (b) to the extent that such amount reflects a decrease in value or periodic allocation of the cost of any asset referred to in paragraph (a) above;
- (c) minority interests;
- (d) non-cash current assets; and
- (e) Non-Recourse Assets to the extent of the outstanding Non-Recourse Debt financing of such assets.

“*Financial Instrument Obligations*” means obligations arising under:

- (a) any interest swap agreement, forward rate agreement, floor, cap or collar agreement, futures or options, insurance or other similar agreement or arrangement, or any combination thereof, entered into or guaranteed by the Corporation where the subject matter of the same is interest rates or the price, value, or amount payable thereunder is dependent or based upon the interest rates or fluctuations in interest rates in effect from time to time (but, for certainty, shall exclude conventional floating rate debt);
- (b) any currency swap agreement, cross-currency agreement, forward agreement, floor, cap or collar agreement, futures or options, insurance or other similar agreement or arrangement, or any combination thereof, entered into or guaranteed by the Corporation where the subject matter of the same is currency exchange rates or the price, value or amount payable thereunder is dependent or based upon currency exchange rates or fluctuations in currency exchange rates in effect from time to time; and
- (c) any agreement for the making or taking of Petroleum Substances or electricity, any commodity swap agreement, floor, cap or collar agreement or commodity future or option or other similar agreements or arrangements, or any combination thereof, entered into or guaranteed by the Corporation where the subject matter of the same is Petroleum Substances or electricity or the price, value or amount payable thereunder is dependent or based upon the price of Petroleum Substances or electricity or fluctuations in the price of Petroleum Substances or electricity, each as the case may be;

to the extent of the net amount due or accruing due by the Corporation thereunder (determined by marking-to-market the same in accordance with their terms).

“*Generally Accepted Accounting Principles*” means generally accepted accounting principles which are in effect from time to time in Canada, including those accounting principles generally accepted in the United States of America from time to time, which Canadian corporations are permitted to use in Canada pursuant to Canadian law.

“*Indebtedness*” means all items of indebtedness in respect of amounts borrowed and all Purchase Money Obligations which, in accordance with Generally Accepted Accounting Principles, would be recorded in the financial statements as at the date as of which such Indebtedness is to be determined, and in any event including, without duplication:

- (a) obligations secured by any Security Interest existing on property owned subject to such Security Interest, whether or not the obligations secured thereby shall have been assumed; and

- (b) guarantees, indemnities, endorsements (other than endorsements for collection in the ordinary course of business) or other contingent liabilities in respect of obligations of another person for indebtedness of that other person in respect of any amounts borrowed by them.

“*Non-Recourse Assets*” means the assets created, developed, constructed or acquired with or in respect of which Non-Recourse Debt has been incurred and any and all receivables, inventory, equipment, chattel paper, intangibles and other rights or collateral arising from or connected with the assets created, developed, constructed or acquired and to which recourse of the lender of such Non-Recourse Debt (or any agent, trustee, receiver or other person acting on behalf of such lender) in respect of such indebtedness is limited in all circumstances (other than in respect of false or misleading representations or warranties).

“*Non-Recourse Debt*” means any Indebtedness incurred to finance the creation, development, construction or acquisition of assets and any increases in or extensions, renewals or refundings of any such Indebtedness, provided that the recourse of the lender thereof or any agent, trustee, receiver or other person acting on behalf of the lender in respect of such Indebtedness or any judgment in respect thereof is limited in all circumstances (other than in respect of false or misleading representations or warranties) to the assets created, developed, constructed or acquired in respect of which such Indebtedness has been incurred and to any receivables, inventory, equipment, chattel paper, intangibles and other rights or collateral connected with the assets created, developed, constructed or acquired and to which the lender has recourse.

“*Petroleum Substances*” means crude oil, crude bitumen, synthetic crude oil, petroleum, natural gas, natural gas liquids, related hydrocarbons and any and all other substances, whether liquid, solid or gaseous, whether hydrocarbons or not, produced or producible in association with any of the foregoing, including hydrogen sulphide and sulphur.

“*Purchase Money Obligation*” means any monetary obligation created or assumed as part of the purchase price of real or tangible personal property, whether or not secured, any extensions, renewals, or refundings of any such obligation, provided that the principal amount of such obligation outstanding on the date of such extension, renewal or refunding is not increased and further provided that any security given in respect of such obligation shall not extend to any property other than the property acquired in connection with which such obligation was created or assumed and fixed improvements, if any, erected or constructed thereon.

“*Security Interest*” means any security by way of assignment, mortgage, charge, pledge, lien, encumbrance, title retention agreement or other security interest whatsoever, howsoever created or arising, whether absolute or contingent, fixed or floating, perfected or not.

MATERIAL INCOME TAX CONSIDERATIONS

Each of the summaries under this section “Material Income Tax Considerations” is of a general nature only and is not intended to be, and should not be construed to be, legal or tax advice to any particular holder, and no representation is made with respect to the United States federal tax consequences or Canadian tax consequences to any particular holder. Accordingly, prospective purchasers are urged to consult their own tax advisors with respect to the United States federal tax consequences or Canadian tax consequences relevant to them, having regard to their particular circumstances.

Material United States Federal Income Tax Considerations

This section describes the material United States federal income tax consequences of owning and disposing of the Notes. It applies only to holders who acquire Notes of a series in the offering at the offering price for the Notes of that series and who hold their Notes as capital assets for United States federal income tax purposes. This section does not apply to members of a class of holders subject to special rules, such as a broker-dealer in securities, commodities, or currencies, a governmental organization, a trader in securities that elects to use a mark-to-market method of accounting, a bank, thrift or other financial institution, a life insurance company, a tax-exempt organization, a real estate investment trust, a regulated investment company, a foreign person or entity, an insurance company, a person that owns Notes that are a hedge or that are hedged against interest rate risks, a person that owns Notes as part of a “straddle”, “constructive sale”, “hedge” or “conversion transaction” for United States federal income tax purposes, a person that purchases or sells Notes as part of a wash sale for United States federal income tax purposes, a tax deferred or other retirement account, a person holding Notes that are a hedge or that are hedged against interest rate risks,⁴ a partnership, S corporation or other pass-through entity, or a person whose functional currency for tax purposes is not the United States dollar. This section addresses only certain U.S. federal income tax consequences and does not address any state, local or non-U.S. tax consequences, or any tax consequences arising under the Medicare contribution tax on net investment income or the estate, gift or alternative minimum tax provisions of the Internal Revenue Code of 1986, as amended (the “Code”). If Notes of a series are purchased at a price other than the offering price for the Notes of that series, the amortizable bond premium or market discount rules may also apply. Holders should consult their own tax advisors regarding this possibility.

This section is based on the Code, its legislative history, final, temporary and proposed regulations thereunder (“Treasury Regulations”), published rulings and court decisions, all as currently in effect on the date hereof. These laws are subject to change, possibly on a retroactive basis, and any such change could affect the continuing validity of this discussion. This discussion is not binding on the Internal Revenue Service (the “Service”), and we have not sought and will not seek any rulings from the Service regarding the matters discussed below. There can be no assurance that the Service will not take positions that are different from those discussed below or that a United States court will not sustain such a challenge.

All holders are urged to consult their own tax advisors concerning the consequences of owning these Notes in such holder’s particular circumstances under the Code and the laws of any other taxing jurisdiction.

This section applies only to United States holders. A United States holder is a beneficial owner of a Note that is (i) an individual who is a citizen or resident of the United States, as determined for United States federal income tax purposes, (ii) a corporation (or other entity treated as a corporation for United States federal income tax purposes) created or organized under the laws of the United States, any state thereof, or the District of Columbia, (iii) an estate whose income is includible in gross income for United States federal income tax regardless of its source or (iv) a trust, if (a) a United States court can exercise primary supervision over the trust’s administration and one or more United States persons are authorized to control all substantial decisions of the trust or (b) it has a valid election in effect under applicable Treasury Regulations to be treated as a United States person.

If a partnership (or other entity, organized within or without the United States, treated as a partnership for United States federal income tax purposes) holds Notes, the tax treatment of a partner as beneficial owner of Notes generally will depend on the status of the partner and the activities of the partnership. A partner in a partnership (or other entity treated as a partnership for United States federal income tax purposes) holding the Notes is urged to consult its tax advisor with regard to the United States federal income tax treatment of an investment in the Notes.

Certain Contingent Payments

According to the applicable Treasury Regulations, certain contingencies will not cause a debt instrument to be treated as a contingent payment debt instrument (“CPDI”) under United States federal income tax law if such contingencies, as of the date of issuance, are “remote or incidental” or certain other circumstances apply. Although the matter is not free from doubt, we believe, and intend to take the position, that the Notes should not be characterized as CPDIs even though the Notes provide for certain contingent payments (see “Description of the Notes and the Guarantees — Principal and Interest” and “Description of the Notes and the Guarantees — Redemption”). Our determination that the Notes are not CPDIs is binding on you, unless you explicitly disclose in the manner required by applicable Treasury Regulations that your determination is different from ours. If the Service takes a contrary position, a holder subject to United States federal income tax may be required (i) to accrue interest income at a rate higher than the stated interest rate on the Notes, and (ii) to treat as ordinary income, rather than capital gain, any gain on the sale or retirement of the Notes. You should consult your tax advisor about the risk of the Notes being treated as CPDIs. The remainder of this discussion assumes that the Notes are not CPDIs.

Payments of Interest

United States holders will be taxed on interest on the Notes as ordinary income at the time the interest is received or when it accrues, depending on the holder’s method of accounting for United States federal income tax purposes.

Interest paid by us on the Notes is income from sources outside the United States for purposes of the rules regarding the foreign tax credit allowable to a United States holder and will generally be “passive category” income for purposes of computing the foreign tax credit. The rules governing the United States foreign tax credit are complex, and United States holders are urged to consult their tax advisors regarding the availability of claiming a United States foreign tax credit under their particular circumstances.

Purchase, Sale and Retirement of the Notes

A United States holder’s tax basis in a Note generally will be its cost. A United States holder will generally recognize capital gain or loss on the sale or retirement of a Note equal to the difference between the amount realized on the sale or retirement, excluding any amounts attributable to accrued but unpaid interest (which will be taxable as ordinary interest income to the extent not previously included in income), and such holder’s tax basis in the Note. Capital gain of a noncorporate United States holder is generally taxed at preferential rates where the holder has a holding period greater than one year.

Gain or loss on the sale or retirement of a Note generally will be treated as United States source income or loss for United States federal income tax purposes and for purposes of computing the United States foreign tax credit allowable to a United States holder unless such gain or loss is attributable to an office or other fixed place of business outside of the United States and certain other conditions are met.

Backup Withholding and Information Reporting

For noncorporate United States holders, information reporting requirements, on Internal Revenue Service Form 1099, generally will apply to payments of principal and interest on a Note within the United States, including payments made by wire transfer from outside the United States to an account maintained in the United States, and the payment of the proceeds from the sale of a Note effected at a United States office of a broker. Additionally, backup withholding may apply to such payments if a noncorporate United States holder fails to provide an accurate taxpayer identification number, (in the case of interest payments) is notified by the Service that the holder has failed to report all interest and dividends required to be shown on the holder’s United States federal income tax returns, or, in certain circumstances, fails to comply with applicable certification requirements.

Information with Respect to Foreign Financial Assets

Owners of “specified foreign financial assets” with an aggregate value in excess of \$50,000 (and in certain circumstances, a higher threshold) may be required to file an information report with respect to such assets with their tax returns. “Specified foreign financial assets” may include financial accounts maintained by foreign financial institutions, as well as the following, but only if they are held for investment and not held in accounts maintained by financial institutions: (i) stocks and securities issued by non-United States persons, (ii) financial instruments and contracts that have non-United States issuers or counterparties, and (iii) interests in foreign entities. United States holders that are individuals are urged to consult their tax advisors regarding the application of this reporting requirement to their ownership of the Notes.

Material Canadian Income Tax Considerations

In the opinion of McCarthy Tétrault LLP, our Canadian counsel, the following is, as of the date hereof, a general summary of the principal Canadian federal income tax considerations under the Tax Act applicable to a purchaser of Notes as beneficial owner pursuant to the prospectus and this prospectus supplement who, at all relevant times, for purposes of the Tax Act and any applicable tax treaty (i) is not resident or deemed to be resident in Canada, (ii) deals at arm’s length with and is not affiliated with the Corporation, any of its affiliates or the underwriters; (iii) deals at arm’s length with any transferee who is resident or deemed to be resident in Canada and to whom the purchaser assigns or otherwise transfers the Note; (iv) is not a “specified shareholder” (as defined in subsection 18(5) of the Tax Act) of the Corporation or a person that does not deal at arm’s length with a specified shareholder of the Corporation and (v) does not use or hold and is not deemed to use or hold a Note in carrying on business in Canada (a “Non-Resident Holder”). This summary is based on the current provisions of the Tax Act and the regulations thereunder, proposed amendments to the Tax Act and the regulations thereunder publicly announced prior to the date of this prospectus supplement (the “Proposed Amendments”) and counsel’s understanding of the current published administrative practices of the CRA in effect as of the date hereof. This summary is not exhaustive of all possible Canadian federal income tax considerations applicable to a Non-Resident Holder and does not anticipate any changes in law or administrative practice, nor does it take into account provincial, territorial or foreign tax considerations, which may differ significantly from those discussed herein. There can be no assurance that the Proposed Amendments will be enacted as proposed or at all. Special rules, which are not discussed below, may apply to a Non-Resident Holder that is an insurer which carries on an insurance business in Canada and elsewhere. This summary assumes that no amount paid or payable as, or on account or in lieu of payment of, interest (including any amounts deemed to be interest) will be in respect of a debt or other obligation to pay an amount to a person who does not deal at arm’s length with the Corporation for purposes of the Tax Act.

This summary is of a general nature only and is not, and is not intended to be, and should not be construed to be, legal or tax advice to any particular Non-Resident Holder and no representation with respect to the income tax consequences to any particular Non-Resident Holder is made. Prospective purchasers of Notes should consult their own tax advisors with respect to the tax consequences of acquiring, holding and disposing of Notes having regard to their own particular circumstances.

Under the Tax Act, the payment of interest, principal or premium, if any, to a Non-Resident Holder of a Note by the Corporation will be exempt from Canadian non-resident withholding tax. No other taxes on income or capital gains will be payable under the Tax Act in respect of the acquisition, holding, redemption or disposition of a Note by a Non-Resident Holder, or the receipt of interest, principal or premium thereon by a Non-Resident Holder solely as a consequence of such acquisition, holding, redemption or disposition of a Note.

CERTAIN BENEFIT PLAN INVESTOR CONSIDERATIONS

The “Certain Benefit Plan Investor Considerations” section of the accompanying prospectus is not applicable for purposes of this offering.

UNDERWRITING

Credit Suisse Securities (USA) LLC, BofA Securities, Inc., Citigroup Global Markets Inc., J.P. Morgan Securities LLC and SMBC Nikko Securities America, Inc. are acting as representatives of the underwriters named below. Subject to the terms and conditions stated in the underwriting agreement, dated the date of this prospectus supplement, each underwriter named below has severally agreed to purchase, and we have agreed to sell to that underwriter, the principal amount of Notes set forth opposite such underwriter's name.

Underwriter	Principal Amount of Sustainability-Linked Senior Notes		Principal Amount of Senior Notes	
Credit Suisse Securities (USA) LLC	US\$	100,000,000	US\$	50,000,000
BofA Securities, Inc.		100,000,000		50,000,000
Citigroup Global Markets Inc.		100,000,000		50,000,000
J.P. Morgan Securities LLC		100,000,000		50,000,000
SMBC Nikko Securities America, Inc.		100,000,000		50,000,000
Barclays Capital Inc.		60,000,000		30,000,000
Mizuho Securities USA LLC		60,000,000		30,000,000
Truist Securities, Inc.		60,000,000		30,000,000
Wells Fargo Securities, LLC		60,000,000		30,000,000
HSBC Securities (USA) Inc.		60,000,000		30,000,000
MUFG Securities Americas Inc.		60,000,000		30,000,000
Credit Agricole Securities (USA) Inc.		30,000,000		15,000,000
Deutsche Bank Securities Inc.		30,000,000		15,000,000
SG Americas Securities, LLC		30,000,000		15,000,000
KeyBanc Capital Markets Inc.		20,000,000		10,000,000
Loop Capital Markets LLC		20,000,000		10,000,000
AmeriVet Securities Inc.		5,000,000		2,500,000
Roberts & Ryan Investments, Inc.		5,000,000		2,500,000
Total	US\$	1,000,000,000	US\$	500,000,000

The underwriting agreement provides that the obligations of the underwriters to purchase the Notes included in this offering are subject to approval of legal matters by counsel and to other conditions. The underwriters are obligated to purchase all the Notes if they purchase any of the Notes. The underwriters reserve the right to cancel, reject or modify an order of Notes in whole or in part.

The underwriters propose to offer the Notes directly to the public at the public offering price set forth on the cover page of this prospectus supplement and may offer the Notes to dealers at the public offering price less a concession not to exceed 0.400% of the principal amount of the Sustainability-Linked Senior Notes and 0.500% of the principal amount of the Senior Notes. The underwriters may allow, and dealers may reallow, a concession not to exceed 0.250% of the principal amount of the Sustainability-Linked Senior Notes and 0.250% of the principal amount of the Senior Notes. After the initial offering of the Notes to the public, the representatives may change the public offering price, concessions and other selling terms.

In connection with the offering, each of Credit Suisse Securities (USA) LLC, BofA Securities, Inc., Citigroup Global Markets Inc., J.P. Morgan Securities LLC and SMBC Nikko Securities America, Inc. on behalf of the underwriters, may purchase and sell Notes in the open market. These transactions may include over-allotment, syndicate covering transactions and stabilizing transactions. Over-allotment involves syndicate sales of Notes in excess of the principal amount of Notes to be purchased by the underwriters in the offering, which creates a syndicate short position. Syndicate covering transactions involve purchases of the Notes in the open market after the distribution has been completed in order to cover syndicate short positions. Stabilizing transactions consist of certain bids or purchases of Notes made for the purpose of preventing or retarding a decline in the market price of the Notes while the offering is in progress.

Any of these activities may have the effect of preventing or retarding a decline in the market price of the Notes. They may also cause the price of the Notes to be higher than the price that otherwise would exist in the open market in the absence of these transactions. The underwriters may conduct these transactions in the over-the-counter market or otherwise. If the underwriters commence any of these transactions, they may discontinue them at any time. There will be no obligation on Credit Suisse Securities

(USA) LLC, BofA Securities, Inc., Citigroup Global Markets Inc., J.P. Morgan Securities LLC and SMBC Nikko Securities America, Inc. to engage in these activities.

The Notes are new issues of securities with no established trading market. The Notes will not be listed on any automated dealer quotation system, and we do not intend to apply for listing of the Notes on any securities exchange. We have been advised that the underwriters currently intend to make a market in each series of the Notes. However, they are not obligated to do so and they may discontinue any market-making activities with respect to the Notes at any time without notice. No assurance can be given as to the liquidity of the trading market for the Notes or that an active public market for the Notes will develop. If an active public trading market for the Notes does not develop, the market price and liquidity of the Notes may be adversely affected.

The following table shows the underwriting discounts and commissions that we will pay the underwriters in connection with this offering (expressed as a percentage of the principal amount of the Notes).

	<u>Paid by Enbridge</u>
Per Sustainability-Linked Senior Note	0.675%
Per Senior Note	0.875%

We estimate that our total expenses for this offering, excluding underwriting discounts and commissions, will be US\$538,746.95.

The Notes are not being offered in and may not be sold to any persons in Canada.

The underwriters or their affiliates perform and have performed commercial banking, investment banking and advisory services for us from time to time for which they receive and have received customary fees and expenses. The underwriters may, from time to time, engage in transactions with and perform services for us in the ordinary course of their business. In addition, in the ordinary course of their business activities, the underwriters and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. These investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of these securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in these securities and instruments.

As at June 18, 2021, the Corporation had approximately \$726 million and US\$1,477 million of outstanding unsecured indebtedness under our unsecured credit facilities. In addition, as at June 18, 2021, approximately \$7,056 million and US\$4,695 million of our unsecured credit facilities were used as a backstop to support outstanding commercial paper balances. The Corporation is in compliance with the terms of its unsecured credit facilities and there have been no waivers of breaches thereunder. There has been no materially adverse change to the financial position of the Corporation since the indebtedness was incurred. The Corporation may use the net proceeds of the offering to pay down short-term debt, and, as a consequence, net proceeds from the offering may be paid to one or more lenders who are affiliated with the underwriters.

We may have outstanding existing indebtedness owing to certain of the underwriters and affiliates of the underwriters, a portion of which we may repay with the net proceeds of this offering. See “Use of Proceeds” in this prospectus supplement. As a result, one or more of the underwriters or their affiliates may receive more than 5% of the net proceeds from this offering in the form of the repayment of existing indebtedness. Accordingly, this offering is being made pursuant to Rule 5121 of the Financial Industry Regulatory Authority, Inc. Pursuant to this rule, the appointment of a qualified independent underwriter is not necessary in connection with this offering, because the conditions of Rule 5121(a)(1)(C) are satisfied.

Certain of the underwriters are affiliates of banks that are currently lenders to us (the “Lenders”) under credit facilities extended to the Corporation and certain of its subsidiaries (the “Enbridge Credit Facilities”) and, as a result, under applicable Canadian securities legislation, we may be considered to be a connected issuer to those underwriters. We are in compliance with the terms of the Enbridge Credit Facilities and none of the Lenders was involved in the decision to offer the Notes or in the determination of the terms of the distribution of the Notes.

If any of the underwriters or their affiliates has a lending relationship with us or our affiliates, certain of those underwriters or their affiliates routinely hedge, certain other of those underwriters or their affiliates have hedged and are likely in the future to hedge, and certain other of those underwriters of their affiliates may hedge, their credit exposure to us consistent with their customary risk management policies. Typically, these underwriters and their affiliates would hedge that exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our affiliates’ securities, including potentially the Notes offered hereby. Any of these credit default swaps or short positions could adversely affect future trading prices of the Notes offered hereby.

A prospectus supplement in electronic format may be made available on the websites maintained by one or more of the underwriters.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the U.S. Securities Act, or to contribute to payments the underwriters may be required to make because of any of those liabilities.

Notice to Prospective Investors in the European Economic Area

The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area (“EEA”). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, “MiFID II”); or (ii) a customer within the meaning of Directive (EU) 2016/97 (as amended, the “Insurance Distribution Directive”), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in Regulation (EU) 2017/1129 (as amended, the “Prospectus Regulation”). Consequently, no key information document required by Regulation (EU) No 1286/2014 (as amended, the “PRIIPs Regulation”) for offering or selling the Notes or otherwise making them available to retail investors in the EEA has been prepared and therefore offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation. This prospectus supplement and the accompanying prospectus have been prepared on the basis that any offer of Notes in any member state of the EEA will be made pursuant to an exemption under the Prospectus Regulation from the requirement to publish a prospectus for offers of Notes. This prospectus supplement and the accompanying prospectus is not a prospectus for the purposes of the Prospectus Regulation.

Notice to Prospective Investors in the United Kingdom

The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the United Kingdom (“UK”). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client, as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 (as amended, the “EUWA”); or (ii) a customer within the meaning of the provisions of the Financial Services and Markets Act 2000 (as amended, the “FSMA”) and any rules or regulations made under the FSMA to implement the Insurance Distribution Directive, where that customer would not qualify as a professional client, as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA; or (iii) not a qualified investor as defined in Article 2 of the Prospectus Regulation as it forms part of domestic law by virtue of the EUWA (the “UK Prospectus Regulation”). Consequently no key information document required by Regulation (EU) No 1286/2014 as it forms part of domestic law by virtue of the EUWA (the “UK PRIIPs Regulation”) for offering or selling the Notes or otherwise making them available to retail investors in the UK has been prepared and therefore offering or selling the Notes or otherwise making them available to any retail investor in the UK may be unlawful under the UK PRIIPs Regulation. This prospectus supplement and the accompanying prospectus have been prepared on the basis that any offer of Notes in the United Kingdom will be made pursuant to an exemption under the UK Prospectus Regulation from the requirement to publish a prospectus for offers of Notes. This prospectus supplement and the accompanying prospectus is not a prospectus for the purposes of the UK Prospectus Regulation or the FSMA.

This prospectus supplement is for distribution only to persons who (i) have professional experience in matters relating to investments and who qualify as investment professionals within the meaning of Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the “Financial Promotion Order”) or (ii) are persons falling within Article 49(2)(a) to (d) (“high net worth companies, unincorporated associations etc.”) of the Financial Promotion Order (all such persons together being referred to as “relevant persons”). This prospectus supplement is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this prospectus supplement relates is available only to relevant persons and will be engaged in only with relevant persons.

Notice to Prospective Investors in Hong Kong

The Notes may not be offered or sold by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), (ii) to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a “prospectus” within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), and no advertisement, invitation or document relating to the Notes may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to Notes which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder.

Notice to Prospective Investors in Japan

The Notes have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (the “Financial Instruments and Exchange Law”), and each underwriter has agreed that it will not offer or sell any Notes, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Law and any other applicable laws, regulations and ministerial guidelines of Japan.

Notice to Prospective Investors in Singapore

Neither this prospectus supplement nor the accompanying prospectus, nor any other materials relating to the Notes, has been or will be lodged or registered as a prospectus with the Monetary Authority of Singapore under the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”). Accordingly, this prospectus supplement, the accompanying prospectus and any other document or material issued in connection with the offer or sale, or invitation for subscription or purchase, of the Notes may not be issued, circulated or distributed, nor may the Notes be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor (as defined in Section 4A of the SFA) pursuant to Section 274 of the SFA, (ii) to an accredited investor as defined in Section 4A of the SFA or to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to an offer referred to in Section 275(1A) of the SFA, and in accordance with the applicable conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with the conditions set forth in the SFA.

Where the Notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is: (a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an accredited investor, the securities or securities-based derivative contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries’ rights and interest (however described) in that trust shall not be transferred within six months after that corporation or that trust has subscribed or purchased the Notes under an offer made pursuant to Section 275 of the SFA except: (1) to an institutional investor or an accredited investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA; (2) where no consideration is or will be given for the transfer; (3) where the transfer is by operation of law; (4) as specified in Section 276(7) of the SFA; or (5) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Singapore Securities and Futures Act Product Classification – Solely for the purposes of its obligations pursuant to sections 309B(1)(a) and 309B(1)(c) of the SFA, we have determined, and hereby notify all relevant persons (as defined in Section 309A of the SFA) that the Notes are “prescribed capital markets products” (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Notice to Prospective Investors in Switzerland

This prospectus supplement is not intended to constitute an offer or solicitation to purchase or invest in the Notes. The Notes may not be publicly offered, directly or indirectly, in Switzerland within the meaning of the Swiss Financial Services Act (“FinSA”) and no application has or will be made to admit the Notes to trading on any trading venue (exchange or multilateral trading facility) in Switzerland. Neither this prospectus supplement nor any other offering or marketing material relating to the Notes constitutes a prospectus pursuant to the FinSA, and neither this prospectus supplement nor any other offering or marketing material relating to the Notes may be publicly distributed or otherwise made publicly available in Switzerland.

EXPENSES

The following is a statement of the expenses (all of which are estimated), other than any underwriting discounts and commissions and expenses reimbursed by or to us, to be incurred in connection with a distribution of securities registered under this registration statement.

SEC registration fee	US\$ 153,746.95*
Trustee's fees and expenses	25,000
Printing expenses	15,000
Legal fees and expenses	250,000
Accountants' fees and expenses	85,000
Miscellaneous	10,000
Total	US\$ 538,746.95

*Pursuant to Rule 457(p) under the Securities Act of 1933, as amended, US\$730,170 was previously paid by the Registrant in connection with the registration of unissued securities under the Registrant's F-10 shelf registration statement (File No. 333- 220471), filed on September 15, 2017 and under the Registrant's F-3 shelf registration statement (File No. 333-221507), filed on November 13, 2017 and became effective on November 22, 2017, and was carried forward to the Registrant's S-3 shelf registration statement (File No. 333-223094), filed on February 20, 2018, of which US\$549,645 was further carried forward to the Registrant's S-3 shelf registration statement (File No. 333-231553), filed on May 17, 2019. The US\$163,061.95 filing fee with respect to the 2.500% Sustainability-Linked Senior Notes due 2033 and 3.400% Senior Notes due 2051 offered and sold hereby pursuant to this registration statement is partially offset against those filing fees carried forward in the amount of US\$9,315. A filing fee of US\$153,746.95 is being paid in connection with this offering.

VALIDITY OF SECURITIES

Certain legal matters relating to Canadian law in connection with this offering of Notes will be passed upon for the Corporation by McCarthy Tétrault LLP, Calgary, Alberta, Canada, and the validity of the Notes as to matters of New York law and the validity of the related guarantees will be passed upon for the Corporation by Sullivan & Cromwell LLP, New York, New York. In addition, certain legal matters relating to United States law in connection with this offering of the Notes and the validity of the Notes and related guarantees will be passed upon for the underwriters by Baker Botts L.L.P., Houston, Texas and certain legal matters relating to Canadian law in connection with this offering of the Notes will be passed upon for the underwriters by Osler, Hoskin & Harcourt LLP, Toronto, Ontario, Canada.

EXPERTS

The audited consolidated annual financial statements of the Corporation as of and for the years ended December 31, 2020 and 2019 incorporated by reference in this prospectus supplement have been so incorporated in reliance on the audit report, which is also incorporated by reference in this prospectus supplement, of PricewaterhouseCoopers LLP, Calgary, Alberta, Canada on the authority of such firm as experts in auditing and accounting.

PROSPECTUS

ENBRIDGE INC.



DEBT SECURITIES GUARANTEES OF DEBT SECURITIES COMMON SHARES PREFERENCE SHARES

We may from time to time offer our debt securities (which may be guaranteed by our wholly owned subsidiaries, Spectra Energy Partners, LP (“SEP”) and Enbridge Energy Partners, L.P. (“EEP”)), common shares and cumulative redeemable preference shares (the “**preference shares**” and, together with our debt securities, the subsidiary guarantees of our debt securities (the “**guarantees**”) and our common shares, the “**Securities**”). We may offer the Securities separately or together, in separate series or classes and in amounts, at prices and on terms described in one or more supplements to this prospectus (the “**Prospectus**”).

The specific variable terms of any offering of Securities will be set forth in one or more supplements to this Prospectus (a “**Prospectus Supplement**”) including, where applicable: (i) in the case of common shares or preference shares, the number of shares offered and the offering price; and (ii) in the case of debt securities, the designation, any limit on the aggregate principal amount, the currency or currency unit, the maturity, the offering price, whether payment on the debt securities will be senior or subordinated to our other liabilities and obligations, whether the debt securities will bear interest, the interest rate or method of determining the interest rate, any terms of redemption, any conversion or exchange rights, whether the debt securities will be guaranteed and any other specific terms of the debt securities. You should read this Prospectus and any applicable Prospectus Supplement before you invest in any Securities.

The Corporation’s common shares are listed on the New York Stock Exchange (the “**NYSE**”) and the Toronto Stock Exchange (the “**TSX**”) under the symbol “ENB”. Certain series of the Corporation’s preference shares are listed on the TSX. On May 10, 2019, the last reported sales price of our common shares on the NYSE was US\$36.85 per share and the last reported sales price of our common shares on the TSX was Cdn\$49.41 per share.

The Securities may be sold directly, on a continuous or delayed basis, through dealers or agents designated from time to time, to or through underwriters or through a combination of these methods. See “*Plan of Distribution*” in this Prospectus. We may also describe the plan of distribution for any particular offering of the Securities in any applicable Prospectus Supplement. If any agents, underwriters or dealers are involved in the sale of any securities in respect of which this Prospectus is being delivered, we will disclose their names and the nature of our arrangements as well as the net proceeds we expect to receive from any such sale, in the applicable Prospectus Supplement.

You should read this Prospectus and any accompanying Prospectus Supplement carefully before you invest in the Securities.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The enforcement by investors of civil liabilities under United States federal securities laws may be affected adversely by the fact that the Corporation is incorporated under the laws of Canada, that at certain points in time, most of its officers and directors may be residents of Canada, that some of the experts named in this Prospectus are residents of Canada, and that all or a substantial portion of the assets of the Corporation and said persons are located outside the United States.

Investing in these Securities involves certain risks. To read about certain factors you should consider before buying any of the Securities, see “*Risk Factors*” section on page 8 of this Prospectus and on page 38 of our [annual report on Form 10-K for the year ended December 31, 2018](#), which is incorporated by reference herein, as well as any risk factors included in, or incorporated by reference into, an applicable Prospectus Supplement.

This Prospectus is dated May 17, 2019

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The Corporation has not authorized anyone to provide any information or to make any representations other than as contained or incorporated by reference in this Prospectus or in any accompanying supplement to this Prospectus. The Corporation takes no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This Prospectus and any accompanying supplement to this Prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this Prospectus and any accompanying supplement to this Prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. The information contained or incorporated by reference in this Prospectus and any supplement to this Prospectus is accurate as of the dates of the applicable documents. Our business, financial condition, results of operations and prospects may have changed since the applicable dates. When this Prospectus or a supplement are delivered or sale pursuant to this Prospectus or a supplement is made, we are not implying that the information is current as of the date of the delivery or sale. You should not consider any information in this Prospectus or in the documents incorporated by reference herein to be investment, legal or tax advice. We encourage you to consult your own counsel, accountant and other advisors for legal, tax, business, financial and related advice regarding an investment in our Securities.

ABOUT THIS PROSPECTUS

This Prospectus is part of a registration statement that we filed with the Securities and Exchange Commission (the “SEC”) utilizing a “shelf” registration process. Under this shelf process, we may sell the Securities described in this Prospectus in one or more offerings. This Prospectus provides you with a general description of the Securities that may be offered pursuant to this Prospectus. Each time we offer Securities pursuant to this Prospectus, we will provide you with one or more Prospectus Supplements that will provide specific information about the Securities being offered and describe the specific terms of that offering. A Prospectus Supplement may also include a discussion of any additional risk factors or other special considerations that apply to the Securities being offered and add to, update or change the information contained in this Prospectus. If there is any inconsistency between the information in this Prospectus and any Prospectus Supplement, you should rely on the Prospectus Supplement. You should read both this Prospectus and any Prospectus Supplement together with the additional information described under the heading “*Where You Can Find More Information*” before purchasing any Securities.

In this Prospectus and in any Prospectus Supplement, unless otherwise specified or the context otherwise requires, all dollar amounts are expressed in Canadian dollars or Cdn\$. “U.S. dollars” or “US\$” means lawful currency of the United States. Unless otherwise indicated, all financial information included in this Prospectus or included in any Prospectus Supplement is determined using U.S. generally accepted accounting principles (“U.S. GAAP”). Except as set forth under “*Description of Debt Securities and Guarantees*” and “*Description of Share Capital*”, and unless the context otherwise requires, all references in this Prospectus and any Prospectus Supplement to “**Enbridge**”, the “**Corporation**”, “**we**”, “**us**” and “**our**” mean Enbridge Inc. and its subsidiaries, partnership interests and joint venture investments.

NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Prospectus, including the documents incorporated by reference into this Prospectus, contain both historical and forward-looking statements within the meaning of Section 27A of the U.S. Securities Act of 1933, as amended (the “**U.S. Securities Act**”), and Section 21E of the U.S. Securities Exchange Act of 1934, as amended (the “**U.S. Exchange Act**”), and forward-looking information within the meaning of Canadian securities laws (collectively, “**forward-looking statements**”). This information has been included to provide readers with information about the Corporation and its subsidiaries and affiliates, including management’s assessment of the Corporation’s and its subsidiaries’ future plans and operations. This information may not be appropriate for other purposes. Forward-looking statements are typically identified by words such as “anticipate”, “believe”, “estimate”, “expect”, “forecast”, “intend”, “likely”, “plan”, “project”, “target” and similar words suggesting future outcomes or statements regarding an outlook. Forward-looking information or statements included or incorporated by reference in this Prospectus include, but are not limited to, statements with respect to the following: expected earnings before interest, income taxes and depreciation and amortization (“**EBITDA**”); expected earnings/(loss); expected earnings/(loss) per share; expected future cash flows; expected performance of the Liquids Pipelines, Gas Transmission and Midstream, Gas Distribution, Renewable Power Generation and Transmission, and Energy Services businesses; financial strength and flexibility; expectations on sources of liquidity and sufficiency of financial resources; expected costs related to announced projects and projects under construction; expected in-service dates for announced projects and projects under construction; expected capital expenditures; expected equity funding requirements for our commercially secured growth program; expected future growth and expansion opportunities; expectations about our joint venture partners’ ability to complete and finance projects under construction; expected closing of acquisitions and dispositions and expected timing thereof; estimated future dividends; expected future actions of regulators; expected costs related to leak remediation and potential insurance recoveries; expectations regarding commodity prices; supply forecasts; expectations regarding the impact of the stock-for-stock merger transaction completed on February 27, 2017 between Enbridge and Spectra Energy Corp (the “**Merger Transaction**”) including our combined scale, financial flexibility, growth program, future business prospects and performance; United States Line 3 Replacement Program; expected impact of the Federal Energy Regulatory Commission policy on treatment of income taxes; the transactions undertaken to simplify our corporate structure; our dividend payout policy; dividend growth and dividend payout expectation; expectations on impact of our hedging program; and expectations resulting from the successful execution of our 2018-2020 Strategic Plan.

Although we believe these forward-looking statements are reasonable based on the information available on the date such statements are made and processes used to prepare the information, such statements are not guarantees of future performance and readers are cautioned against placing undue reliance on forward-looking statements. By their nature, these statements involve a variety of assumptions, known and unknown risks and uncertainties and other factors, which may cause actual results, levels of activity and achievements to differ materially from those expressed or implied by such statements. Material assumptions include assumptions about the following: the expected supply of and demand for crude oil, natural gas, natural gas liquids (“**NGL**”) and renewable energy; prices of crude oil, natural gas, NGL and renewable energy; exchange rates; inflation; interest rates; availability and price of labor and construction materials; operational reliability; customer and regulatory approvals; maintenance of support and regulatory approvals for our projects; anticipated in-service dates; weather; the timing and closing of dispositions; the realization of anticipated benefits and synergies of the Merger Transaction; governmental legislation; acquisitions and the timing thereof; the success of integration plans; impact of the dividend policy on our future cash flows; credit ratings; capital project funding; expected EBITDA; expected earnings/(loss); expected earnings/(loss) per share; expected future cash flows; and estimated future dividends. Assumptions regarding the expected supply of and demand for crude oil, natural gas, NGL and renewable energy, and the prices of these commodities, are material to and underlie all forward-looking statements, as they may impact current and future levels of demand for our services. Similarly, exchange rates, inflation and interest rates impact the economies and business environments in which we operate and may impact levels of demand for our services and cost of inputs, and are therefore inherent in all forward-looking statements. Due to the interdependencies and correlation of these macroeconomic factors, the impact of any one assumption on a forward-looking statement cannot be determined with certainty, particularly with respect to the impact of the Merger Transaction on us, expected EBITDA, expected earnings/(loss), expected earnings/(loss) per share or estimated future dividends. The most relevant assumptions associated with forward-looking statements regarding announced projects and projects under construction, including estimated completion dates and expected capital expenditures, include the following: the availability and price of labor and construction materials; the effects of inflation and foreign exchange rates on labor and material costs; the effects of interest rates on borrowing costs; the impact of weather and customer, government and regulatory approvals on construction and in-service schedules and cost recovery regimes.

The Corporation's forward-looking statements are subject to risks and uncertainties pertaining to the realization of anticipated benefits and synergies of the Merger Transaction, operating performance, regulatory parameters, changes in regulations applicable to our business, dispositions, the transactions undertaken to simplify our corporate structure, our dividend policy, project approval and support, renewals of rights-of-way, weather, economic and competitive conditions, public opinion, changes in tax laws and tax rates, changes in trade agreements, exchange rates, interest rates, commodity prices, political decisions and supply of and demand for commodities, including, but not limited to, those risks and uncertainties discussed in this Prospectus and in documents incorporated by reference into this Prospectus. The impact of any one risk, uncertainty or factor on a particular forward-looking statement is not determinable with certainty as these are interdependent and our future course of action depends on management's assessment of all information available at the relevant time. Except to the extent required by applicable law, the Corporation assumes no obligation to publicly update or revise any forward-looking statement made in this Prospectus or otherwise, whether as a result of new information, future events or otherwise. All forward-looking statements, whether written or oral, attributable to the Corporation or persons acting on the Corporation's behalf, are expressly qualified in their entirety by these cautionary statements.

WHERE YOU CAN FIND MORE INFORMATION

The Corporation is subject to the information requirements of the U.S. Exchange Act, and in accordance therewith files reports and other information with the SEC. Such reports and other information are available on the SEC's website at www.sec.gov. Prospective investors may read and download the documents the Corporation has filed with the SEC's Electronic Data Gathering and Retrieval system at www.sec.gov. Reports and other information about the Corporation may also be inspected at the offices of the New York Stock Exchange, 20 Broad Street, New York, New York 10005.

The Corporation has filed with the SEC under the U.S. Securities Act, a registration statement on Form S-3 relating to the Securities and of which this Prospectus forms a part. This Prospectus does not contain all of the information set forth in such registration statement, certain items of which are contained in the exhibits to the registration statement as permitted or required by the rules and regulations of the SEC. Statements made in this Prospectus as to the contents of any contract, agreement or other document referred to are not necessarily complete, and in each instance, for a complete description of the applicable contract, agreement or other document, reference is made to the exhibits available on the SEC's website at www.sec.gov.

INCORPORATION BY REFERENCE

The SEC's rules allow us to "incorporate by reference" into this Prospectus the information in documents we file with the SEC. This means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this Prospectus and should be read with the same care. When we update the information contained in documents that have been incorporated by reference by making future filings with the SEC the information incorporated by reference in this Prospectus is considered to be automatically updated and superseded. The modifying or superseding statement need not state that it has modified or superseded a prior statement or include any other information set forth in the document that it modifies or supersedes. In other words, in the case of a conflict or inconsistency between information contained in this Prospectus and information incorporated by reference into this Prospectus, you should rely on the information contained in the document that was filed later. The making of a modifying or superseding statement shall not be deemed an admission for any purposes that the modified or superseded statement, when made, constituted a misrepresentation, an untrue statement of a material fact or an omission to state a material fact that is required to be stated or that is necessary to make a statement not misleading in light of the circumstances in which it was made. Any statement so modified or superseded shall not be deemed, except as so modified or superseded to constitute a part of this Prospectus.

We incorporate by reference the documents listed below and all documents which we subsequently file with the SEC (other than, in each case, documents or information deemed to have been furnished and not filed in accordance with the SEC rules) pursuant to Section 13(a), 13(c), 14, or 15(d) of the U.S. Exchange Act until the termination of the offering of the Securities under this Prospectus:

- [Annual Report on Form 10-K for the fiscal year ended December 31, 2018, filed on February 15, 2019 \(the "Annual Report"\)](#);
- [Definitive Proxy Statement on Schedule 14A, filed on March 27, 2019](#);
- [Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2019, filed on May 10, 2019](#);
- Current Reports on Form 8-K filed on [January 24, 2019](#), [February 15, 2019](#) (filed portion only), [March 4, 2019](#), [March 12, 2019](#), [April 25, 2019](#) and [May 10, 2019](#); and
- [The description of Enbridge's share capital contained in the registration statement on Form F-10, filed on September 15, 2017, and any other amendments or reports filed for the purpose of updating that description.](#)

Copies of the documents incorporated herein by reference may be obtained, upon written or oral request, without charge from the Corporate Secretary of Enbridge, Suite 200, 425 - 1st Street S.W., Calgary, Alberta, T2P 3L8 (telephone 1-403-231-3900). Documents that we file with or furnish to the SEC are also available on the website maintained by the SEC (www.sec.gov). This site contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. The information on that website is not part of this Prospectus.

THE CORPORATION

Enbridge is one of North America's largest energy infrastructure companies with strategic business platforms that include an extensive network of crude oil, liquids and natural gas pipelines, regulated natural gas distribution utilities and renewable power generation assets. The Corporation delivers an average of 2.9 million barrels of crude oil each day through its Mainline and Express Pipeline, and accounts for approximately 62% of United States-bound Canadian crude oil exports. The Corporation also transports approximately 18% of the natural gas consumed in the United States, serving key supply basins and demand markets. The Corporation's regulated utilities serve approximately 3.7 million retail customers in Ontario, Quebec and New Brunswick. The Corporation also generates approximately 1,600 megawatts of net renewable power in North America and Europe.

Enbridge is a public company, with common shares that trade on both the Toronto Stock Exchange and the New York Stock Exchange under the symbol "ENB". The Corporation was incorporated under the *Companies Ordinance* of the Northwest Territories on April 13, 1970 and was continued under the *Canada Business Corporations Act* on December 15, 1987. Enbridge's principal executive offices are located at Suite 200, 425 - 1st Street S.W., Calgary, Alberta, Canada T2P 3L8, and its telephone number is 1-403-231-3900.

RISK FACTORS

Investment in the Securities is subject to various risks. Before deciding whether to invest in any Securities, in addition to the other information included in, or incorporated by reference into, this Prospectus, you should carefully consider the risk factors contained in Item 1A under the caption “*Risk Factors*” and elsewhere in the Annual Report, which is incorporated by reference into this Prospectus, as updated by our [Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2019](#) and our annual or quarterly reports for subsequent fiscal years or fiscal quarters that we file with the SEC and that are so incorporated. See “*Where You Can Find More Information*” for information about how to obtain a copy of these documents. You should also carefully consider the risks and other information that may be contained in, or incorporated by reference into, any Prospectus Supplement relating to specific offerings of Securities.

USE OF PROCEEDS

Unless otherwise specified in a Prospectus Supplement, the net proceeds from the sale of the Securities will be added to the general funds of the Corporation to be used for general corporate purposes, which may include reducing outstanding indebtedness and financing capital expenditures, investments and working capital requirements of the Corporation. Specific information about the use of proceeds from the sale of any Securities will be set forth in a Prospectus Supplement. The Corporation may invest funds that it does not immediately require in short-term marketable debt securities. The Corporation expects that it may, from time to time, issue securities other than pursuant to this Prospectus.

The net proceeds to be received by the Corporation from the sale of the Securities from time to time under this Prospectus are not expected to be applied to fund any specific project. The Corporation's overall corporate strategy and major initiatives supporting its strategy are summarized in the Annual Report, which is incorporated by reference herein.

DESCRIPTION OF DEBT SECURITIES AND GUARANTEES

In this section, the terms “**Corporation**” and “**Enbridge**” refer only to Enbridge Inc. and not to its subsidiaries, partnerships interests or joint venture investments. The following description sets forth certain general terms and provisions of the debt securities and guarantees. The Corporation will provide particular terms and provisions of a series of debt securities and a description of how the general terms and provisions described below may apply to that series in a Prospectus Supplement. Prospective investors should rely on information in the applicable Prospectus Supplement if it is different from the following information.

Indenture

The debt securities will be issued under an indenture dated February 25, 2005, as amended and supplemented from time to time (the indenture as amended and supplemented, the “**Indenture**”), between Enbridge, SEP, a wholly owned subsidiary of Enbridge, as guarantor, EEP, a wholly owned subsidiary of Enbridge, as guarantor (each of SEP and EEP a “**Guarantor**”) and Deutsche Bank Trust Company Americas, as trustee. Debt securities issued under the Indenture will not be offered or sold to persons in Canada pursuant to this Prospectus. The following summary of certain provisions of the Indenture and the debt securities issued thereunder does not purport to be complete and is qualified in its entirety by reference to the actual provisions of the Indenture.

The Corporation may issue debt securities and incur additional indebtedness other than through an offering of debt securities pursuant to this Prospectus.

The Indenture does not limit the aggregate principal amount of debt securities which may be issued under the Indenture or otherwise. The Indenture provides that debt securities will be in registered form, may be issued from time to time in one or more series and may be denominated and payable in U.S. dollars or any other currency. Unless otherwise specified in the applicable Prospectus Supplement, debt securities may be issued in whole or in part in a global form and will be registered in the name of and be deposited with The Depository Trust Company or its nominee, Cede & Co. The debt securities will be issuable in denominations of US\$1,000 and integral multiples of US\$1,000, or in such other denominations as may be set out in the terms of the debt securities of any particular series.

General

Material Canadian and United States federal income tax considerations applicable to any debt securities, and special tax considerations applicable to the debt securities denominated in a currency or currency unit other than Canadian or U.S. dollars, will be described in the Prospectus Supplement relating to the offering of debt securities.

Unless otherwise indicated in an applicable Prospectus Supplement, the debt securities will be unsecured obligations and will rank equally with all of the Corporation’s other unsecured and unsubordinated indebtedness and will be guaranteed by both Guarantors. See “—*Guarantees*” below. Enbridge is a holding company that conducts substantially all of its operations and holds substantially all of its assets through its subsidiaries. As at March 31, 2019, the long-term debt (excluding the current portion, as well as guarantees and intercompany obligations between the Corporation and its subsidiaries) of Enbridge and its subsidiaries totaled approximately \$60.1 billion, of which approximately \$36.5 billion is subsidiary debt. The debt securities issued under this Prospectus will be structurally subordinated to all existing and future liabilities, including trade payables and other indebtedness, of Enbridge’s subsidiaries other than the Guarantors with respect to any guaranteed debt securities. The Indenture does not limit the incurrence of indebtedness and issuance of preferred stock of or by Enbridge’s subsidiaries. Nonetheless, we do not expect either Guarantor to issue any additional debt or any preferred stock after the date of this prospectus.

The Indenture has been filed as an exhibit to the registration statement of which this Prospectus is a part and is available as described above under “*Where You Can Find More Information*”. The Indenture will be described in a Prospectus Supplement for such debt securities. For further details, prospective investors should refer to the Indenture and the applicable Prospectus Supplement.

Debt securities may also be issued under new supplemental indentures between us and a trustee or trustees as will be described in a Prospectus Supplement for such debt securities. The Corporation may issue debt securities and incur additional indebtedness other than through the offering of debt securities pursuant to this Prospectus.

The Prospectus Supplement will set forth additional terms relating to the debt securities being offered, including covenants, events of default, provisions for payments of additional amounts and redemption provisions.

The Prospectus Supplement will also set forth the following terms relating to the debt securities being offered:

- the title of the debt securities of the series;
- any limit upon the aggregate principal amount of the debt securities of the series;
- the party to whom any interest on a debt security of the series shall be payable;
- the date or dates on which the principal of (and premium, if any, on) any debt securities of the series is payable;
- the rate or rates at which the debt securities will bear interest, if any, the date or dates from which any interest will accrue, the interest payment dates on which interest will be payable and the regular record date for interest payable on any interest payment date;
- the place or places where principal and any premium and interest are payable;
- the period or periods if any within which, the price or prices at which, the currency or currency units in which and the terms and conditions upon which any debt securities of the series may be redeemed, in whole or in part, at the option of the Corporation;
- the obligation, if any, of the Corporation to redeem or purchase any debt securities of the series pursuant to any sinking fund or analogous provisions or at the option of the holder thereof and the terms and conditions upon which debt securities of the series may be redeemed or purchased, in whole or in part pursuant to such obligation;
- if other than denominations of \$1,000 and any integral multiples of \$1,000, the denominations in which the debt securities are issuable;
- if the amount of principal of or any premium or interest on any debt securities of the series may be determined with reference to an index or pursuant to a formula, the manner in which such amounts shall be determined;
- if other than U.S. dollars, the currency, currencies or currency units in which the principal of or any premium or interest on any debt securities of the series will be payable, and any related terms;
- if the principal of or any premium or interest on any debt securities of the series is to be payable, at the election of the Corporation or the holders, in one or more currencies or currency units other than that or those in which the debt securities are stated to be payable, specific information relating to the currency, currencies or currency units, and the terms and conditions relating to any such election;
- if other than the entire principal amount, the portion of the principal amount of any debt securities of the series that is payable upon acceleration of maturity;

- if the principal amount payable at maturity of the debt securities of the series is not determinable prior to maturity, the amount that is deemed to be the principal amount prior to maturity for purposes of the debt securities and the Indenture;
- if applicable, that the debt securities of the series are subject to defeasance and/or covenant defeasance;
- if applicable, that the debt securities of the series will be issued in whole or in part in the form of one or more global securities and, if so, the depository for the global securities, the form of any legend or legends which will be borne by such global securities and any additional terms related to the exchange, transfer and registration of securities issued in global form;
- any addition to or change in the events of default applicable to the debt securities of the series and any change in the right of the trustee or the holders of the debt securities to accelerate the maturity of the debt securities of the series;
- any addition to or change in the covenants described in this Prospectus applicable to the debt securities of the series;
- if the debt securities are to be subordinated to other of the Corporation's obligations, the terms of the subordination and any related provisions;
- whether the debt securities will be convertible into securities or other property, including the Corporation's common stock or other securities, whether in addition to, or in lieu of, any payment of principal or other amount or otherwise, and whether at the option of the Corporation or otherwise, the terms and conditions relating to conversion of the debt securities, and any other provisions relating to the conversion of the debt securities;
- the obligation, if any, of the Corporation to pay to holders of any debt securities of the series amounts as may be necessary so that net payments on the debt security, after deduction or withholding for or on account of any present or future taxes and other governmental charges imposed by any taxing authority upon or as a result of payments on the securities, will not be less than the gross amount provided in the debt security, and the terms and conditions, if any, on which the Corporation may redeem the debt securities rather than pay such additional amounts;
- whether the Corporation will undertake to list the debt securities of the series on any securities exchange or automated interdealer quotation system;
- whether the debt securities of the series will be guaranteed by either or both Guarantors; and
- any other terms of the series of debt securities.

Unless otherwise indicated in the applicable Prospectus Supplement, the Indenture does not afford the holders the right to tender debt securities to Enbridge for repurchase or provide for any increase in the rate or rates of interest at which the debt securities will bear interest in the event Enbridge should become involved in a highly leveraged transaction or in the event of a change in control of Enbridge.

Debt securities may be issued under the Indenture bearing no interest or interest at a rate below the prevailing market rate at the time of issuance, and may be offered and sold at a discount below their stated principal amount. The Canadian and United States federal income tax consequences and other special considerations applicable to any such discounted debt securities or other debt securities offered and sold at par which are treated as having been issued at a discount for Canadian and/or United States federal income tax purposes will be described in the applicable Prospectus Supplement.

Unless otherwise indicated in the applicable Prospectus Supplement, Enbridge may, without the consent of the holders thereof, reopen a previous issue of a series of debt securities and issue additional debt securities of such series; provided, however, that in the event any additional debt securities are not fungible with the outstanding debt securities for United States federal income tax purposes, such non-fungible additional debt securities will be issued with a separate CUSIP number so that they are distinguishable from the outstanding debt securities.

Guarantees

Unless otherwise specified in the applicable Prospectus Supplement, each of the Guarantors will fully, unconditionally, irrevocably, absolutely and jointly and severally guarantee the due and punctual payment of the principal of, and premium, if any, and interest on the debt securities and all other amounts due and payable by Enbridge under the Indenture and the debt securities, when and as such principal, premium, if any, interest and other amounts shall become due and payable. The guarantee of any debt securities is intended to be a general, unsecured, senior obligation of each of the Guarantors and will rank *pari passu* in right of payment with all indebtedness of each Guarantor that is not, by its terms, expressly subordinated in right of payment to the guarantee.

The guarantees of either Guarantor will be unconditionally released and discharged automatically upon the occurrence of any of the following events:

- any direct or indirect sale, exchange or transfer, whether by way of merger, sale or transfer of equity interests or otherwise, to any person that is not an affiliate of Enbridge, of any of Enbridge's direct or indirect limited partnership or other equity interests in such Guarantor as a result of which such Guarantor ceases to be a consolidated subsidiary of Enbridge;
- the merger of such Guarantor into Enbridge or the other Guarantor or the liquidation and dissolution of such Guarantor;
- with respect to any series of debt securities, the repayment in full or discharge or defeasance of such debt securities (each as contemplated by the Indenture or any applicable supplemental indenture);
- with respect to EEP, the repayment in full or discharge or defeasance of the debt securities of EEP outstanding as of January 22, 2019, all of which are guaranteed by the Corporation pursuant to the Seventeenth Supplemental Indenture, dated as of January 22, 2019, among EEP, the Corporation and U.S. Bank National Association, as trustee; or
- with respect to SEP, the repayment in full or discharge or defeasance of the debt securities of SEP outstanding as of January 22, 2019, all of which are guaranteed by the Corporation pursuant to the Eighth Supplemental Indenture, dated as of January 22, 2019, among SEP, the Corporation and Wells Fargo Bank, National Association, as trustee.

DESCRIPTION OF SHARE CAPITAL

In this section, the terms “**Corporation**” and “**Enbridge**” refer only to Enbridge Inc. and not to its subsidiaries, partnerships or joint venture interests. The following sets forth the terms and provisions of the existing capital of the Corporation. The following description is subject to, and qualified by reference to, the terms and provisions of the Corporation’s articles and by-laws. The Corporation is authorized to issue an unlimited number of common shares and an unlimited number of preference shares, issuable in series.

Common Shares

Each common share of the Corporation entitles the holder to one vote for each common share held at all meetings of shareholders of the Corporation, except meetings at which only holders of another specified class or series of shares are entitled to vote, to receive dividends if, as and when declared by the board of directors of the Corporation, subject to prior satisfaction of preferential dividends applicable to any preference shares, and to participate ratably in any distribution of the assets of the Corporation upon a liquidation, dissolution or winding up, subject to prior rights and privileges attaching to the preference shares.

Under the dividend reinvestment and share purchase plan of the Corporation, registered shareholders may reinvest their dividends in additional common shares of the Corporation or make optional cash payments to purchase additional common shares, in either case, free of brokerage or other charges.

The registrar and transfer agent for the common shares in Canada is AST Trust Company (Canada) (formerly CST Trust Company) at its principal transfer offices in Vancouver, British Columbia, Calgary, Alberta, Toronto, Ontario and Montréal, Québec. The co-registrar and co-transfer agent for the common shares in the United States is American Stock Transfer & Trust CO LLC at its principal office in Brooklyn, New York.

Shareholder Rights Plan

The Corporation has a shareholder rights plan (the “**Shareholder Rights Plan**”) that is designed to encourage the fair treatment of shareholders in connection with any take-over bid for the Corporation. Rights issued under the Shareholder Rights Plan become exercisable when a person, and any related parties, acquires or announces the intention to acquire 20% or more of the Corporation’s outstanding common shares without complying with certain provisions set out in the Shareholder Rights Plan or without approval of the board of directors of the Corporation. Should such an acquisition or announcement occur, each rights holder, other than the acquiring person and its related parties, will have the right to purchase common shares of the Corporation at a 50% discount to the market price at that time. For further particulars, reference should be made to the Shareholder Rights Plan, a copy of which may be obtained by contacting the Director, Investor Relations, Enbridge, 200, 425-1st Street S.W., Calgary, Alberta, T2P 3L8; telephone: 1-800-481-2804; fax: 1-403-231-5780; email: investor.relations@enbridge.com.

Preference Shares

Shares Issuable in Series

The preference shares may be issued at any time or from time to time in one or more series. Before any shares of a series are issued, the board of directors of the Corporation shall fix the number of shares that will form such series and shall, subject to the limitations set out in the articles of the Corporation, determine the designation, rights, privileges, restrictions and conditions to be attached to the preference shares of such series, except that no series shall be granted the right to vote at a general meeting of the shareholders of the Corporation or the right to be convertible or exchangeable for common shares, directly or indirectly.

For preference shares issued that are to be convertible into other securities of the Corporation, including other series of preference shares, no amounts will be payable to convert those preference shares.

Priority

The preference shares of each series shall rank on parity with the preference shares of every other series with respect to dividends and return of capital and shall be entitled to a preference over the common shares and over any other shares ranking junior to the preference shares with respect to priority in payment of dividends and in the distribution of assets in the event of liquidation, dissolution or winding-up of the Corporation, whether voluntary or involuntary, or any other distribution of the assets of the Corporation among its shareholders for the purpose of winding-up its affairs.

Voting Rights

Except as required by law, holders of the preference shares as a class shall not be entitled to receive notice of, to attend or to vote at any meeting of the shareholders of the Corporation, provided that the rights, privileges, restrictions and conditions attached to the preference shares as a class may be added to, changed or removed only with the approval of the holders of the preference shares given in such manner as may then be required by law, at a meeting of the holders of the preference shares duly called for that purpose.

MATERIAL INCOME TAX CONSIDERATIONS

The applicable Prospectus Supplement will describe material Canadian federal income tax consequences to an investor of acquiring any Securities offered thereunder, if applicable, including whether the payments of dividends on common shares or preference shares or payments of principal, premium, if any, and interest on debt securities payable to a non-resident of Canada will be subject to Canadian non-resident withholding tax.

The applicable Prospectus Supplement will also describe material United States federal income tax consequences of the acquisition, ownership and disposition of any Securities offered thereunder by an initial investor who is a United States person (within the meaning of the United States Internal Revenue Code), including, to the extent applicable, any such material consequences relating to debt securities payable in a currency other than the U.S. dollar, issued at an original issue discount for United States federal income tax purposes or containing early redemption provisions or other special items.

CERTAIN BENEFIT PLAN INVESTOR CONSIDERATIONS

Each purchaser of Securities in an offering made pursuant to this Prospectus that is a “Plan” will be deemed to make the representations in the following paragraph. For this purpose, a “Plan” is (i) any “employee benefit plan” subject to Title I of the Employee Retirement Income Security Act of 1974, as amended (“**ERISA**”), (ii) individual retirement accounts (“**IRAs**” and each, an “**IRA**”) and other arrangements subject to Section 4975 of the Internal Revenue Code of 1986, as amended (the “**Code**”), and (iii) an entity whose underlying assets include “plan assets” within the meaning of ERISA by reason of the investments by such plans or accounts or arrangements therein.

Each purchaser of Securities that is a “Plan” and that acquires the Securities in connection with an offering made pursuant to this Prospectus will be deemed to represent by its purchase of the Securities that a fiduciary (the “**Fiduciary**”) independent of the Corporation, any underwriters, agents, dealers or any of their affiliates (the “**Transaction Parties**”) acting on the Plan’s behalf is responsible for the Plan’s decision to acquire the Securities in such offering made pursuant to this Prospectus and that such Fiduciary:

- (i) is either a U.S. bank, a U.S. insurance carrier, a U.S. registered investment adviser, a U.S. registered broker-dealer or an independent fiduciary with at least \$50 million of assets under management or control, in each case under the requirements specified in the U.S. Code of Federal Regulations, 29 C.F.R. Section 2510.3-21(c)(1)(i), as amended from time to time;
- (ii) in the case of a Plan that is an IRA, is not the IRA owner, beneficiary of the IRA or relative of the IRA owner or beneficiary;
- (iii) is capable of evaluating investment risks independently, both in general and with regard to the prospective investment in the Securities;
- (iv) is a fiduciary under ERISA or the Code, or both, with respect to the decision to acquire the Securities;
- (v) has exercised independent judgment in evaluating whether to invest the assets of the Plan in the Securities;
- (vi) understands and has been fairly informed of the existence and the nature of the financial interests of the Transaction Parties in connection with the Plan’s acquisition of the Securities;
- (vii) understands that the Transaction Parties are not undertaking to provide impartial investment advice, or to give advice in a fiduciary capacity to the Plan, in connection with the Plan’s acquisition of the Securities; and
- (viii) confirms that no fee or other compensation will be paid directly to any of the Transaction Parties by the Plan, or any fiduciary, participant or beneficiary of the Plan, for the provision of investment advice (as opposed to other services) in connection with the Plan’s acquisition of the Securities.

PLAN OF DISTRIBUTION

The Corporation may sell the Securities to or through underwriters, agents or dealers and also may sell the Securities directly to purchasers pursuant to applicable statutory exemptions or through agents.

The distribution of the Securities may be effected from time to time in one or more transactions at a fixed price or prices, which may be changed, at market prices prevailing at the time of sale, or at prices related to such prevailing market prices to be negotiated with purchasers.

The Prospectus Supplement relating to each series of the Securities will also set forth the terms of the offering of the Securities, including to the extent applicable, the initial offering price, the proceeds to the Corporation, the underwriting concessions or commissions, and any other discounts or concessions to be allowed or re-allowed to dealers. Underwriters or agents with respect to Securities sold to or through underwriters or agents will be named in the Prospectus Supplement relating to such Securities.

In connection with the sale of the Securities, underwriters may receive compensation from the Corporation or from purchasers of the Securities for whom they may act as agents in the form of discounts, concessions or commissions. Any such commissions will be paid either using a portion of the funds received in connection with the sale of the Securities or out of the general funds of the Corporation.

Under agreements which may be entered into by the Corporation, underwriters, dealers and agents who participate in the distribution of the Securities may be entitled to indemnification by the Corporation against certain liabilities, including liabilities under securities legislation, or to contribution with respect to payments which such underwriters, dealers or agents may be required to make in respect thereof.

In connection with any offering of Securities, the underwriters, agents or dealers may over-allot or effect transactions which stabilize or maintain the market price of the Securities offered at levels above those which might otherwise prevail in the open market. Such transactions, if commenced, may be discontinued at any time.

ENFORCEMENT OF CIVIL LIABILITIES

The Corporation is a Canadian corporation. While the Corporation has appointed Enbridge (U.S.) Inc. as its agent to receive service of process with respect to any action brought against it in any federal or state court in the United States arising from any offering conducted under this Prospectus, it may not be possible for investors to enforce outside the United States judgments against the Corporation obtained in the United States in any such actions, including actions predicated upon the civil liability provisions of the United States federal and state securities laws. In addition, certain of the directors and officers of the Corporation are residents of Canada or other jurisdictions outside of the United States, and all or a substantial portion of the assets of those directors and officers are or may be located outside the United States. As a result, it may not be possible for investors to effect service of process within the United States upon those persons, or to enforce against them judgments obtained in United States courts, including judgments predicated upon the civil liability provisions of United States federal and state securities laws.

VALIDITY OF SECURITIES

The validity of the debt securities will be passed upon for us by McCarthy Tétrault LLP with respect to matters of Canadian law and by Sullivan & Cromwell LLP with respect to matters of New York law. The validity of the guarantees will be passed upon for us by Sullivan & Cromwell LLP. The validity of the common shares and preference shares will be passed upon for us by McCarthy Tétrault LLP.

EXPERTS

The financial statements incorporated in this Prospectus by reference to Enbridge Inc.'s [Current Report on Form 8-K dated May 10, 2019](#) and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this Prospectus by reference to the [Annual Report on Form 10-K of Enbridge Inc. for the year ended December 31, 2018](#) have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

US\$1,500,000,000



Enbridge Inc.

**Fully and Unconditionally Guaranteed by
Enbridge Energy Partners, L.P. and Spectra Energy Partners, LP**

**US\$1,000,000,000% Sustainability-Linked Senior Notes due 2033
US\$500,000,000% Senior Notes due 2051**

**Prospectus Supplement
June 24, 2021**

Sustainability-Linked Bond Structuring Advisor and Joint Book-Running Manager

Credit Suisse

Joint Book-Running Managers

BofA Securities

Barclays

Citigroup

Mizuho Securities

J.P. Morgan

Truist Securities

SMBC Nikko

Wells Fargo Securities

Co-Managers

HSBC

MUFG

Credit Agricole CIB

Deutsche Bank Securities

SOCIETE GENERALE

KeyBanc Capital Markets

Loop Capital Markets

AmeriVet Securities

Roberts & Ryan

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 35 of 164

Question(s):

Concentric has provided the following quote from Standard & Poor's:

“S&P Global Ratings believes hydrogen can push the energy transition forward, but this would require coordinated policy, lower hydrogen production costs, and massive growth of renewables. Energy transitions typically take decades...”

Can Enbridge Gas or Concentric elaborate and quantify the projected financial impacts from hydrogen-related energy transition risks and initiatives on Enbridge Gas during the 2024-2028 period.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

As described in the Concentric report provided at Exhibit 5, Tab 3, Schedule 1, Attachment 1, hydrogen as a fuel alternative presents an opportunity for natural gas utilities such as Enbridge Gas. There are challenges, however, in blending hydrogen into the Company's system, including those related to hydrogen's lower heating value, the costs of new facilities, and potential commodity price differences. As further described in the Concentric report, the Company recently proposed, and the OEB recently approved, a pilot project involving the injection of a controlled quantity of hydrogen into an isolated portion of its distribution system in Markham, Ontario. Enbridge Gas undertook the project, referred to as the Low Carbon Energy Project (LCEP), as a first step in gaining experience with hydrogen injection. In terms of financial impact during the 2024 to 2028 period, as described in Exhibit 2, Tab 5, Schedule 2, page 7, in 2024, phase 2 of the LCEP is expected to begin, which includes expanding hydrogen blending to an additional 12,400 customers. Enbridge Gas will also conduct a study to identify and prioritize which sections of the gas grid are best suited for future hydrogen blending projects and determine any required upgrades. The 2024 Test Year capital expenditure for hydrogen blending of \$8.9 million is included within the system reinforcement spend of \$105.1 million.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 37 of 164, Exhibit 1, Tab 10, Schedule 6, Page 21 of 40

Question(s):

Concentric has stated the following:

These preliminary studies regarding the viability of RNG do not necessarily mean that RNG is not a viable long-term solution. However, from an investor's perspective, pursuing such an uncertain pathway intrinsically carries risk. Further, as with the hydrogen discussion above, it is a risk that was not as meaningful at the time of the Company's previous equity thickness proceedings (i.e., 2012).

Elsewhere in its evidence, Enbridge Gas describes its plans to increase RNG in the gas supply as a "safe bet" for the energy transition. Please reconcile with Concentric's statement that this is an uncertain pathway carrying risk.

Response:

As provided at Exhibit 1, Tab 10, Schedule 6, p. 14, Enbridge Gas considers an action to be a safe bet if it:

- a) Supports Ontario's near term GHG reductions, including achievement of the 2030 target; and/or
- b) Is required, regardless of whether a diversified or an electrification pathway unfolds in Ontario; and/or
- c) Maintains consumer choice, a safe and reliable gas system in a manner that considers pathway uncertainty, and/or pathway optionality until greater certainty around how best to transition is obtained.

RNG meets these criteria and, therefore, has been included in Enbridge Gas's Energy Transition Plan as a safe bet.

On page 36 to 37 of Concentrics's Report, filed at Exhibit 5, Tab 3, Schedule 1, Attachment 1, Concentric notes that from an investor point of view, they are unable to draw conclusions regarding the long-term viability of RNG, but that this did not necessarily mean that RNG is not a viable long-term solution. Concentric notes challenges in adopting RNG on a wide scale, including citing regions with policy barriers.

In order to facilitate the development and adoption of RNG, Enbridge Gas has proposed an evolved Low Carbon Voluntary Program as part of phase 2 of this proceeding to expand access to RNG for its customers.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 37 of 164

Question(s):

Concentric has state the following on the referenced page:

“The Energy Transition substantially affects nearly every aspect of the Company’s business, from its growth prospects, to the capital projects it pursues, to its fundamental ability to offer investors the opportunity to earn a fair return on, and of, invested capital. Even though the Energy Transition will play out over many decades, it is now underway and it is materially increasing the Company’s risk profile because of the long expected lives of most natural gas utility investments.”

- a) Does Concentric distinguish between the risk of recovery of investment on existing rate base and the change in growth opportunities due to the energy transition?
- b) Please quantify the "material increase in risk profile" mentioned here for Enbridge Gas for the 2024-2028 period.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Risk of recovery on existing rate base, as well as ongoing investments in assets to maintain safe and reliable service, and the change in growth opportunities due to the Energy Transition are distinguishable but related in that they are both contributed to by the Energy Transition. Both risks have increased since the Company’s prior equity thickness evaluation.
- b) Concentric recommends that the Company’s deemed equity ratio be increased from 36% to a range of 40% to 45%, with a point estimate of 42%. That recommendation is based on Concentric’s analysis that Enbridge Gas’s risk profile has changed materially, and further based on Concentric’s Fair Return Standard analysis. The Energy Transition, including its impact on stranded cost risk and reductions in

growth opportunities, is a key element of Concentric's risk assessment, but it is not possible to isolate its effects from the overall risk assessment of Enbridge Gas. As summarized in Concentric's report, the recommended capital structure and associated increase in the equity ratio are based on a number of factors. While Concentric concluded that the Energy Transition makes the Company's business significantly riskier today than it was in 2012 from an investor's perspective, Concentric's study also encompassed other primary aspects of the Company's risk profile, including volumetric risk, financial risk, operational risk, and regulatory risk, as well as a comparison of Enbridge Gas's risk relative to comparable proxy groups of firms with equity ratios ranging from 39.25% to 55.57%, Exhibit. 5, Tab 3, Schedule 1, Attachment 1, page 127.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 38, 51, 57-59 of 164

Question(s):

Concentric has stated the following on the referenced page:

The Company has deferral and variance accounts that provide a degree of short-term insulation from this risk (insulation that will improve if the Company's SFV rate design proposal is adopted). However, in the long-term, investors are concerned that increasing costs recovered over declining volumes may create a "death spiral" scenario.

- a) Please clarify what is meant by "short-term" versus "long-term" in this statement. Is the 2024-2028 period considered "short-term"?
- b) Please provide evidence of investors showing concern regarding the "death spiral" scenario that Concentric describes for Enbridge Gas.

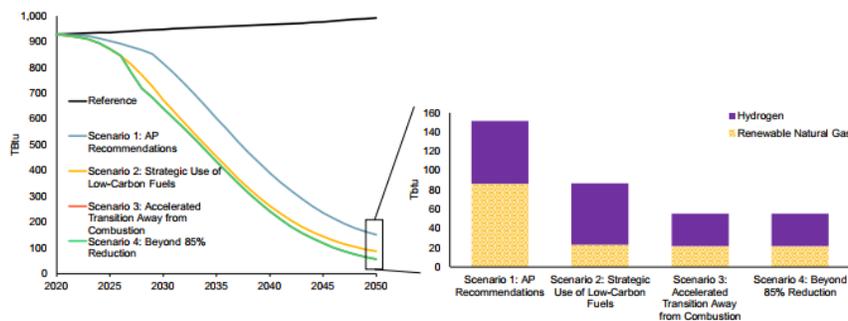
Response:

The following response was provided by Concentric Energy Advisors.

- a) The 2024 to 2028 period would be considered short or near-term for a gas utility that relies on long-lived assets to provide utility services.
- b) Concentric's reference to a death spiral is based on its knowledge of the potential pathways for gas utilities under alternative policy frameworks designed to curtail carbon emissions in order to reach mandated carbon reduction targets in both Canada and the U.S. In Concentric's work for infrastructure investors, in the past two years we have had several indicate it was no longer possible for their funds to invest in gas utilities. These decisions have been based on a combination of new restrictions on investments in fossil fuel-based companies, concerns regarding future restrictions on gas use, and uncertainty regarding earnings and the potential for stranded assets. These concerns are underscored by studies that illustrate the

potential for sharp reductions in gas demand required to meet emissions targets. For example, a recent study conducted by the New York State Climate Action Council demonstrated the draconian reductions in natural gas demand required (or recommended) in order to achieve New York State’s emissions limits under its Climate Leadership and Communities Protection Act (pdf p 29 of 184).¹ As shown in Figure 18 (pdf page 29 of Appendix G), those portions of remaining demand are a fraction of current levels, and almost fully met with hydrogen and renewable natural gas. New York’s Climate Act sets a greenhouse gas emission reduction of 40% from 1990 levels by 2030, 85% reduction in greenhouse gas emissions from 1990 levels by 2050, and net-zero emissions statewide by 2050. The Canadian Net-Zero Emissions Accountability Act, which became law on June 29, 2021, legislates Canada’s similar commitment to achieve net-zero emissions by 2050. These pathways may not be the same for each Canadian province, but the NY study demonstrates the degree of natural gas demand reduction that may be required.

Figure 18. Annual End-Use Gas Demand by Scenario (left) and 2050 End-Use Gas Demand by Fuel (right)¹⁴



The following response was provided by Enbridge Gas:

- b) Neither equity or debt investors, nor the analysts covering Enbridge equity or debt, have indicated directly to Enbridge Inc. or Enbridge Gas a concern with a potential death spiral.

Enbridge Gas, along with other natural gas utilities across North America, are facing increased competition and other competitive pressures as a result of the Energy Transition. Several credit rating agencies, upon whom debt investors rely upon to inform investment decisions, have noted these competitive pressures in various articles, please see response at Exhibit I.5.3-VECC-58.

¹ New York State Climate Action Council, Scoping Plan Full Report, December 2022, Appendix G, Integration Analysis Technical Supplement.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pp. 38-39, 51, 57-59 of 164

Question(s):

On pages 38-39 of 164 of its report, Concentric discusses volumetric risk as a factor increasing Enbridge Gas's business risk. Concentric discusses this by pointing to opposition to natural gas expansion in light of energy transition.

- a) Concentric notes that Enbridge Gas's Residential customers accounted for 57% of revenues in 2020 but just 32% of sales volumes.
- i. Does Concentric consider that the difference between revenues (to recover the costs of serving) and sales volumes is unique to Enbridge Gas, or to natural gas distributors, relative to other network-based service providers, such as electricity distributors or telecommunications providers? Please explain your response.
 - ii. Has Concentric satisfied itself that the difference observed in 2020 is typical, and not due, at least in part to the lockdown restrictions due to the COVID-19 pandemic declared in mid-March of that year?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a)
- i. Concentric has not compared Enbridge Gas with other gas, electric or telecom utilities as a basis for this statement. The point Concentric is making is that with residential customers comprising 57% of the Company's revenues, the Company is vulnerable to residential customers leaving the system if these customers switch to non-gas heating sources.
 - ii. As illustrated below, the 2020 residential revenue percentage has been stable over the past three years, and has increased by 3% since 2018, even as the percentage of total volumes has declined by 2%.

Table 1
Proportion of Total Revenue and Volumes for Residential Customers

Line No.	Particulars	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
		Actual (a)	Actual (b)	Actual (c)	Actual (d)	Actual (e)
	<u>Revenue (1) (\$ millions)</u>					
1	Total Revenue - Residential	2,894	2,847	2,560	2,778	3,771
2	Total Revenue	5,315	5,084	4,524	4,899	6,646
3	Residential Percentage	54%	56%	57%	57%	57%
	<u>Normalized Volumes (10⁶m³)</u>					
4	Residential Volumes	8,084	8,168	8,251	8,157	8,171
5	Total Volumes (2)	25,483	26,274	26,051	26,680	27,640
6	Residential Percentage	32%	31%	32%	31%	30%

Notes:

- (1) Note 4 to the Consolidated Financial Statements of Enbridge Gas's Annual Financial Statements 2018 to 2022.
- (2) Exhibit 3, Tab 3, Schedule 1, Attachment 1 page 2, line 36, column (g) and page 4, line 36, and Exhibit I.3.3-STAFF-95 Attachment 1 for 2022 Actuals Update.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 39 of 164

Question(s):

Concentric has stated the following on the referenced page:

Increasing opposition to natural gas makes it more difficult, costly, and time-intensive for natural gas distribution utilities such as the Company to construct and permit new facilities. Depending on the extent of this opposition, shareholders may bear increasing amounts of operational risks or cost overruns as critical infrastructure projects are delayed.

- a) Please provide Ontario specific examples of time/cost over-runs from recent periods, due to operational risk as defined here.
- b) Are there specific quantifiable project development and executions risks that Enbridge Gas has faced in the last 10 years or expects to face over the 2024-2028 period? Please provide details.

Response:

a-b) The most recent Ontario-specific example of increasing opposition to natural gas is related to the St. Laurent Ottawa North Replacement Project (the "St. Laurent" Project)¹, for which the OEB denied Enbridge Gas's request for an order granting leave to construct in 2021. The St. Laurent project was comprised of four phases, with the above application for leave to construct representing the final two (Phases 3 and 4), of a broader project to replace the existing St. Laurent pipeline system (Nominal Pipe Size 12 XHP steel natural gas main) due to its poor condition.

The St Laurent Pipeline system is single sourced in nature, consisting of steel mains primarily installed in 1958 and is an integral part of the natural gas network that supplies, directly or indirectly, natural gas to approximately 165,000 customers in the

¹ EB-2020-0293

City of Ottawa and in Gatineau, Quebec. As clearly stated in the evidence of the Company's St. Laurent project application for leave to construct, pipeline damage or failure could result in the loss of gas distribution service for thousands of customers, or, in the extreme, place public safety at risk.

Despite the Company's expressed concerns over the poor and deteriorating condition of the St. Laurent Pipeline, and its critical nature, and due in-part to increasing opposition by several external stakeholders (including the City of Ottawa) and intervenors, the Company's application was denied, thereby delaying the Company's ability to address the system's underlying operational and safety risks. The Company expects that additional consequences of stakeholder opposition and the OEB's decision to deny the St. Laurent Project will include incremental operational (for incremental integrity and operational inspection activities) and capital costs (for eventual, potential pipeline repairs and/or replacements) to ratepayers. An example of this can be taken from the incremental targeted integrity program initiated on a portion of the St. Laurent pipeline system immediately following the OEB's Decision (as encouraged by the OEB in the same), which quickly identified integrity concerns that required the Company to immediately activate an Emergency Operations Centre.²

A portion of the scope for the Windsor Line Replacement was deferred a year due to challenges getting Municipal Approval for construction. Enbridge Gas was not successful in negotiating a Road User Agreement with the County of Essex and filed an application with the Ontario Energy Board (OEB) under Section 101 of the OEB Act.

Enbridge Gas has also generally experienced a continuous increase in the number of intervenors requesting to participate in proceedings where the Company is seeking leave to construct facilities. In many of these instances, approved intervenors have opposed the Company's proposed projects and associated applications. The impact of this opposition and increased participation is increased operating costs and a heightened risk of OEB denial (please see response at Exhibit I.2.6-CME-43 for quantification of increased intervenor participation and opposition to applications requesting leave to construct facilities).

² Please see response at Exhibit I.2.6-SEC-71 for additional details on this situation.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 42-44 of 164 Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 77-79 of 164

Question(s):

At the bottom of page 42 of 164 of its evidence, Concentric notes that Enbridge Gas has not been immune to increased “operational risk” from increased scrutiny of proposed replacement and addition of pipeline infrastructure investment. Concentric then documents several recent Leave to Construct (LtC) applications, and notes that several were denied by the OEB. However, there are a few (EB-2021-0205, EB-2022-0088, EB-2022-0157) for which Concentric does not discuss the OEB’s decisions on those LtC applications.

In addition to LtC applications, Enbridge Gas has also applied for funding for capital projects under the OEB’s Capital Funding Options policies⁸ (ADD FOOTNOTE) (i.e., Incremental Capital Module (ICM) and Advanced Capital Module (ACM)) since the amalgamation of EGD and Union Gas. Enbridge Gas has been approved for some but not all ICM applications that it has filed since amalgamation. Concentric does not discuss the availability of ICMs/ACMs under Enbridge Gas’s regulatory framework (on pages 77 to 79 of 164 of its evidence); nor does Concentric address these as complements or alternatives to LtCs under operational risks on pages 42 to 44 of 164.

- a) Can Concentric confirm that the OEB’s decisions on EB-2021-0205 and EB-2022-0088 did approve the LtC applications.
- b) Can Concentric identify what factors were the primary drivers of the “increased scrutiny of proposed replacement and addition of pipeline infrastructure investment”. For example, is the increased scrutiny of pipeline infrastructure investment due specifically to Energy Transition or to increasing environmental awareness, or to other factors?
- c) Please explain why Concentric has not considered the availability of Capital Funding Options, and of Enbridge Gas’s filing of ICM applications in the current Price Cap IR plan since amalgamation (2019-2023) in consideration of (or assessing) Enbridge Gas regulatory risk or operational risk.

- d) Does Concentric consider that Enbridge Gas faces less, the same, or more operational risk compared to U.S. natural gas utilities, given Enbridge Gas's recent experiences in seeking approval for system expansion, reinforcement and replacement through LtC and ICM applications since the merger and similar applications by the U.S. utilities? Please explain your response.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Confirmed.
- b) Please see Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 42 and 43 for descriptions of the basis on which intervenors have objected to Enbridge Gas's projects, including stranded asset risk due to the Energy Transition.
- c) Please see response at Exhibit I.5.3-EP-90 part b).
- d) Concentric considers Enbridge Gas to face similar operational risk to U.S. natural gas utilities. While Enbridge Gas has experienced increased opposition to and scrutiny of natural gas distribution projects, so to have other industry participants, including U.S. utilities, as noted in Concentric's report, Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 40 to 42.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 45-47 of 164 State of Rhode Island Division of Public Utilities and Carriers, Docket D-21-09, Report and Order, issued February 23, 2022

Question(s):

On pages 45-47 of 194 of its evidence, Concentric discusses increased operational risk due to “going concern”.

Concentric goes on to discuss the application concerning the sale of The Narragansett Electric Company, as considered by the State of Rhode Island Division Of Public Utilities and Carriers (the Division). Concentric quotes from the evidence of witnesses of the Attorney General of Rhode Island in that docket.

OEB staff notes that the Division issued its Report and Order in Docket D-21-09 on February 23, 2022.⁹ (ADD FOOTNOTE) OEB staff also notes the Division’s finding with respect to environmental matters and recommendations on pages 328 to 331 of the Report and Order.

- a) Can Concentric confirm that the Division was satisfied with evidence and commitments on environmental and Energy Transition matters of The Narragansett Electric Company, PPL Corporation and PPL Rhode Island Holdings, LLC as conditions of approval of the sale?
- b) Can Concentric confirm that the Division approved the sale of The Narragansett Electric Company?
- c) Can Concentric quantify the “going concern” risk as it relates to Enbridge Gas, and how much this has increased since 2012?
- d) Can Concentric identify the time horizon applicable for this increased “going concern” risk as it specifically relates to Enbridge Gas?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Confirmed.
- b) Confirmed.
- c) Concentric has not attempted to quantify the “going concern” risk as it relates to Enbridge Gas or how much it has increased since 2012. The important point is that the future of the gas distribution business was not an issue in 2012 when the OEB last reviewed the business risk and equity ratio for Enbridge Gas. Now, as investors and rating agencies consider the implications of the Energy Transition, they face legitimate questions about the future of natural gas in various provinces and states across North America. In addition, as provided on pages 43 to 44 of Concentric’s report, many European countries are even further down the path to the Energy Transition and decarbonization.
- d) Concentric has not attempted to identify the time horizon applicable to the “going concern” risk for Enbridge Gas. While such risk is almost certainly longer-term, the important point is that utilities such as Enbridge Gas have a long planning horizon and must plan and make investments today to ensure the long-term viability of the distribution system. At the same time, investors must consider if Enbridge Gas will be able to fully recover those investments and earn a return on them when the long-term outlook is clouded by the uncertainty created by the Energy Transition. This suggests that Enbridge Gas has greater business risk today, and that a stronger deemed equity ratio is required to reflect that increased risk.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 46 of 164

Question(s):

Concentric has stated the following on the referenced page: “Another risk of the Energy Transition is that a significant portion of the Company’s gas plant investments could become stranded.”

Please provide specific examples of the OEB failing to provide cost recovery for stranded assets in the last 10 years.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Concentric is not aware of any cases in the last 10 years where the OEB failed to provide cost recovery for stranded assets. Concentric is also unaware of cases where the OEB has been asked to rule on that question in any recent case. As noted by the OEB in EB-2020-0091, “[t]he OEB has limited experience with the treatment of stranded assets.” (EB-2020-0091, Decision and Order, July 22, 2021, at 62).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 46 of 164

Question(s):

Concentric has stated the following on the referenced page: "... the Energy Transition creates both risks and opportunities for gas utilities such as Enbridge Gas."

Can Concentric please describe all of the opportunities that arise as a result of Energy Transition for gas utilities such as Enbridge Gas that Concentric is aware of.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

The opportunities generally relate to alternatives to traditional delivery of natural gas. Specifically, Concentric identified and discussed a number of opportunities that arise as a result of the energy transition in its report, including IRP alternatives (see, e.g., page 33), the injection of hydrogen in the distribution system (see, e.g., pages 34 to 36), and opportunities with renewable natural gas (see, e.g., pages 36 to 37).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 51 of 164

Question(s):

Concentric has stated the following on the referenced page:

Figure 9 presents the normalized average use of natural gas by the Company's residential customers from 2006 to 2021. This figure shows that normalized residential average use has declined even further from 2012 levels. In fact, for the period 2006 to 2012, the average annual growth rate in residential average use was - 0.30%. For the period 2013 to 2021, the average annual growth rate decreased to - 0.57%.

- a) As Concentric has compared Enbridge Gas's risk profile in 2022 to EGD and Union Gas's risk profile in 2012, please provide the following information starting from 2012 (in MS Excel format):
- i. Actual annual load/sales and consumer data from 2012 to 2022 (segregated by consumer category). Please ensure that the data is provided separately for EGD and Union Gas from 2012 to 2018.
 - ii. Forecasted annual load/sales and consumer data from 2023 to 2028 (segregated by consumer category).

Response:

- a) Please see Attachment 1 for the Excel, for the actual and forecast normalized volumes based on 2024 Test Year weather normalization by sector from 2012 to 2028. Please see Attachment 2 for the Excel, for the actual and forecast average customer count by sector from 2012 to 2028.

Attachment 1
Actual and Forecast Normalized Volumes Based on 2024 Test Year Weather Normalization (By Sector)

Line No.	Particulars (10 ³ m ³)	Utility	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
			Actual (a)	Actual (b)	Actual (c)	Actual (d)	Actual (e)	Actual (f)	Actual (g)
<u>General Service (1)</u>									
1	Residential	EGD	4,609,025	4,640,235	4,707,031	4,684,212	4,688,730	4,851,455	4,871,656
2	Commercial	EGD	3,955,153	3,966,684	4,118,739	4,083,781	3,940,052	4,120,966	4,383,105
3	Industrial	EGD	661,940	641,752	671,610	657,196	638,905	641,496	654,638
4	Total - EGD Rate Zone		9,226,118	9,248,671	9,497,379	9,425,189	9,267,686	9,613,916	9,909,398
5	Residential	Union	2,867,333	2,904,206	2,950,616	2,895,911	2,914,430	3,018,534	3,059,253
6	Commercial	Union	1,917,736	1,954,410	2,026,199	1,996,427	1,991,921	2,062,169	2,074,923
7	Industrial	Union	481,603	483,636	482,106	493,667	478,332	499,758	509,834
8	Total - Union Rate Zone		5,266,671	5,342,252	5,458,921	5,386,005	5,384,683	5,580,461	5,644,011
9	Total General Service		14,492,790	14,590,922	14,956,300	14,811,194	14,652,370	15,194,377	15,553,408
<u>Contract</u>									
10	Contract	EGD	2,056,400	2,022,700	1,922,500	1,913,500	1,935,100	1,910,800	1,971,300
11	Contract	Union	9,135,278	8,996,029	8,701,465	8,318,496	8,169,694	7,383,273	7,844,060
12	Total Contract		11,191,678	11,018,729	10,623,965	10,231,996	10,104,794	9,294,073	9,815,360
13	Total Volumes		25,684,468	25,609,651	25,580,265	25,043,190	24,757,164	24,488,450	25,368,768

Notes:

(1) Volumes normalized to 2024 Test Year Forecast heating degree days.

Attachment 1
Actual and Forecast Normalized Volumes Based on 2024 Test Year Weather Normalization (By Sector)

Line No.	Particulars (10 ³ m ³)	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
		Actual (a)	Actual (b)	Actual (c)	Actual (d)	Forecast (e)	Forecast (f)	Forecast (g)	Forecast (h)	Forecast (i)	Forecast (j)
<u>General Service (1)</u>											
1	Residential	8,034,144	8,166,924	8,044,339	8,040,778	8,149,365	8,179,258	8,209,652	8,234,539	8,260,731	8,284,447
2	Commercial	6,436,062	6,289,129	6,069,543	6,224,539	6,441,180	6,448,091	6,429,395	6,408,538	6,389,423	6,370,410
3	Industrial	1,135,057	1,028,084	990,918	945,873	1,084,500	1,060,859	1,045,617	1,030,553	1,016,838	1,002,565
4	Total General Service	15,605,263	15,484,137	15,104,801	15,211,190	15,675,046	15,688,207	15,684,664	15,673,630	15,666,992	15,657,422
<u>Contract</u>											
5	Total Contract	10,409,038	10,407,657	11,364,220	12,226,415	12,026,774	12,234,665	12,456,037	13,289,325	13,296,345	13,285,182
6	Total Volumes	26,014,301	25,891,794	26,469,020	27,437,604	27,701,820	27,922,873	28,140,701	28,962,955	28,963,338	28,942,604

Notes:

(1) Volumes normalized to 2024 Test Year Forecast heating degree days.

Attachment 2
Actual and Forecast Average Customer Count (By Sector)

Line No.	Particulars	Utility	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
			Actual (a)	Actual (b)	Actual (c)	Actual (d)	Actual (e)	Actual (f)	Actual (g)
<u>General Service</u>									
1	Residential	EGD	1,836,267	1,869,325	1,901,207	1,930,657	1,959,569	1,990,032	2,017,128
2	Commercial	EGD	152,144	154,228	156,181	157,623	158,747	160,325	161,367
3	Industrial	EGD	6,063	6,039	6,056	6,017	5,951	5,902	5,851
4	Total - EGD Rate Zone		1,994,474	2,029,591	2,063,444	2,094,297	2,124,267	2,156,259	2,184,345
5	Residential	Union	1,250,461	1,269,050	1,287,709	1,306,495	1,325,703	1,344,513	1,364,322
6	Commercial	Union	111,557	112,508	113,652	114,594	115,340	115,973	116,727
7	Industrial	Union	5,391	5,365	5,353	5,305	5,271	5,261	5,244
8	Total - Union Rate Zone		1,367,409	1,386,924	1,406,714	1,426,394	1,446,314	1,465,747	1,486,293
9	Total General Service		3,361,883	3,416,514	3,470,158	3,520,691	3,570,581	3,622,006	3,670,639
<u>Contract</u>									
10	Contract	EGD	429	412	394	384	416	409	414
11	Contract	Union	477	484	476	468	465	476	477
12	Total Contract		906	896	870	852	881	885	891
13	Total Customers		3,362,789	3,417,410	3,471,028	3,521,543	3,571,462	3,622,891	3,671,530

Attachment 2
Actual and Forecast Average Customer Count (By Sector)

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	
Line No.	Particulars	Actual (a)	Actual (b)	Actual (c)	Actual (d)	Forecast (e)	Forecast (f)	Forecast (g)	Forecast (h)	Forecast (i)	Forecast (j)
<u>General Service</u>											
1	Residential	3,424,068	3,463,393	3,501,050	3,537,833	3,577,066	3,613,542	3,650,187	3,684,193	3,718,253	3,750,689
2	Commercial	280,104	281,892	283,411	283,141	286,523	289,171	290,757	292,267	293,829	295,299
3	Industrial	10,996	10,987	10,960	11,070	10,918	10,971	10,939	10,921	10,921	10,915
4	Total General Service	3,715,168	3,756,272	3,795,420	3,832,044	3,874,507	3,913,684	3,951,883	3,987,380	4,023,004	4,056,903
<u>Contract</u>											
5	Total Contract	905	969	1,036	1,067	1,030	1,028	1,029	1,029	1,029	1,029
6	Total Customers	3,716,073	3,757,241	3,796,456	3,833,111	3,875,537	3,914,712	3,952,911	3,988,409	4,024,032	4,057,931

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 52-53 of 164

Question(s):

On page 52 of 164, Concentric states that:

Considering the Energy Transition risks discussed above, we conclude that the Company's growth prospects today are weaker than they were at the time of the Company's previous equity thickness proceeding (i.e., 2012). Further, Figure 10 compares a variety of long-term economic growth projections from 2012 to comparable projections today. As shown, long-term economic growth prospects in Ontario, Canada overall, and the U.S. are weaker today than they were in 2012, diminishing the Company's growth prospects relative to 2012 even absent Energy Transition risks.

On page 10, Concentric provides Table 10, summarizing various economic forecasted statistics for certain key Canadian and U.S. statistics from sources such as The Conference Board of Canada, Consensus Forecasts, and Blue Chip Forecasts.

For all of the measures documented in Table 10 on Canadian and U.S. GDP growth, Concentric concludes that, even ignoring Energy Transition, it considers Enbridge Gas's growth prospects as diminished relative to when the last time that Enbridge Gas's business risk and commensurate equity thickness was reviewed.

OEB staff has prepared a table, set out in the excel sheet provided separately, based on Canadian GDP growth statistics, and certain other measures, such as the OEB's issued ROE, and actual and forecasted 10-year Government of Canada bond yields, corresponding to the timeframes of the October 2012 and April 2022 Consensus Forecasts used by Concentric. OEB staff has also added the 10-year long range forecasts for GDP growth from Consensus Forecasts October 10, 2022 publication, as this was known prior to Enbridge Gas filing the current application.

- a) Please confirm or correct the data provided in OEB staff's table.
- b) For the Consensus Forecasts of GDP growth, Concentric has only provided the years 3,4, 5 and 6-10 from the semi-annual 10-year forecast included as a

supplement in the April and October Consensus Forecasts publications, while Concentric has omitted the forecasts for years 1 and 2. Please explain why Concentric omitted the forecasts for the first two years as provided in the Consensus Forecasts publications for October 2012 and April 2022.

- c) In focusing on GDP growth forecasts, doesn't the consideration of reduced growth in GDP impact on the growth for firms in the economy generally? In other words, while there are some firms and sectors that may buck the trend, due to emerging or growing technologies, or due to better management or favorable business conditions, that may sustain higher growth, most firms and sectors would exhibit lower growth potential now due to socioeconomic changes in the past 10 years?
- d) Is not the important consideration whether or not Enbridge Gas's growth prospects have, regardless of energy transition, changed (declined or improved) relative to economic growth generally?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Confirmed.
- b) As provided at Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 52, Concentric considered a variety of long-term economic growth projections from 2012 and 2022. "Year 3" in Figure 10 on page 53 in the April 2022 Consensus Forecasts is 2024, which aligns with the rate period for Enbridge Gas.
- c) Agreed. A lower level of economic growth affects many industries, including utilities. From a utility risk perspective, lower economic growth translates to fewer customer additions and reduced customer usage, and reduced earnings growth. As noted in Concentric's Report (Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 54 of 164): "[t]he Company's rate of customer additions has continued declining since 2012, as shown in Figure 11. Specifically, the Company added approximately 56,500 on average from 2008 to 2012. In contrast, the Company added approximately 50,000 customers on average from 2013 to 2021, a 12 percent decrease from the 2008 to 2012 period. The Company added 42,500 customers in 2021, which represented the lowest amount of customer additions over the entire period from 2008 to 2021. As such, while the Company continues to add customers, it has steadily added fewer and fewer over time, a trend that has accelerated since about 2017." While the slowdown in economic growth affects many industries, including utilities, Enbridge Gas also faces Energy Transition risk, which amplifies the slowdown in economic growth.

- d) Both overall economic growth and Energy Transition are important for utilities such as Enbridge Gas. From an investor's standpoint, both impact risk and future earnings growth.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 64 of 164

Question(s):

Concentric has provided details of 'EGD/EGI Financial Metrics' in Figure 17.

Please expand the table in this figure and provide ratios for all years between 2012 and 2022, (in MS Excel format), and showing the calculations for the financial metrics, as appropriate.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Please refer to Attachments 1 and 2 for the EGD/EGI and Union/EGI Financial Metrics from 2012 and 2022.

Filed: 2023-03-08, EB-2022-0200, Exhibit I.5.3-STAFF-217, Attachment 2, Page 1 of 1

Financial Metrics (Utility) (\$M)

	UGL 2012 Actuals	EGD 2012 Actuals	UGL 2013 Actuals	EGD 2013 Actuals	UGL 2014 Actuals	EGD 2014 Actuals	UGL 2015 Actuals	EGD 2015 Actuals	UGL 2016 Actuals	EGD 2016 Actuals	UGL 2017 Actuals	EGD 2017 Actuals	UGL 2018 Actuals	EGD 2018 Actuals	EGI 2019 Actuals	EGI 2020 Actuals	EGI 2021 Actuals	EGI 2022 Estimate	EGI 2023 Bridge Year	EGI 2024 Test Year	EGI 2024 36% Equity
OEB Case Number	EB-2013-0109	EB-2013-0046	EB-2014-0145	EB-2012-0459	EB-2015-0010	EB-2015-0122	EB-2016-0118	EB-2016-0142	EB-2017-0091	EB-2017-0102	EB-2018-0105	EB-2018-0131	EB-2019-0105	EB-2019-0105	EB-2020-0134	EB-2021-0149	EB-2022-0110	EB-2022-0200	EB-2022-0200	EB-2022-0200	N/A
Utility Financial Results As Filed																					
Utility Income Statement (as filed)																					
Total Operating Revenues	\$ 1,569.96	\$ 2,324.10	\$ 1,771.56	\$ 2,566.30	\$ 1,919.73	\$ 2,642.40	\$ 1,821.59	\$ 2,766.90	\$ 1,704.64	\$ 2,637.50	\$ 2,100.82	\$ 2,830.60	\$ 2,059.08	\$ 2,791.30	\$ 4,779.70	\$ 4,266.70	\$ 4,628.50	\$ 5,095.30	\$ 5,809.70	\$ 6,279.10	\$ 6,257.90
Gas Commodity and Distribution Costs	\$ (636.56)	\$ (1,314.10)	\$ (830.30)	\$ (1,522.80)	\$ (958.52)	\$ (1,644.90)	\$ (856.84)	\$ (1,724.30)	\$ (700.44)	\$ (1,497.10)	\$ (1,030.97)	\$ (1,668.00)	\$ (907.14)	\$ (1,566.00)	\$ (2,265.30)	\$ (1,781.20)	\$ (2,110.50)	\$ (2,440.10)	\$ (3,047.30)	\$ (3,228.00)	\$ (3,228.00)
Operating and Administrative Expenses	\$ (426.35)	\$ (429.60)	\$ (444.89)	\$ (450.90)	\$ (444.08)	\$ (448.83)	\$ (472.30)	\$ (487.42)	\$ (487.42)	\$ (485.75)	\$ (523.23)	\$ (482.40)	\$ (523.23)	\$ (482.40)	\$ (1,036.00)	\$ (1,073.00)	\$ (1,036.80)	\$ (1,082.40)	\$ (1,082.40)	\$ (1,118.90)	\$ (1,118.90)
Depreciation and Amortization	\$ (200.86)	\$ (292.90)	\$ (192.96)	\$ (278.00)	\$ (200.37)	\$ (255.90)	\$ (212.22)	\$ (259.70)	\$ (228.40)	\$ (292.70)	\$ (254.98)	\$ (301.30)	\$ (276.87)	\$ (294.70)	\$ (601.70)	\$ (618.20)	\$ (640.10)	\$ (705.40)	\$ (725.40)	\$ (921.00)	\$ (921.00)
Other Revenue	\$ 19.89	\$ 36.80	\$ 18.05	\$ 41.20	\$ 14.87	\$ 43.60	\$ 19.90	\$ 16.53	\$ 44.10	\$ 41.97	\$ 17.30	\$ 42.10	\$ 17.81	\$ 42.30	\$ 49.60	\$ 47.70	\$ 49.10	\$ 60.00	\$ 63.20	\$ 64.30	\$ 64.30
Other Income	\$ (1.19)	\$ 6.10	\$ (0.59)	\$ (1.05)	\$ (0.30)	\$ (0.44)	\$ 6.00	\$ (1.16)	\$ 1.10	\$ (1.44)	\$ 0.30	\$ 1.26	\$ 0.20	\$ (1.80)	\$ 4.50	\$ 0.90	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Expense	\$ (145.35)	\$ (142.30)	\$ (148.39)	\$ (145.80)	\$ (150.93)	\$ (151.50)	\$ (154.59)	\$ (159.50)	\$ (161.00)	\$ (177.90)	\$ (167.15)	\$ (185.30)	\$ (165.47)	\$ (190.30)	\$ (369.10)	\$ (381.70)	\$ (379.90)	\$ (401.40)	\$ (416.00)	\$ (422.20)	\$ (438.90)
Income Tax Expense	\$ (27.07)	\$ (47.50)	\$ (25.11)	\$ (48.20)	\$ (23.76)	\$ (6.10)	\$ (15.36)	\$ (19.40)	\$ (4.11)	\$ (17.30)	\$ 5.28	\$ (1.00)	\$ 6.30	\$ (38.10)	\$ (59.90)	\$ (39.20)	\$ (41.80)	\$ (34.10)	\$ (48.90)	\$ (120.70)	\$ (110.80)
Pref Share Dividends	\$ (3.11)	\$ (2.40)	\$ (2.06)	\$ (2.40)	\$ (2.83)	\$ (2.40)	\$ (2.66)	\$ (2.20)	\$ (2.60)	\$ (2.20)	\$ (2.77)	\$ (2.30)	\$ (2.90)	\$ (2.60)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Income Applicable To Common Equity	\$ 149.36	\$ 138.20	\$ 145.31	\$ 161.00	\$ 153.06	\$ 177.00	\$ 150.55	\$ 179.60	\$ 158.36	\$ 200.50	\$ 180.44	\$ 239.00	\$ 208.84	\$ 259.70	\$ 495.50	\$ 425.60	\$ 469.40	\$ 491.90	\$ 543.10	\$ 532.60	\$ 504.60
Total Debt																					
Short Term Debt	\$ 145.62	\$ 113.70	\$ 56.69	\$ 236.50	\$ (60.51)	\$ 203.10	\$ (143.53)	\$ 165.40	\$ (219.47)	\$ 209.00	\$ 80.16	\$ 360.40	\$ 187.55	\$ 381.00	\$ 407.00	\$ 111.10	\$ 596.50	\$ 521.70	\$ 318.20	\$ 6.20	\$ (128.40)
Long Term Debt	\$ 2,151.08	\$ 2,353.10	\$ 2,262.10	\$ 2,411.10	\$ 2,502.25	\$ 2,705.70	\$ 2,746.66	\$ 2,985.70	\$ 3,161.48	\$ 3,472.80	\$ 3,319.04	\$ 3,677.30	\$ 3,572.95	\$ 3,838.20	\$ 8,002.00	\$ 8,568.60	\$ 8,505.30	\$ 9,079.60	\$ 9,628.80	\$ 10,028.10	\$ 10,486.40
	\$ 2,296.70	\$ 2,466.80	\$ 2,318.79	\$ 2,647.60	\$ 2,441.74	\$ 2,908.80	\$ 2,603.13	\$ 3,151.10	\$ 2,942.01	\$ 3,681.80	\$ 3,399.20	\$ 4,037.70	\$ 3,760.50	\$ 4,219.20	\$ 8,409.00	\$ 8,679.70	\$ 9,101.80	\$ 9,601.30	\$ 9,947.00	\$ 10,034.30	\$ 10,358.00
Common Equity																					
Preference Shares	\$ 1,349.68	\$ 1,443.80	\$ 1,362.19	\$ 1,545.60	\$ 1,431.51	\$ 1,692.50	\$ 1,522.23	\$ 1,828.70	\$ 1,713.03	\$ 2,127.20	\$ 1,970.61	\$ 2,327.50	\$ 2,166.61	\$ 2,422.50	\$ 4,730.00	\$ 4,882.30	\$ 5,119.80	\$ 5,400.80	\$ 5,995.20	\$ 6,150.00	\$ 5,826.30
Utility Rate Base	\$ 3,749.11	\$ 4,010.60	\$ 3,783.86	\$ 4,293.20	\$ 3,976.42	\$ 4,701.30	\$ 4,228.40	\$ 5,079.80	\$ 4,758.42	\$ 5,909.00	\$ 5,473.91	\$ 6,465.20	\$ 6,018.37	\$ 6,729.20	\$ 13,139.00	\$ 13,562.00	\$ 14,221.60	\$ 15,002.10	\$ 15,542.20	\$ 16,184.30	\$ 16,184.30
Utility Common Equity																					
Achieved or Allowed Return On Common Equity (pre-ESM as)	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%	36.000%
	11.070%	9.570%	10.667%	10.414%	10.690%	10.460%	9.890%	9.819%	9.240%	9.423%	9.160%	10.289%	9.640%	10.721%	10.475%	8.717%	9.168%	8.660%	8.660%	8.660%	8.660%
Adjustments To Utility Financial Results																					
Weather Normalization Revenue (negative = warmer)	\$ -	\$ (108.50)	\$ -	\$ 47.10	\$ -	\$ 218.90	\$ -	\$ 125.20	\$ -	\$ (48.70)	\$ -	\$ (42.50)	\$ -	\$ 72.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Weather Normalization Costs (positive = warmer)	\$ -	\$ 76.80	\$ -	\$ (34.00)	\$ -	\$ (170.60)	\$ -	\$ (110.50)	\$ -	\$ 30.40	\$ -	\$ 27.20	\$ -	\$ (46.70)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Weather Normalization Tax Impact	\$ -	\$ 8.40	\$ -	\$ (3.47)	\$ -	\$ (12.80)	\$ -	\$ (3.90)	\$ -	\$ 4.85	\$ -	\$ 4.05	\$ -	\$ (6.76)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pre-Tax Earnings Sharing Mechanism (as filed)	\$ (15.73)	\$ (10.31)	\$ -	\$ (7.42)	\$ (12.66)	\$ -	\$ (6.46)	\$ -	\$ (3.38)	\$ -	\$ (23.56)	\$ -	\$ (28.37)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Earnings Sharing Tax Impact	\$ 4.17	\$ 2.73	\$ -	\$ 1.97	\$ 3.35	\$ -	\$ 1.71	\$ -	\$ 0.90	\$ -	\$ 6.24	\$ -	\$ 7.52	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Adjusted Income Applicable To Common Equity	\$ 137.80	\$ 107.32	\$ 145.31	\$ 170.63	\$ 147.60	\$ 203.20	\$ 150.55	\$ 185.66	\$ 158.36	\$ 184.57	\$ 180.44	\$ 210.44	\$ 208.84	\$ 257.59	\$ 495.50	\$ 425.60	\$ 469.40	\$ 491.90	\$ 543.10	\$ 532.60	\$ 504.60
Adjusted Earnings	\$ 140.91	\$ 109.72	\$ 147.37	\$ 173.03	\$ 150.43	\$ 205.60	\$ 153.21	\$ 187.86	\$ 160.96	\$ 186.77	\$ 183.21	\$ 212.74	\$ 211.74	\$ 260.19	\$ 495.50	\$ 425.60	\$ 469.40	\$ 491.90	\$ 543.10	\$ 532.60	\$ 504.60
Adjusted EBIT	\$ 309.16	\$ 288.39	\$ 320.87	\$ 370.50	\$ 323.16	\$ 372.64	\$ 323.16	\$ 368.94	\$ 326.07	\$ 376.22	\$ 345.08	\$ 388.74	\$ 370.91	\$ 487.83	\$ 924.50	\$ 846.50	\$ 891.10	\$ 927.40	\$ 1,008.00	\$ 1,075.50	\$ 1,054.30
Adjusted EBITDA	\$ 510.02	\$ 581.29	\$ 513.83	\$ 648.50	\$ 523.53	\$ 628.54	\$ 535.38	\$ 628.64	\$ 554.47	\$ 668.92	\$ 599.96	\$ 690.04	\$ 647.78	\$ 782.53	\$ 1,526.20	\$ 1,464.70	\$ 1,531.20	\$ 1,632.80	\$ 1,733.40	\$ 1,996.50	\$ 1,975.30
Funds From Operations (FFO)																					
Earnings	\$ 140.9	\$ 109.7	\$ 147.4	\$ 173.0	\$ 150.4	\$ 205.6	\$ 153.2	\$ 187.9	\$ 161.0	\$ 186.8	\$ 183.2	\$ 212.7	\$ 211.7	\$ 260.2	\$ 495.5	\$ 425.6	\$ 469.4	\$ 491.9	\$ 543.1	\$ 532.6	\$ 504.6
Depreciation and Amortization	\$ 200.9	\$ 292.9	\$ 193.0	\$ 278.0	\$ 200.4	\$ 255.9	\$ 212.2	\$ 259.7	\$ 228.4	\$ 292.7	\$ 254.9	\$ 301.3	\$ 276.9	\$ 294.7	\$ 601.7	\$ 618.2	\$ 640.1	\$ 705.4	\$ 725.4	\$ 921.0	\$ 921.0
	\$ 341.8	\$ 402.6	\$ 340.3	\$ 451.0	\$ 350.8	\$ 461.5	\$ 365.4	\$ 447.6	\$ 389.4	\$ 479.5	\$ 438.1	\$ 514.0	\$ 488.6	\$ 554.9	\$ 1,097.2	\$ 1,043.8	\$ 1,109.5	\$ 1,197.3	\$ 1,268.5	\$ 1,453.6	\$ 1,425.6
Adjusted Metrics																					
FFO Cash Interest Coverage	3.35	3.83	3.29	4.09	3.32	4.05	3.36	3.81	3.42	3.70	3.62	3.77	3.95	3.92	3.97	3.73	3.92	3.98	4.05	4.44	4.25
EBIT Interest Coverage	2.13	2.03	2.16	2.54	2.14	2.46	2.09	2.31	2.03	2.11	2.06	2.10	2.24	2.56	2.50	2.22	2.35	2.31	2.42	2.55	2.40
Debt to EBITDA (regulatory)	4.70	4.42	4.71	4.24	4.86	4.79	5.05	5.17	5.49	5.65	5.84	6.00	5.95	5.50	5.51	5.93	5.94	5.88	5.74	5.03	5.24
FFO/Debt (regulatory)	14.24%	15.69%	14.05%	16.42%	13.78%	15.34%	13.50%	13.77%	12.79%	12.69%	12.51%	12.42%	12.69%	13.05%	12.03%	12.19%	12.47%	12.75%	14.49%	13.76%	13.76%
Debt/Capitalization (regulatory)	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%
Debt to EBITDA (US GAAP)	4.50	4.24	4.51	4.08	4.66	4.63	4.86	5.01	5.31	5.50	5.67	5.85	5.81	5.39	5.51	5.93	5.94	5.88	5.74	5.03	5.24
FFO/Debt (US GAAP)	14.88%	16.32%	14.68%	17.04%	14.37%	15.87%	14.04%	14.20%	13.23%	13.02%	12.89%	12.73%	12.99%	13.15%	13.05%	12.03%	12.19%	12.47%	12.75%	14.49%	13.76%
Debt/Capitalization (US GAAP)	61.26%	61.51%	61.28%	61.67%	61.41%	61.87%	61.56%	62.03%	61.83%	62.31%	62.10%	62.45%	62.48%	62.70%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%	64.00%
Calculated Return on Common Equity	10.21%	7.43%	10.67%	11.04%	10.31%	12.01%	9.89%	10.15%	9.24%	8.68%	9.16%	9.04%	9.64%	10.63%	10.48%	8.72%	9.17%	9.11%	9.71%	8.66%	8.66%

Notes:

- The figures above have been extracted from OEB regulatory filings (as filed evidence). These filings do not contain the same details as US GAAP audited financial statements (and the notes to the financials).
- As such, certain adjustments to reported amounts have not been made that would otherwise have been made (by the credit rating agencies) if the source of the financial information were audited financial statements.
- Balance sheet figures are the average of monthly averages for a particular year and not the year end balance (consistent with the calculations for rate base).
- Utility financial results and the adjusted metrics have not been updated for adjustments between as filed and approved results.
- As filed Earnings Sharing and the impact of weather normalization have been incorporated into the ratios as adjustments.
- FFO/Debt for OEB regulatory purposes may not be consistent with US GAAP FSLI groupings. However each adjustment is materially consistent across the historical data set.
- In 2019 EGD and UGL amalgamated as EGI and combined harmonized utility results were filed with the OEB. Any differences from harmonizing calculation methodologies have not been reflected retrospectively in comparative years.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 66 of 164

Question(s):

Concentric has provided details of its “Comparison of Enbridge Gas’ Credit Metrics to the Proxy Companies” in Figure 19, shown on the referenced page.

- a) OEB staff understands that this data is for 2021, as the numbers match the 2021 metrics shown in Figure 18 on page 65 of 164 of Concentric’s report. Please confirm or correct this.
- b) Please provide backup data and underlying calculations for this table, and provide a similar table for each year between 2012 and 2022, including underlying calculations (including for combining EGD and Union Gas data pre-amalgamation, in MS Excel format).
- c) Please expand this table to provide 2023, 2024, 2025, 2026, 2027, 2028 forecasts, showing estimates for these credit metrics assuming: (i) no change in capital structure; and (ii) change in capital structure as proposed by Enbridge Gas. Please provide underlying calculations for the entire expanded table, in MS Excel format.

Response:

The following response was provided by Concentric Energy Advisors Inc.:

- a) Confirmed.
- b) Please see Attachment 1. Enbridge Gas is seeking confidential treatment of this attachment for the reasons set out in the Company’s accompanying request for confidential treatment of certain information filed in this proceeding.

Enbridge Gas has provided the following response:

- c) Please see response at Exhibit I.5.3-STAFF-217, Attachment 2 for 2023 and 2024 forecast Credit Metrics. As Enbridge Gas is setting cost of service rates for 2024 based on 2024 forecast information, Enbridge Gas declines to provide the requested forecast information beyond 2024. Any forecast of post-2024 will depend on the determinations in this proceeding.

CREDIT METRICS ANALYSIS

Company Name	Ticker	Debt to Capital Ratio (%)											EBITDA Interest Coverage										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Union Gas (Per S&P)																							
Enbridge Gas Inc. (Per S&P)																							
Enbridge Gas Inc. (Regulated-Only)																							
Canadian HoldCo Group																							
Algonquin Power and Utilities Corp	AQN																						
AltaGas Utilities Inc	ALA																						
Canadian Utilities Ltd	CU																						
Emera Inc	EMA																						
Fortis Inc	FTS																						
Hydro One Inc	H																						
Canadian HoldCo Average																							
US OpCo Group																							
Southern California Gas Company																							
Consumers Energy Company																							
Northern Illinois Gas Company																							
DTE Gas Company																							
Consolidated Edison Company of NY																							
The East Ohio Gas company																							
Brooklyn Union Gas Company [1]																							
Atlanta Gas Light Company																							
Columbia Gas of Ohio Inc																							
The Peoples Gas Light and Coke Company																							
US OpCo Average																							
US HoldCo Group																							
Atmos Energy Corporation [2]	ATO																						
New Jersey Resources Corporation	NJR																						
NiSource Inc	NI																						
Northwest Natural Gas Company	NWN																						
ONE Gas Inc	OGS																						
South Jersey Industries Inc	SJI																						
Southwest Gas Corporation	SWX																						
Spire Inc [2]	SR																						
US HoldCo Average																							

Notes & Sources:

All values are based on S&P Capital IQ Credit Stats Direct. Select Stats & Ratios as calculated and adjusted by S&P

Capital IQ for the most recent period December 31 unless otherwise stated

[1] Fiscal year ended on March 31

[2] Fiscal year ended on September 30

CREDIT METRICS ANALYSIS

Company Name	Ticker	FFO to Cash Interest Coverage											FFO / Debt (%)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Union Gas (Per S&P)																							
Enbridge Gas Inc. (Per S&P)																							
Enbridge Gas Inc. (Regulated-Only)																							
Canadian HoldCo Group																							
Algonquin Power and Utilities Corp	AQN																						
AltaGas Utilities Inc	ALA																						
Canadian Utilities Ltd	CU																						
Emera Inc	EMA																						
Fortis Inc	FTS																						
Hydro One Inc	H																						
Canadian HoldCo Average																							
US OpCo Group																							
Southern California Gas Company																							
Consumers Energy Company																							
Northern Illinois Gas Company																							
DTE Gas Company																							
Consolidated Edison Company of NY																							
The East Ohio Gas company																							
Brooklyn Union Gas Company [1]																							
Atlanta Gas Light Company																							
Columbia Gas of Ohio Inc																							
The Peoples Gas Light and Coke Company																							
US OpCo Average																							
US HoldCo Group																							
Atmos Energy Corporation [2]	ATO																						
New Jersey Resources Corporation	NJR																						
NiSource Inc	NI																						
Northwest Natural Gas Company	NWN																						
ONE Gas Inc	OGS																						
South Jersey Industries Inc	SJI																						
Southwest Gas Corporation	SWX																						
Spire Inc [2]	SR																						
US HoldCo Average																							

Notes & Sources:

All values are based on S&P Capital IQ Credit Stats Direct Capital IQ for the most recent period December 31 unless
 [1] Fiscal year ended on March 31
 [2] Fiscal year ended on September 30

CREDIT METRICS ANALYSIS

Company Name	Ticker	Debt to EBITDA										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Union Gas (Per S&P)												
Enbridge Gas Inc. (Per S&P)												
Enbridge Gas Inc. (Regulated-Only)												
Canadian HoldCo Group												
Algonquin Power and Utilities Corp	AQN											
AltaGas Utilities Inc	ALA											
Canadian Utilities Ltd	CU											
Emera Inc	EMA											
Fortis Inc	FTS											
Hydro One Inc	H											
Canadian HoldCo Average												
US OpCo Group												
Southern California Gas Company												
Consumers Energy Company												
Northern Illinois Gas Company												
DTE Gas Company												
Consolidated Edison Company of NY												
The East Ohio Gas company												
Brooklyn Union Gas Company [1]												
Atlanta Gas Light Company												
Columbia Gas of Ohio Inc												
The Peoples Gas Light and Coke Company												
US OpCo Average												
US HoldCo Group												
Atmos Energy Corporation [2]	ATO											
New Jersey Resources Corporation	NJR											
NiSource Inc	NI											
Northwest Natural Gas Company	NWN											
ONE Gas Inc	OGS											
South Jersey Industries Inc	SJI											
Southwest Gas Corporation	SWX											
Spire Inc [2]	SR											
US HoldCo Average												

Notes & Sources:

All values are based on S&P Capital IQ Credit Stats Direct Capital IQ for the most recent period December 31 unless
 [1] Fiscal year ended on March 31
 [2] Fiscal year ended on September 30



Union Gas Limited > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template:	Adjusted	Restatement:	Latest Filings
Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios							
	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2012	12 months Dec-31-2013	12 months Dec-31-2014	12 months Dec-31-2015	12 months Dec-31-2016	12 months Dec-31-2017
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios							
For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021	12 months Dec-31-2022
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Basic



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Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most		12 months						
	Recent 3 Yrs	Unweighted Avg							
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs	12 months												
Unweighted Avg	Sep 30 2011	Sep 30 2011	Sep 30 2012	Sep 30 2013	Sep 30 2014	Sep 30 2015	Sep 30 2016	Sep 30 2017	Sep 30 2018	Sep 30 2019	Sep 30 2020	Sep 30 2021	Sep 30 2022	Sep 30 2023
Currency	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
Subsequent Status	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed

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Southwest Gas Corporation > CreditStats Direct® > Select Stats & Ratios

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 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Defaults: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months											
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021	Dec 31 2022
Currency	Unweighted Avg	USD											
Revised 3 Yrs		Revised											



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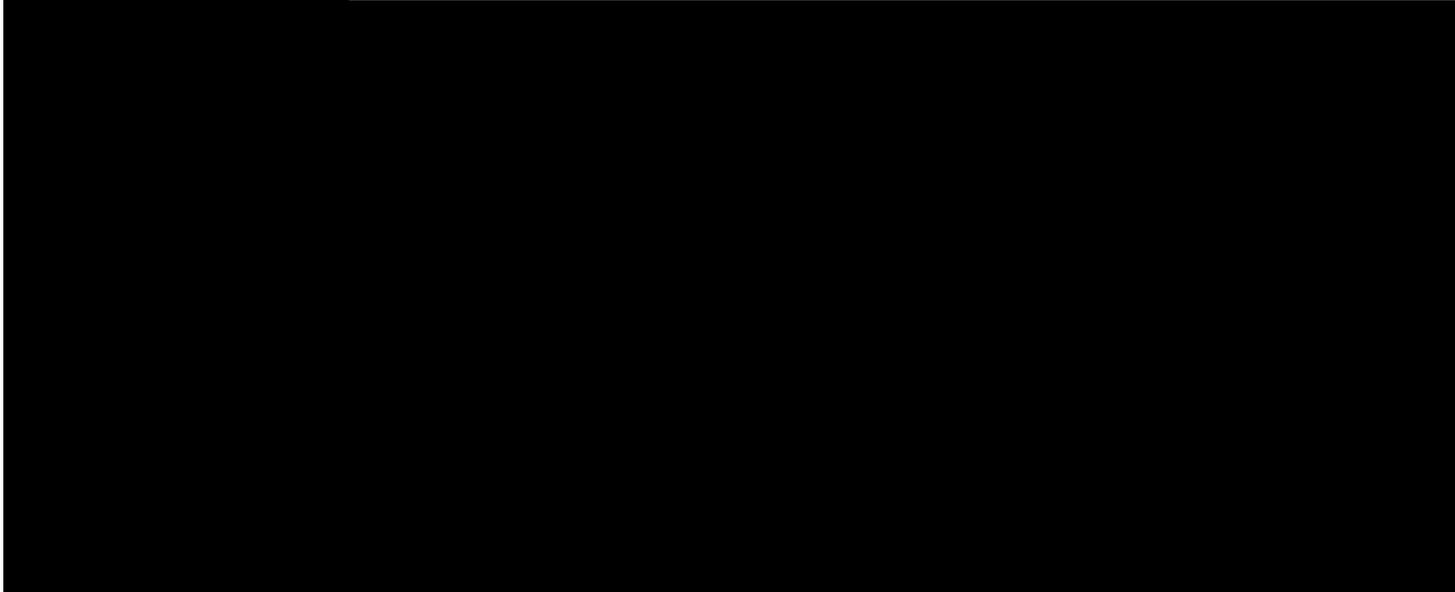
In Millions of the reported currency.

Template: Adjusted
 Period Type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most	12 months										
	Recent 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021
Currency	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
Adjustment Status	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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ONE Gas, Inc. (NYSE:OGS) > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency:

Template:	Adjusted	Restatement:	Latest Filings
Period type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months											
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021	Dec 31 2022
Currency	Unweighted Avg	USD											
Adjustment Status		Reviewed											



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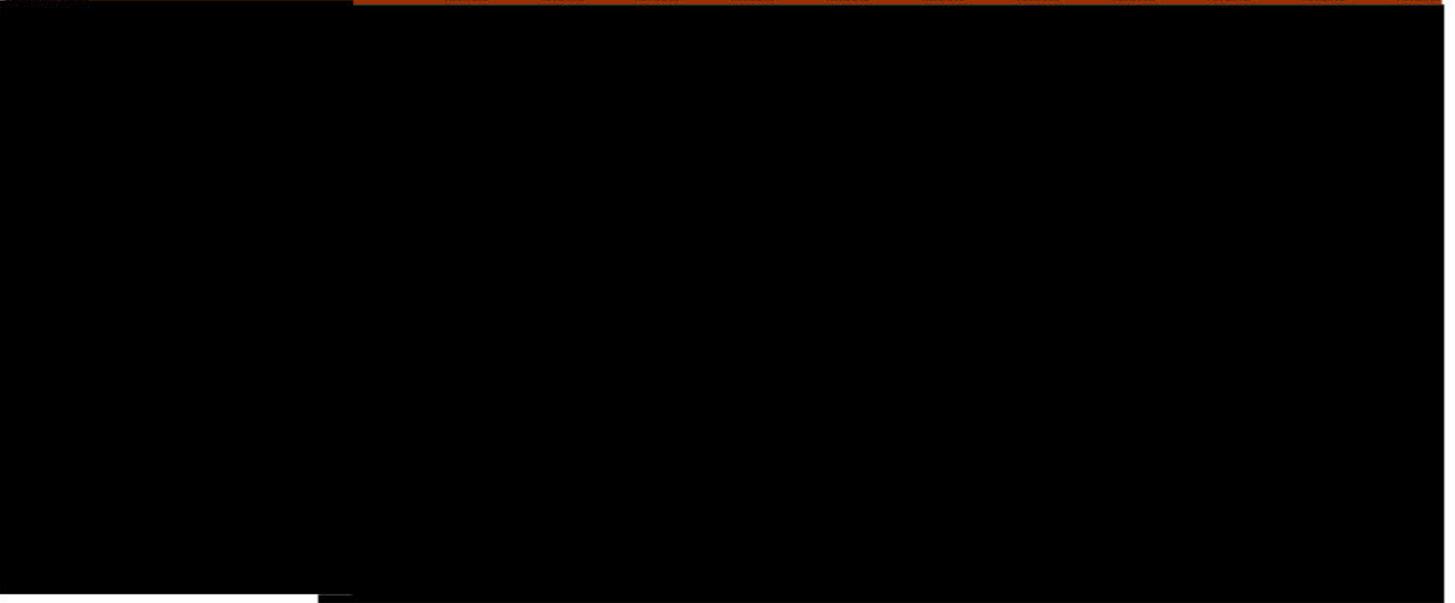
In Millions of the reported currency:

Template: Adjusted
 Period type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months										
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021
Currency	Unweighted Avg	USD										
Restatement Order		Reviewed										



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Consumers Energy Company > CreditStats Direct® > Select Stats & Ratios

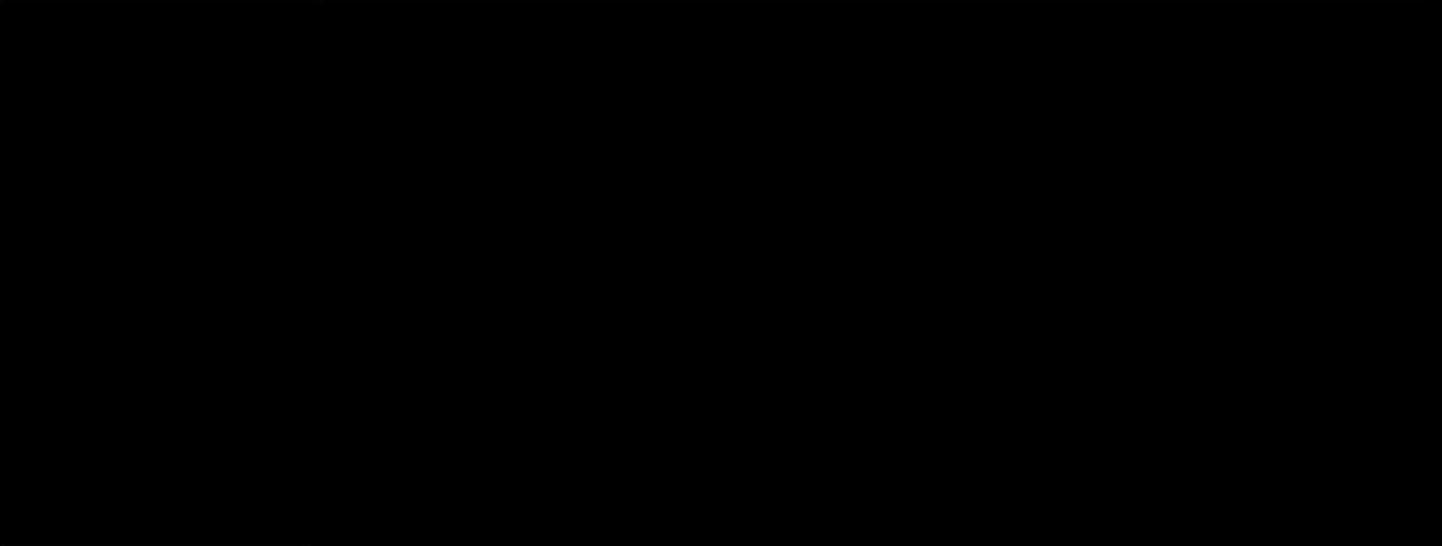
In Millions of the reported currency.

Template: Adjusted
 Period type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs	12 months												
Unweighted Avg	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
Currency	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
Adjustment Status	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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Southern California Gas Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template: Adjusted
 Period Type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios												
For the Fiscal Period Ending	Recent 3 Yrs	12 months										
	Unweighted Avg	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021
Currency	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
Adjustment Status	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed

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Hydro One Inc. > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template: Adjusted
 Period type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement Order: Latest F Ings Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs	12 months												
Unweighted Avg	Dec 31 2011	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021	Dec 31 2022	Dec 31 2023
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD
	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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Fortis Inc. (TSX:FTS) > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template:	Adjusted	Restatement:	Latest F Ings
Period type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Comparison:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Recent 3 Yrs	12 months	12 months											
Unweighted Avg	Dec 31 2010	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021	Dec 31 2022	
Stance:	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	
Reference Status:	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated	

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Emera Incorporated (TSX:EMA) > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency:

Template:	Adjusted	Restatement:	Latest Filings
Period type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months										
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021
Currency	Unweighted Avg	CAD										
Adjustment Status		Revised										



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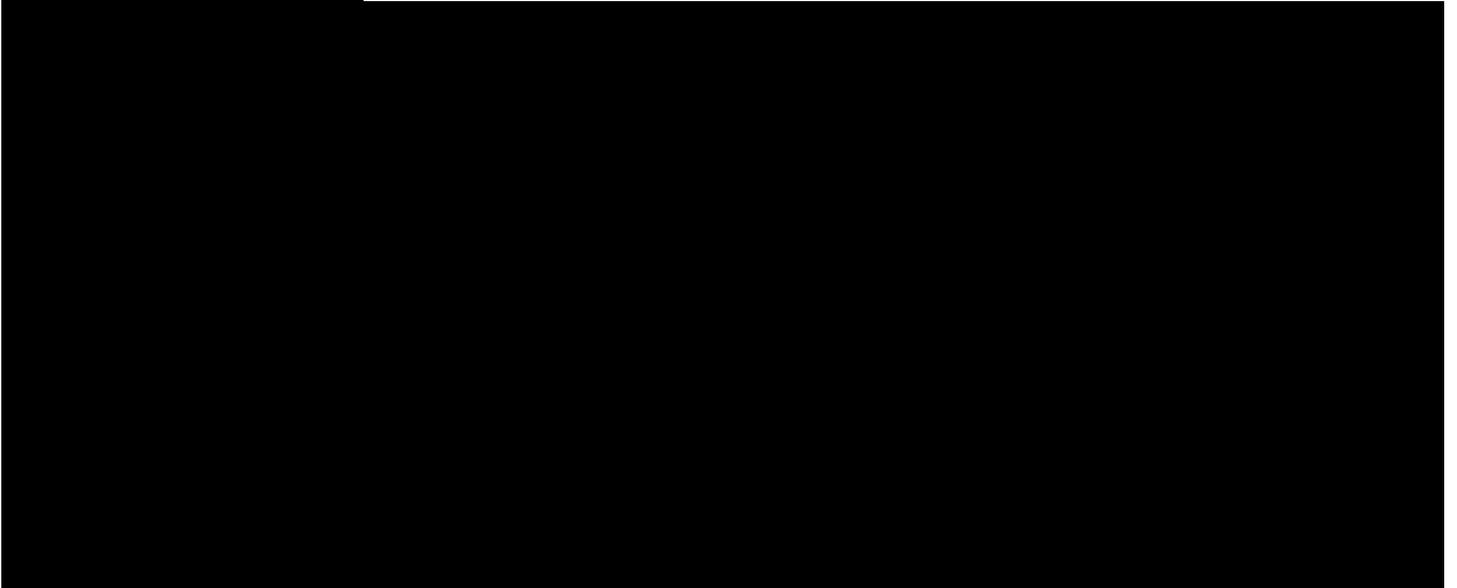
Canadian Utilities Limited (TSX:CU) > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template: Adjusted
 Period Type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios												
For the Fiscal Period Ending	Most	12 months										
	Recent 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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DTE Gas Company > CreditStats Direct® > Select Stats & Ratios

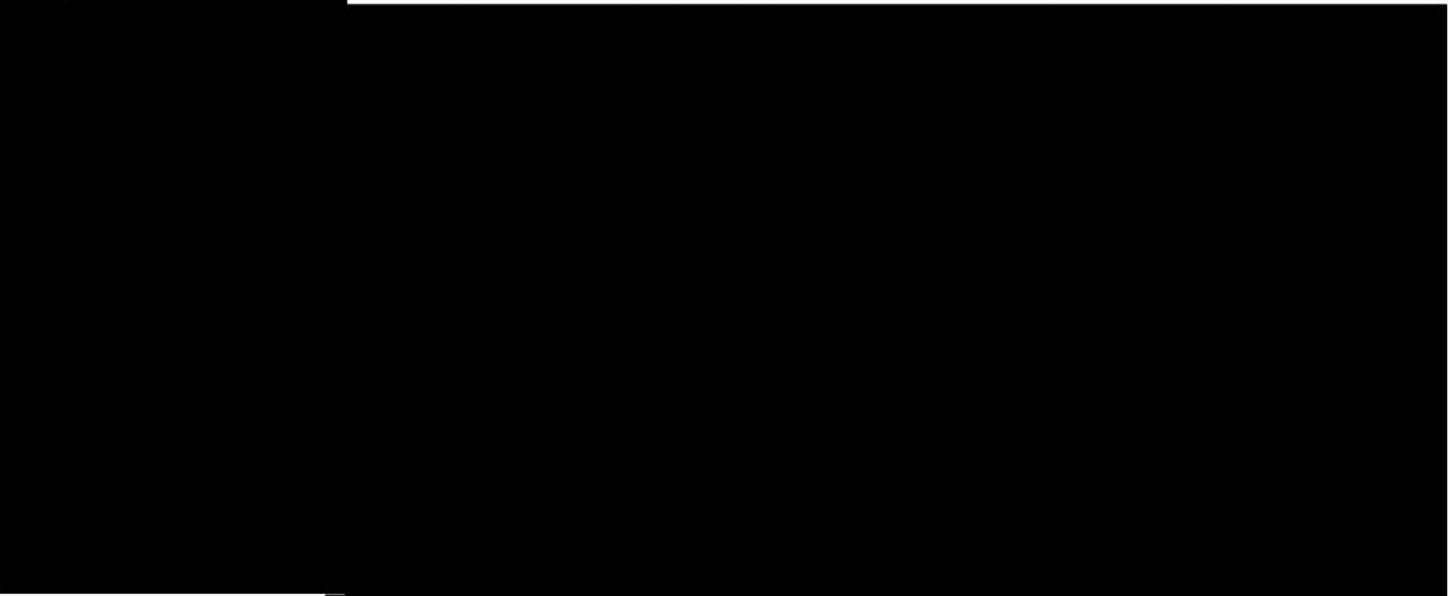
In Millions of the reported currency:

Template: Adjusted
 Period type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months											
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021	Dec 31 2022
Currency	Unweighted Avg	USD											
Adjustment Status		Revised											



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NiSource Inc. (NYSE:NI) > CreditStats Direct® > Select Stats & Ratios

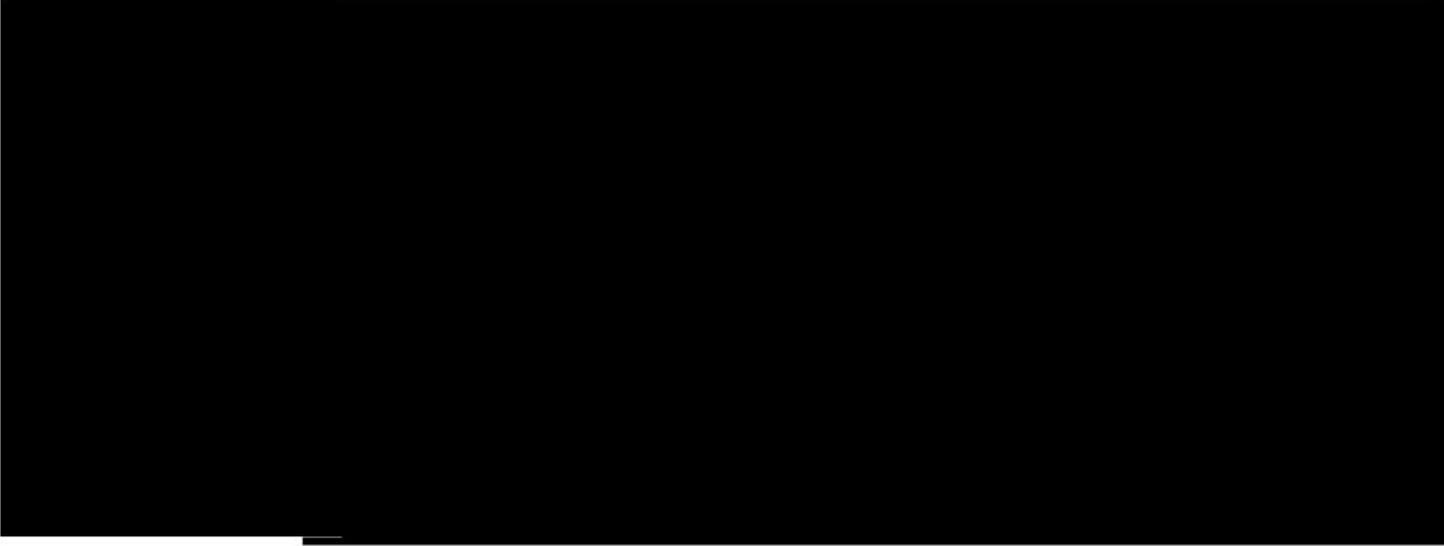
In Millions of the reported currency.

Template: Adjusted
 Period type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs	12 months												
Unweighted Avg	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
Adjustment Status	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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AltaGas Ltd. (TSX:ALA) > CreditStats Direct@ > Select Stats & Ratios

In Millions of the reported currency:

Template:	Adjusted	Restatement:	Latest Filings
Period type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months										
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021
Currency	Unweighted Avg	CAD										
Revised 3 Yrs		Revised										

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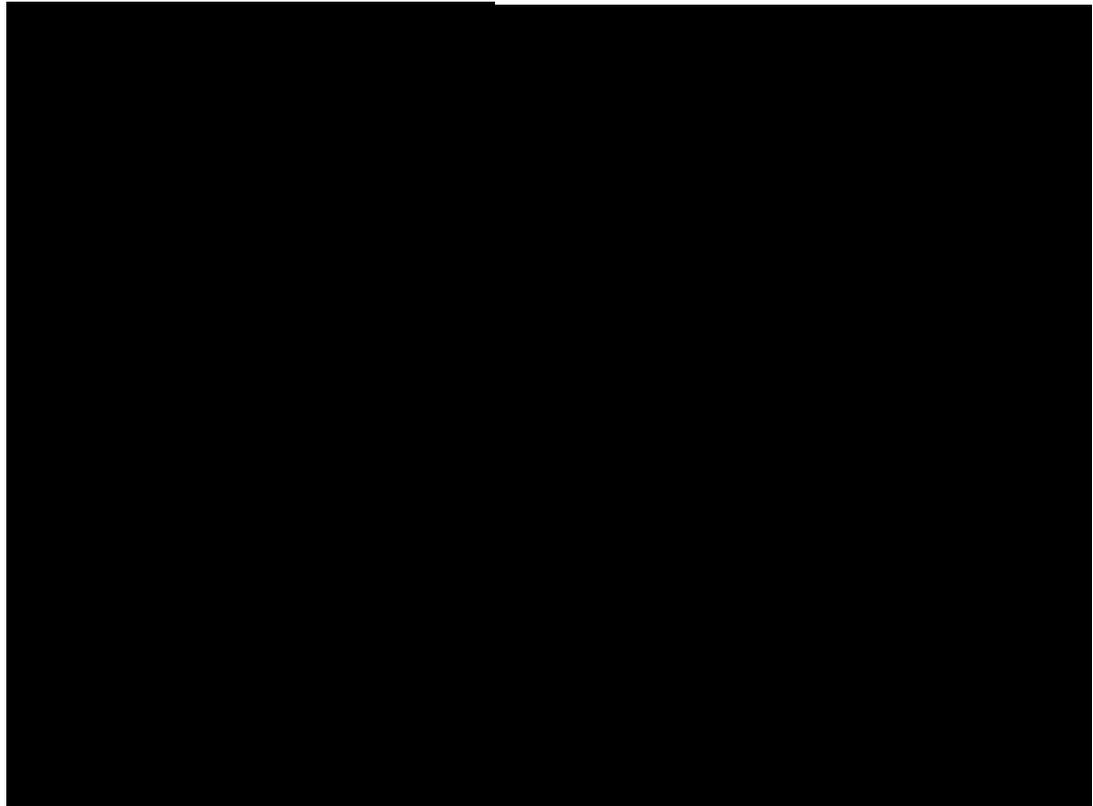


The East Ohio Gas Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template:	Adjusted	Restatement:	Latest Filings
Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios					
	Most Recent 3 Yrs.	12 months	12 months	12 months	12 months
For the Fiscal Period Ending	Unweighted Avg.	Dec-31-2018	Dec-31-2019	Dec-31-2020	Dec-31-2021
Currency	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed



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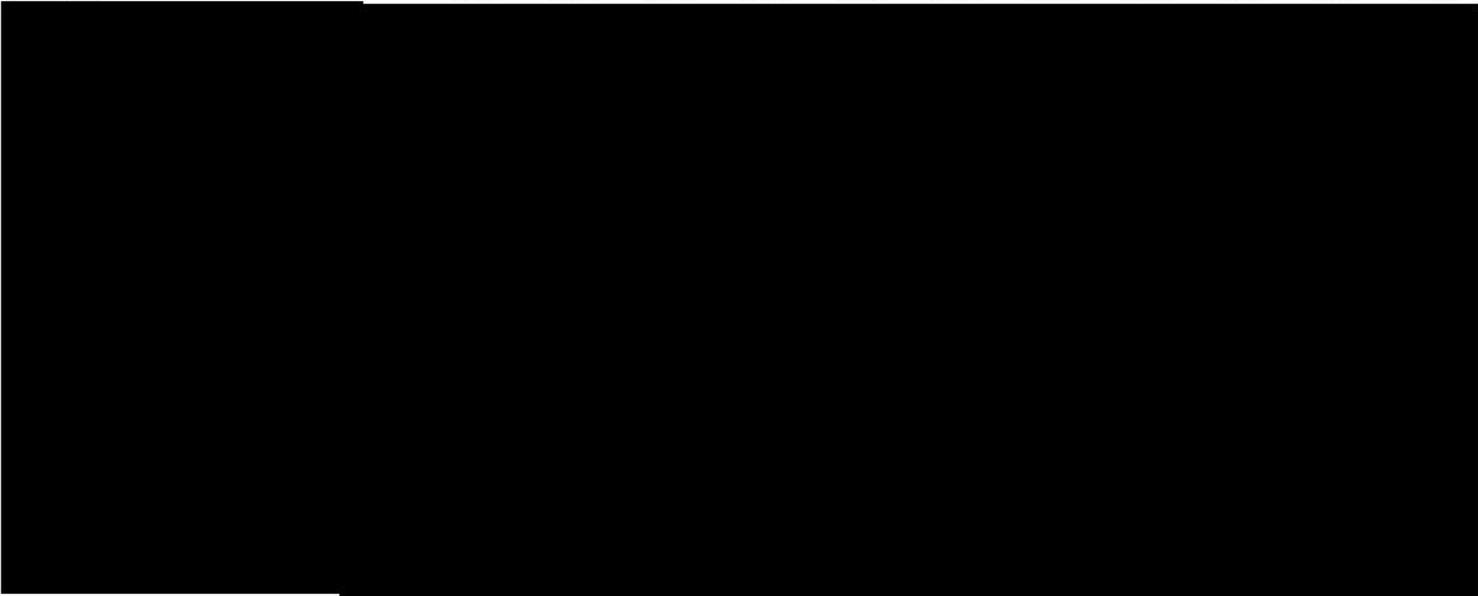
Northwest Natural Gas Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency:

Template:	Adjusted	Restatement:	Latest Filings
Period type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months											
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021	Dec 31 2022
Currency	Unweighted Avg	USD											
Adjustment Status	Revised	Revised	Revised	Revised	Revised	Revised	Revised	Revised	Revised	Revised	Revised	Revised	Revised



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Atmos Energy Corporation (NYSE:ATO) > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

emplate:	Adjusted	Restatement:	Latest F-Ins
Period type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Defa	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs	12 months												
Currency	Unweighted Avg	Sep 30 2011	Sep 30 2012	Sep 30 2013	Sep 30 2014	Sep 30 2015	Sep 30 2016	Sep 30 2017	Sep 30 2018	Sep 30 2019	Sep 30 2020	Sep 30 2021	Sep 30 2022	Sep 30 2023
Adjustment Status	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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The Brooklyn Union Gas Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template: Adjusted
 Period type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)
 Restatement Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

	Most Recent 3 Yrs	12 months Mar 31 2011	12 months Mar 31 2012	12 months Mar 31 2013	12 months Mar 31 2014	12 months Mar 31 2015	12 months Mar 31 2016	12 months Mar 31 2017	12 months Mar 31 2018	12 months Mar 30 2019	12 months Mar 31 2020	12 months Mar 31 2021	12 months Mar 31 2022	12 months Mar 31 2023
For the Fiscal Period Ending	Unweighted Avg	USD												
Currency	USD	Reviewed												
Adjustment Status														



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The Peoples Gas Light and Coke Company > CreditStats Direct® > Select Stats & Ratios

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Period type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months										
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021
Currency	Unweighted Avg	USD										
Adjustment Status		Revised										



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Algonquin Power & Utilities Corp. (TSX:AQN) > CreditStats Direct® > Select Stats & Ratios

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Template:	Adjusted	Restatement:	Latest Filings
Period type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Model	12 months										
	Revised 3 Yrs	Dec 31 2011	Dec 31 2012	Dec 31 2013	Dec 31 2014	Dec 31 2015	Dec 31 2016	Dec 31 2017	Dec 31 2018	Dec 31 2019	Dec 31 2020	Dec 31 2021
Currency	Unweighted Avg	CAD	CAD	CAD	CAD	CAD	CAD	USD	USD	USD	USD	USD
Adjustment Status		Revised										



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ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 69-72 of 164

Question(s):

On pages 69 to 72 of 194 of its evidence, Concentric discusses the issue of the effects of climate change and severe weather risk on the operational risk of natural gas utilities generally.

- a) Can Concentric quantify the increase in operational risk related to climate change and severe weather risk as it pertains to:
 - i. North American natural gas utilities generally
 - ii. Enbridge Gas?
- b) Can Concentric quantify the time horizon for the increased operational risk due to climate change and severe weather risk as discussed in this section of its evidence?
- c) Can Concentric provide specific instances associated with climate change that have directly affected Enbridge Gas or, pre-amalgamation, EGD or Union Gas from 2012 to 2022, and which involved costs that Enbridge Gas,

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric has not attempted to quantify the climate change and weather-related risks to North American gas utilities or Enbridge Gas, nor is it aware of any studies that quantify the impacts of these risks. As discussed in response to OEB staff at Exhibit 1.5.3-STAFF-221, however, it is clear that insurance premiums have escalated sharply for Enbridge Gas over the past five years. Utilities and regulators are learning about climate related risks and only recently incorporating these factors into planning and mitigation strategies. In California, for example, the CPUC has issued a formal rulemaking to integrate climate change adaptation into relevant CPUC proceedings. The CPUC now requires energy utilities to file vulnerability assessments, with a focus on climate risks to utility operations, services, and assets,

and provide options for dealing with vulnerabilities, ranging from easy fixes to complicated, long-term mitigation. The assessments must be filed every four years on a staggered basis, on the same day as each utility's Risk Assessment Mitigation Phase application and one year before its General Rate Case. The first phase of this process focuses on electric and gas utilities; subsequent phases will focus on telecom and water utilities.

- b) The time horizon is a continuous one, ranging from the present and increasing over time. Several studies have estimated the effects of climate change in economic terms. For example, the Brookings Institute estimates "Climate disasters cost the U.S. \$95 billion in damages in 2020 alone and since 1980, extreme climate events have cost over \$2 trillion."¹. Insofar as utilities are concerned, a report from S&P Global characterizes the risks to utilities as "the highest combined physical risk from climate hazards like water stress, storms and wildfires among different industries," and "[e]xtreme weather events are likely to become even more frequent and intense." <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/utilities-face-greatest-threat-as-climate-risks-intensify-66613890>
- c) Enbridge Gas does not track weather related drivers of emergency costs and therefore cannot identify specific instances or costs associated with climate change that have directly affected Enbridge Gas, EGD, or Union. Please see response at Exhibit I.5.3-IGUA-45 for more details.

¹ <https://www.brookings.edu/blog/up-front/2022/09/01/what-is-climate-risk-and-why-does-it-matter/>.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 69-72 of 164

Question(s):

On pages 69-72 of 164 of its report, Concentric discusses the issue of the “Effect of Climate Change and Severe Weather Risk” on Enbridge Gas’s operational risk. Concentric concludes:

In summary, the risks associated with changing climate parameters and severe weather events have increased for EGI since 2012, at the asset, industry, distribution system and macroeconomic levels. Investors are keenly focused on how such risks are being managed by organizations. While we expect that the risks will continue to manifest over time, current trends point to a greater and potentially more urgent likelihood of incremental expenditures and operational impacts over the upcoming rate setting period.

- a) In the discussion provided in this section, Concentric does not point to any incidents or discussions from market analysts, government agencies or experts specifically about Enbridge Gas. Please explain Concentric’s reasoning for concluding that Enbridge Gas’s risk has increased since 2012 with respect to climate change and weather risk. Please provide analysis done or references that Concentric has used in reaching its conclusion.
- b) If possible, please provide a quantification of the increase in Enbridge Gas’s risk due to climate change and severe weather since 2012. In the alternative, please explain how Concentric has reached its conclusion, and whether, and on what basis, it considers the increase in risk is material or not.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric agrees that its report does not point to any incidents or discussions from market analysts or government agencies specifically about Enbridge Gas regarding

severe weather. In addition, Concentric recognizes that the majority of Enbridge Gas's system is underground, where it is more protected from extreme weather than above ground infrastructure. However, as described in the Concentric report, the *risk* of such events has increased, as evidenced by incidents in other parts of the U.S. and Canada. In addition, extreme weather that affects other services that Enbridge Gas relies on, such as the electric systems that supply Enbridge Gas's compressor stations, are at greater risk of such events, which, in turn, could impact Enbridge Gas's operations. For example, as discussed in Concentric's report at page 70 of 164, a Texas storm caused an electricity outage for New Mexico Gas in February 2011, resulting in the compressor stations going offline. In addition, in the extreme weather event in Texas and the U.S. Midwest in February 2021, there were multiple examples of weather-related mechanical failures, low field pressure, and the failure of withdrawal compression that prohibited natural gas from reaching markets.

- b) Concentric identified climate change and severe weather risk as a component of Concentric's assessment of operational risk, the change in which Concentric concluded to be neutral to a modest increase. As such, while it is a component of Concentric's risk assessment, it is not as material as other areas, and, in particular, Energy Transition risk. It is not possible, however, to isolate its effects from the overall risk assessment of Enbridge Gas.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 72 of 164

Question(s):

Concentric has stated the following on the referenced page: “Higher insurance costs are a risk to the extent they are not recovered in base rates.”

OEB staff notes that insurance expense is a standard part of OM&A expense that goes into the determination of the revenue requirement. Hence, approved budgeted insurance expense is recovered through rates and, under formulaic inflation-less-productivity adjustment under IRM plans, there is an escalation annually, while the utility has flexibility in its expenditures but is also expected to manage its costs during the multi-year IRM period.

Can Concentric identify specific instances where Enbridge Gas has not been able to recover its insurance expense through customer rates to date? If so, please identify and describe such instances.

Response:

The following response was provided by Concentric Energy Advisors, Inc. and Enbridge Gas:

According to Enbridge Gas data, and consistent with OEB staff’s stated understanding of how insurance costs are recovered through rates, Enbridge Gas was not able to fully recover insurance premiums in rates over the 2019-2021 period. Insurance premiums escalated by 55.6% over this period while rate recovery only increased by 4.1% under the company’s current IR plan. In response to these escalating premiums and shifting fundamentals in the global insurance market, Enbridge Gas revised its insurance strategy in 2022 to absorb significantly higher deductibles (from \$10 million to \$100 million) while lowering its premiums. These changes are reflected in the lower premiums for 2023 and 2024, as provided at Exhibit 4, Tab 4, Schedule 3, Table 3.

It is also important to note that premiums are just one element of insurance costs. The Company also incurs costs within deductibles. To date, Enbridge Gas has not identified specific instances where it was not able to recover costs within deductibles through customer rates. However, with deductibles increasing to \$100 million, there is a higher risk of such an instance occurring going forward.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 74-75 of 164

Question(s):

On page 75, Concentric presents its conclusion, stating that it views Enbridge Gas's operational risk is increased relative to what it was in 2012 due to its review of factors such as climate changes and severe weather risk, insurance costs, etc.

- a) Can Concentric provide a quantification of the increase in operational risk and the relative importance of the factors that it identified and discussed in this section (Section 4-d) of its evidence?
- b) Concentric's evidence, under "Engineering Regulations and Operational Complexity" on pages 74 and 75 of 164, states that "EGI operational personnel have indicated ...", and the section talks about internal Enbridge Gas operations and views. No references to sources are provided.
 - i. Is what is documented in this section the views of Enbridge Gas or of Concentric?
 - ii. If these are the views of Enbridge Gas, how has Concentric satisfied itself with what Enbridge Gas personnel discussed with it are factual and material such that Concentric has satisfied itself to reach a conclusion that these factors "increase the uncertainty and risk of operating the gas distribution system as compared to the situation in 2012"?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric is not able to quantify the increase in operational risks. Please see the response at Exhibit I.5.3-STAFF-219 part a) on climate change risk and Exhibit I.5.3-STAFF-221 on changes in insurance costs.

b) Concentric gathered information regarding Enbridge Gas's business and financial risks, how those risks have changed over time, and expectations about future changes in risk. The information Concentric obtained is consistent with our understanding of similarly situated gas utility clients. For Enbridge Gas, we understand that since 2012, there have been a number of code and regulatory changes that are intended to improve pipeline safety in Canada, including:

- Updates to Technical Standards and Safety Authority standards, including the definition of "high consequence" areas in the Ontario code adoption document. This has an impact on pipeline and distribution system operators and integrity management programs.
- Canadian Energy Regulator (CER) Onshore Pipeline Regulation changes and orders to address material quality issues and failures experienced in the industry.
- Changes in the 2019 version of the Canadian Standards Association "Standard Z662," including updated class location definitions and new requirements addressing pipeline integrity.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 77-79 of 164

Question(s):

On pages 77 to 79 of 164 of its evidence Concentric discusses its assessment of the regulatory framework under which Enbridge Gas, and the predecessor utilities of EGD and Union Gas, have operated. At the bottom of page 78 of 164, and continuing on page 79, Concentric notes that both EGD and Union rebased rates for 2013 through cost of service applications, and subsequently were under formulaic rate adjustment mechanisms. Concentric references the inherent increased risk often noted by credit rating analysts with respect to performance-based forms of rate regulation.

- a) OEB staff observes that Concentric has not gone further back in the regulatory history of EGD and Union.
 - i. Can Concentric confirm that EGD rebased its rates 2008 (EB-2007-0617) and that its rates were annually adjusted under a revenue per customer formula plan for 2009 through 2012?
 - ii. Can Concentric confirm that Union Gas has also operated under a number of PBR/IRM frameworks, with periodic cost of service reviews to rebase rates through much of the 2000s and 2010s up until rebasing?
 - iii. Can Concentric confirm that EGD has operated under formulaic rate adjustment mechanisms as approved by the OEB, with periodic cost of service reviews to rebase rates and set the parameters for subsequent performance-based regulation/incentive regulatory mechanism (PBR/IRM) plans, going back to the late 1990s?
 - iv. Given the long history PBR/IRM in Ontario, and specifically for gas distribution regulation, why does Concentric consider that Enbridge Gas's regulatory risk has increased from that of EGD in 2012, if factors such as IRPAs and the proposed SFV rate design are ignored?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a)
- i. Not confirmed. EGD rebased its rates in 2007¹ and had a five year revenue per customer cap from 2008 to 2012.
 - ii. Confirmed.
 - iii. Confirmed.
 - iv. Concentric does not consider that Enbridge Gas' regulatory risk has increased since 2012. In its Report, provided at Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 79, Concentric concludes: "As discussed above, Concentric considers EGI's regulatory risk to have decreased modestly, assuming the Company's ratemaking proposals, and, in particular, its SFV rate design, are approved by the OEB. Also contributing to the moderation in risk is the approval by the OEB of rate base treatment of IRPAs. Offsetting these factors are the recent introduction of competition in Enbridge Gas's service area, as well as the regulatory risks associated with the Energy Transition."

¹ EB-2006-0034.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 81 of 164

Question(s):

Concentric has provided “Comparison of Market Risk Indicators” in Figure 22 on the referenced page.

Please expand this table to provide data for all years from 2011 to 2022.

Response:

Data for 2011 through 2022 are provided in Attachment 1.

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
P/E Ratios - US Gas Utilities	14.80	15.81	15.96	16.72	18.92	22.65	16.72	22.12	26.12	19.07	18.50	23.91
M/B Ratios - US Gas Utilities	1.64	1.61	1.67	1.69	1.77	2.10	2.26	2.16	2.27	1.85	1.83	1.90
30-Year Treasury Yield (US)	3.91%	2.92%	3.45%	3.34%	2.84%	2.60%	2.89%	3.11%	2.58%	1.56%	2.05%	3.12%
P/E Ratios - Canadian Utilities	21.11	23.72	27.02	24.57	26.74	50.11	24.57	19.95	17.99	128.00	19.90	22.41
M/B Ratios - Canadian Utilities	2.18	2.72	2.53	2.45	2.14	2.05	1.81	1.54	1.66	1.60	1.70	1.82
30-Year Treasury Yield (Canadian)	3.29%	2.45%	2.83%	2.77%	2.19%	1.93%	2.28%	2.36%	1.80%	1.22%	1.85%	2.81%
Beta Coefficients - US Gas Utilities	0.76	0.74	0.77	0.78	0.74	0.72	0.71	0.63	0.61	0.86	0.85	0.81
Beta Coefficients - Canadian Utilities	0.49	0.49	0.48	0.52	0.57	0.61	0.61	0.56	0.56	0.66	0.63	0.61
Credit Ratings - US Gas Utilities	A-	BBB+	BBB+									
Credit Ratings - Canadian Utilities	A-	BBB+	A-	A-	A-	A-	A-	BBB+	BBB+	BBB+	BBB+	BBB+
VIX Index	24.20	17.80	14.23	14.18	16.67	15.83	11.09	16.64	15.39	29.25	19.66	25.85

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 84 of 164

Question(s):

On the referenced page, Concentric has provided 'Summary of Comparative Analysis Results (Mean)' and 'Summary of Comparative Analysis Results (Median)' in Figures 23 and 24 respectively.

Please provide backup data and calculations, in MS Excel format, for the data shown in Figures 23 and 24.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Please see Attachment 1 for the requested work papers.

SCHEDULE 4 - Summary Results of Equity Ratio Analysis

Analytical Results: All Proxy Groups (Mean)

Proxy Group	Gas Subsidiaries		Holding Company 2-Year Avg. Equity Ratio
	Currently Authorized Equity Ratio	2-Year Avg. Book Equity Ratio	
Canadian Operating Companies	41.70%	42.80%	N/A
Canadian Holding Companies	47.53%	55.57%	41.28%
US Operating Companies	51.40%	53.38%	N/A
US Holding Companies	53.54%	54.92%	45.79%

Analytical Results: All Proxy Groups (Median)

Proxy Group	Gas Subsidiaries		Holding Company 2-Year Avg. Equity Ratio
	Currently Authorized Equity Ratio	2-Year Avg. Book Equity Ratio	
Canadian Operating Companies	40.50%	41.74%	N/A
Canadian Holding Companies	49.00%	54.30%	41.41%
US Operating Companies	51.00%	52.41%	N/A
US Holding Companies	53.50%	55.24%	46.38%

Proxy Group One: Canadian Operating Companies

Company	Gas Subsidiaries		Holding Company 2-Year Avg. Equity Ratio
	Currently Authorized Equity Ratio	2-Year Avg. Book Equity Ratio	
AltaGas Utilities Inc.	39.00%	38.80%	N/A
ATCO Gas	37.00%	37.78%	N/A
Energir	38.50%	N/A	N/A
FortisBC Energy	38.50%	49.92%	N/A
Gazifere Inc.	40.00%	N/A	N/A
Heritage Gas Limited	45.00%	44.68%	N/A
Liberty Gas New Brunswick	45.00%	N/A	N/A
Pacific Northern Gas Ltd	46.50%	N/A	N/A
Pacific Northern Gas Ltd (Fort St. John)	41.00%	N/A	N/A
Pacific Northern Gas Ltd (Tumbler Ridge)	46.50%	N/A	N/A
Average	41.70%	42.80%	N/A

Proxy Group Two: Canadian Holding Companies

Company	Gas Subsidiaries		Holding Company 2-Year Avg. Equity Ratio
	Currently Authorized Equity Ratio	2-Year Avg. Book Equity Ratio	
Algonquin Power & Utilities	49.00%	71.98%	49.27%
AltaGas Inc.	52.54%	54.30%	39.23%
Canadian Utilities Ltd.	37.00%	37.78%	32.27%
Emera Inc.	53.35%	63.56%	42.17%
Fortis Inc.	45.77%	50.21%	40.65%
Hydro One, Ltd.	N/A	N/A	44.10%
Average	47.53%	55.57%	41.28%

Proxy Group Three: US Operating Companies

Company	Gas Subsidiaries		Holding Company 2-Year Avg. Equity Ratio
	Currently Authorized Equity Ratio	2-Year Avg. Book Equity Ratio	
Southern California Gas Company	52.00%	52.60%	N/A
Consumers Energy Company	NA	51.83%	N/A
Northern Illinois Gas Company	54.46%	54.81%	N/A
DTE Gas Company	51.00%	51.72%	N/A
Consolidated Edison Company of New York	48.00%	46.78%	N/A
The East Ohio Gas Company	NA	60.90%	N/A
Brooklyn Union Gas Company	48.00%	52.22%	N/A
Atlanta Gas Light Company	56.00%	59.23%	N/A
Columbia Gas of Ohio, Inc.	NA	50.62%	N/A
The Peoples Gas Light and Coke Company	50.33%	53.12%	N/A
Average	51.40%	53.38%	N/A

Proxy Group Four: US Holding Companies

Company	Gas Subsidiaries		Holding Company 2-Year Avg. Equity Ratio
	Currently Authorized Equity Ratio	2-Year Avg. Book Equity Ratio	
Atmos Energy Corporation	56.68%	58.31%	60.80%
New Jersey Resources Corporation	54.00%	55.45%	43.95%
NiSource Inc.	51.40%	55.03%	33.20%
Northwest Natural Gas Company	49.50%	49.34%	49.00%
ONE Gas, Inc.	58.78%	60.04%	48.75%
South Jersey Industries, Inc.	53.00%	54.73%	37.90%
Southwest Gas Corporation	50.79%	49.18%	45.65%
Spire, Inc.	54.16%	57.24%	47.10%
Average	53.54%	54.92%	45.79%

SCHEDULE 4 - Authorized Equity Ratio for Operating Companies

Proxy Group One: Canadian Operating Companies

Notes

Company	Ticker	Authorized Equity Ratio
AltaGas Utilities Inc.	N/A	39.00%
ATCO Gas	N/A	37.00%
Energir	N/A	38.50%
FortisBC Energy	N/A	38.50%
Gazifere Inc.	N/A	40.00%
Heritage Gas Limited	N/A	45.00%
Liberty Gas New Brunswick	N/A	45.00%
Pacific Northern Gas Ltd	N/A	46.50%
Pacific Northern Gas Ltd (Fort St. John/Dawso	N/A	41.00%
Pacific Northern Gas Ltd (Tumbler Ridge)	N/A	46.50%
Average		41.70%

Proxy Group Two: Canadian Holding Companies

Company	Ticker	State	Docket	Authorized Equity Ratio
Algonquin Power & Utilities				
New England Natural Gas Company	AQN	MA	DPU 15-75	50.00%
Empire District Gas	AQN	MO	C-GR-2009-0434	N/A
Midstates Natural Gas	AQN	MO	C-GR-2018-0013	N/A
EnergyNorth Natural Gas	AQN	NH	D-DG-20-105	52.00%
Liberty Gas New Brunswick	AQN	NB		45.00%
Average	AQN			49.00%
AltaGas Inc.				
ENSTAR Natural Gas Company	ALA	AK	D-U-16-066	
Washington Gas Light Company	ALA	DC	FC-1162	52.10%
Washington Gas Light Company	ALA	MD	C-9651	52.03%
SEMCO Energy, Inc.	ALA	MI	C-U-20479	
Washington Gas Light Company	ALA	VA	C-PUE-2016-00001	53.48%
Average	ALA			52.54%
Canadian Utilities Ltd.				
ATCO Gas	CU	AB		37.00%
Average	CU			37.00%
Emera Inc.				
Peoples Gas System	EMA	FL	D-20200051	54.70%
New Mexico Gas Company, Inc.	EMA	NM	C-19-00317-UT	52.00%
Average	EMA			53.35%
Fortis Inc.				
UNS Gas, Inc.	FTS	AZ	D-G-04204A-11-0158	50.82%
Central Hudson Gas & Electric Corporation	FTS	NY	C-20-G-0429	48.00%
FortisBC Energy	FTS	BC		38.50%
Average	FTS			45.77%
Hydro One, Ltd.				
N/A	H	N/A	N/A	N/A
Average	H			N/A
Average				47.53%

[3]

Proxy Group Three: US Operating Companies

Company	Ticker	State	Docket	Equity Ratio
Southern California Gas Company	N/A	CA	A-19-04-018	52.00%
Consumers Energy Company	N/A	MI	C-U-21148	NA
Northern Illinois Gas Company	N/A	IL	D-21-0098	54.46%
DTE Gas Company	N/A	MI	C-U-20940	51.00%
Consolidated Edison Company of New York, Inc	N/A	NY	C-19-G-0066	48.00%
The East Ohio Gas Company	N/A	OH		NA
Brooklyn Union Gas Company	N/A	NY	C-19-G-0309	48.00%
Atlanta Gas Light Company	N/A	GA	D-42315 (2021 Review)	56.00%
Columbia Gas of Ohio, Inc.	N/A	OH		NA
The Peoples Gas Light and Coke Company	N/A	IL	D-14-0225	50.33%
	Average			51.40%

[2]

Proxy Group Four: US Holding Companies

Company	Ticker	State	Docket	Authorized Equity Ratio	
<u>Atmos Energy Corporation</u>					
Colorado operations	ATO	CO	D-13AL-0496G	52.57%	
Georgia operations	ATO	GA	D-30442		
Kansas operations	ATO	KS	D-19-ATMG-525-RTS	56.32%	
Kentucky operations	ATO	KY	C-2021-00214	54.50%	
Louisiana operations	ATO	LA	D-U-21484 (LGS)		[1]
Mississippi operations	ATO	MS	C-U-4728		[1]
Tennessee operations	ATO	TN	D-21-00019	59.88%	
Texas operations	ATO	TX	D-GUD-10900	60.12%	
Average	ATO			56.68%	
<u>New Jersey Resources Corporation</u>					
New Jersey Natural Gas Company	NJR	NJ	D-GR19030420	54.00%	
Average	NJR			54.00%	
<u>NiSource Inc.</u>					
Northern Indiana Public Service Company	NI	IN [2]	Ca-4561	55.19%	
Columbia Gas of Kentucky, Incorporated	NI	KY	C-2021-00183	52.64%	
Columbia Gas of Maryland, Incorporated	NI	MD	C-9664	52.95%	
Columbia Gas of Ohio, Inc.	NI	OH	C-08-0072-GA-AIR		[1]
Columbia Gas of Pennsylvania, Inc.	NI	PA	D-R-2020-3018835	54.19%	
Columbia Gas of Virginia, Incorporated	NI	VA	C-PUE-2014-00020	42.01%	
Average	NI			51.40%	
<u>Northwest Natural Holding Company</u>					
Northwest Natural Gas Company	NWN	OR	D-UG-388	50.00%	
Northwest Natural Gas Company	NWN	WA	D-UG-181053	49.00%	
Average	NWN			49.50%	
<u>ONE Gas, Inc.</u>					
Kansas Gas Service Company, Inc.	OGS	KS	D-18-KGSG-560-RTS	N/A	
Oklahoma Natural Gas Company	OGS	OK	Ca-PUD202100063	58.55%	
Texas Gas Service Company, Inc.	OGS	TX	D-GUD-10928	59.00%	
Average	OGS			58.78%	
<u>South Jersey Industries, Inc.</u>					
South Jersey Gas Company	SJI	NJ	D-GR20030243	54.00%	
Elizabethtown Gas Company	SJI	NJ	D-GR2112154	52.00%	
Average	SJI			53.00%	
<u>Southwest Gas Corporation</u>					
Arizona operations	SWX	AZ	D-G-01551A-19-0055	51.10%	
California operations	SWX	CA	A-19-08-015	52.00%	
Nevada operations	SWX	NV	D-20-02023	49.26%	
Average	SWX			50.79%	
<u>Spire, Inc.</u>					
Spire Gulf Inc.	SR	AL	D-24794		[1]
Spire Missouri Inc.	SR	MO	C-GR-2017-0215	54.16%	
Missouri Gas Energy	SR	MO	C-GR-2017-0216	54.16%	
Average	SR			54.16%	
Average				53.54%	

Notes:

- [1] Most recently authorized equity ratio has been excluded because it is more than 10 years old
- [2] Authorized equity ratio adjusted to exclude zero cost of capital items
- [3] Michigan traditionally includes zero cost of capital items in authorized capital structures, but insufficient information was provided in this proceeding to adjust the authorized equity ratio to remove zero cost of capital items.

SCHEDULE 4 - Actual Equity Ratio for Operating Companies

Proxy Group One: Canadian Operating Companies

Company	Ticker	Total Proprietary Capital (\$M)					Total Long-Term Debt (\$M)					Book Equity Ratio					Equity Ratio	Notes
		2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021		
AltaGas Utilities Inc.	N/A	\$138	\$139	\$151	\$156	\$168	\$200	\$215	\$239	\$248	263	40.77%	39.19%	38.70%	38.63%	38.97%	38.80%	[6]
ATCO Gas	N/A	\$991	\$1,027	\$1,046	\$1,035	\$1,066	\$1,564	\$1,694	\$1,700	\$1,715	\$1,746	38.79%	37.74%	38.09%	37.65%	37.91%	37.78%	[5]
Energir	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
FortisBC Energy	N/A	\$2,653	\$2,740	\$2,912	\$2,980	\$3,097	\$2,376	\$2,575	\$2,774	\$2,973	\$3,123	52.75%	51.55%	51.21%	50.06%	49.79%	49.92%	[11]
Gazifere Inc.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Heritage Gas Limited	N/A	\$147	\$150	\$149	\$147	N/A	\$176	\$182	\$182	\$182	N/A	45.50%	45.20%	44.98%	44.68%	N/A	44.68%	
Liberty Gas New Brunswick	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Pacific Northern Gas Ltd	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Pacific Northern Gas Ltd (Fort St. John/Dawson Creek)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Pacific Northern Gas Ltd (Tumbler Ridge)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Average												44.45%	43.42%	43.24%	42.75%	42.22%	42.49%	

Proxy Group Two: Canadian Holding Companies

Company	Ticker	Total Proprietary Capital (\$M)					Total Long-Term Debt (\$M)					Book Equity Ratio					Avg. Book Equity Ratio		
		2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021			
Algonquin Power & Utilities																			
Liberty Utilities (New England Natural Gas Company)	AQN	\$71	\$81	\$93	\$103	\$123	\$34	\$34	\$34	\$27	\$27	67.74%	70.67%	73.37%	79.05%	81.85%	80.45%	[11]	
Empire District Gas Company	AQN	\$32	\$33	\$34	\$35	\$59	\$57	\$55	\$55	\$55	\$55	35.66%	37.28%	38.39%	38.60%	51.55%	45.08%	[11]	
Liberty Utilities (Midstates Natural Gas) Corp	AQN	\$103	\$110	\$115	\$121	\$123	\$0	\$0	\$0	\$0	\$0	N/A	N/A	N/A	N/A	N/A	N/A	[7]	
Liberty Utilities (EnergyNorth Natural Gas) Corp.	AQN	\$169	\$179	\$185	\$194	N/A	\$159	\$159	\$159	\$159	N/A	51.47%	52.96%	53.72%	54.95%	N/A	54.95%	[11]	
Liberty Gas New Brunswick	AQN	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	[10]
Average	AQN	\$374	\$403	\$427	\$453	\$305	\$250	\$248	\$248	\$242	\$82	59.93%	61.91%	63.25%	65.23%	78.74%	71.98%		
AltaGas Inc.																			
SEMCO Energy, Inc.	ALA	N/A	\$306	N/A	N/A	N/A	N/A	\$196	N/A	N/A	N/A	N/A	60.92%	N/A	N/A	N/A	N/A	N/A	[8]
Washington Gas Light Company	ALA	\$1,324	\$1,591	\$1,574	\$1,851	N/A	\$1,093	\$1,043	\$1,442	\$1,558	N/A	54.78%	60.40%	52.20%	54.30%	N/A	54.30%	[11]	
Average	ALA	\$1,324	\$1,897	\$1,574	\$1,851	\$0	\$1,093	\$1,240	\$1,442	\$1,558	\$0	54.78%	60.48%	52.20%	54.30%	N/A	54.30%		
Canadian Utilities Ltd.																			
ATCO Gas	CU	\$991	\$1,027	\$1,046	\$1,035	\$1,066	\$1,564	\$1,694	\$1,700	\$1,715	\$1,746	38.79%	37.74%	38.09%	37.65%	37.91%	37.78%	[5]	
Average	CU	\$991	\$1,027	\$1,046	\$1,035	\$1,066	\$1,564	\$1,694	\$1,700	\$1,715	\$1,746	38.79%	37.74%	38.09%	37.65%	37.91%	37.78%		
Emera Inc.																			
Peoples Gas System	EMA	\$394	\$436	\$531	\$662	\$786	\$261	\$311	\$336	\$336	\$518	60.09%	58.39%	61.29%	66.36%	60.27%	63.31%	[11]	
New Mexico Gas Company, Inc.	EMA	\$669	\$671	\$682	\$752	N/A	\$281	\$277	\$369	\$366	N/A	70.45%	70.77%	64.88%	67.30%	N/A	67.30%	[11]	
Average	EMA	\$1,063	\$1,108	\$1,213	\$1,414	\$786	\$542	\$588	\$705	\$701	\$518	66.22%	65.31%	63.26%	66.86%	60.27%	63.56%		
Fortis Inc.																			
UNS Gas, Inc.	FTS	\$103	\$105	\$114	\$121	\$130	\$94	\$94	\$94	\$94	\$95	52.12%	52.66%	54.62%	56.06%	57.93%	56.99%	[9]	
Central Hudson Gas & Electric Corporation	FTS	\$627	\$697	\$773	\$853	\$932	\$599	\$674	\$747	\$837	\$923	51.15%	50.84%	50.84%	50.46%	50.25%	50.36%	[11]	
FortisBC Energy	FTS	\$2,653	\$2,740	\$2,912	\$2,980	\$3,097	\$2,376	\$2,575	\$2,774	\$2,973	\$3,123	52.75%	51.55%	51.21%	50.06%	49.79%	49.92%	[11]	
Average	FTS	\$3,383	\$3,542	\$3,798	\$3,953	\$4,159	\$3,069	\$3,343	\$3,615	\$3,904	\$4,140	52.43%	51.44%	51.23%	50.31%	50.11%	50.21%		
Hydro One, Ltd.																			
N/A	H	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Average	H	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Average																		55.57%	

Proxy Group Three: US Operating Companies

Company	Ticker	Total Proprietary Capital (\$M)					Total Long-Term Debt (\$M)					Book Equity Ratio					Equity Ratio	
		2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021		
Southern California Gas Company	N/A	\$3,908	\$4,258	\$4,748	\$5,144	\$5,442	\$3,002	\$3,452	\$3,802	\$4,763	\$4,773	56.55%	55.23%	55.53%	51.92%	53.27%	52.60%	[11], [12]
Consumers Energy Company	N/A	\$6,489	\$6,921	\$7,738	\$8,557	\$9,280	\$5,896	\$6,809	\$7,263	\$8,131	\$8,438	52.40%	50.41%	51.58%	51.28%	52.38%	51.83%	[11]
Northern Illinois Gas Company	N/A	\$1,186	\$1,504	\$1,875	\$2,315	\$2,533	\$1,024	\$1,324	\$1,574	\$1,899	\$2,099	53.66%	53.19%	54.36%	54.94%	54.68%	54.81%	[11]
DTE Gas Company	N/A	\$1,476	\$1,668	\$1,853	\$2,024	\$2,236	\$1,330	\$1,550	\$1,710	\$1,910	\$2,065	52.61%	51.84%	52.01%	51.45%	51.99%	51.72%	[11]
Consolidated Edison Company of New York, Inc.	N/A	\$12,439	\$12,910	\$14,147	\$14,849	\$16,312	\$13,358	\$14,258	\$15,079	\$16,919	\$18,527	48.22%	47.52%	48.41%	46.74%	46.82%	46.78%	[11]
The East Ohio Gas Company	N/A	\$1,540	\$1,728	\$2,496	\$2,703	\$2,867	\$1,415	\$1,300	\$1,665	\$1,787	\$1,787	52.11%	57.07%	59.98%	60.20%	61.60%	60.90%	[11]
Brooklyn Union Gas Company	N/A	\$1,948	\$2,007	\$2,698	\$2,786	\$3,465	\$1,230	\$1,650	\$2,650	\$2,650	\$3,050	61.29%	54.89%	50.45%	51.25%	53.19%	52.22%	[11]
Atlanta Gas Light Company	N/A	\$1,478	\$1,682	\$1,820	\$2,080	\$2,253	\$1,228	\$1,180	\$1,287	\$1,427	\$1,555	54.62%	58.77%	58.59%	59.30%	59.17%	59.23%	[11]
Columbia Gas of Ohio, Inc.	N/A	\$1,233	\$1,590	\$1,593	\$1,744	\$1,964	\$1,163	\$1,333	\$1,413	\$1,713	\$1,903	51.46%	54.40%	53.00%	50.45%	50.79%	50.62%	[11]
The Peoples Gas Light and Coke Company	N/A	\$1,215	\$1,459	\$1,651	\$1,953	\$2,054	\$1,050	\$1,195	\$1,520	\$1,670	\$1,870	53.64%	54.98%	52.06%	53.90%	52.34%	53.12%	[11]
Average																	53.38%	

Proxy Group Four: US Holding Companies

Company	Ticker	Total Proprietary Capital (\$M)					Total Long-Term Debt (\$M)					Book Equity Ratio					Equity Ratio	
		2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021		
<u>Atmos Energy Corporation</u>																		
Atmos Energy Corporation	ATO	\$4,564	\$5,348	\$6,128	\$7,213	N/A	\$3,089	\$3,111	\$4,359	\$5,157	N/A	59.63%	63.22%	58.43%	58.31%	N/A	58.31%	[11]
Weighted Average	ATO	\$4,564	\$5,348	\$6,128	\$7,213	\$0	\$3,089	\$3,111	\$4,359	\$5,157	\$0	59.63%	63.22%	58.43%	58.31%	N/A	58.31%	
<u>New Jersey Resources Corporation</u>																		
New Jersey Natural Gas Company	NJR	\$906	\$1,093	\$1,278	\$1,360	N/A	\$547	\$672	\$893	\$1,093	N/A	62.35%	61.92%	58.87%	55.45%	N/A	55.45%	[11]
Weighted Average	NJR	\$906	\$1,093	\$1,278	\$1,360	\$0	\$547	\$672	\$893	\$1,093	\$0	62.35%	61.92%	58.87%	55.45%	N/A	55.45%	
<u>NiSource Inc.</u>																		
Northern Indiana Public Service Company	NI	\$2,512	\$2,771	\$2,918	\$3,210	\$3,536	\$1,774	\$2,144	\$2,253	\$2,324	\$2,499	58.60%	56.37%	56.43%	58.01%	58.59%	58.30%	[11]
Columbia Gas of Kentucky, Incorporated	NI	\$133	\$153	\$169	\$186	N/A	\$114	\$127	\$142	\$154	N/A	53.76%	54.62%	54.23%	54.68%	N/A	54.68%	[11]
Columbia Gas of Maryland, Incorporated	NI	\$56	\$65	\$77	\$86	N/A	\$48	\$49	\$70	\$70	N/A	54.06%	56.70%	52.38%	54.95%	N/A	54.95%	[11]
Columbia Gas of Ohio, Inc.	NI	\$1,233	\$1,590	\$1,593	\$1,744	\$1,964	\$1,163	\$1,333	\$1,413	\$1,713	\$1,903	51.46%	54.40%	53.00%	50.45%	50.79%	50.62%	[11]
Columbia Gas of Pennsylvania, Inc.	NI	\$736	\$886	\$983	\$1,125	\$1,320	\$626	\$706	\$786	\$896	\$1,036	54.04%	55.68%	55.59%	55.68%	56.05%	55.86%	[11]
Columbia Gas of Virginia, Incorporated	NI	\$270	\$277	\$315	\$358	N/A	\$356	\$371	\$426	\$461	N/A	43.15%	42.71%	42.53%	43.69%	N/A	43.69%	[11]
Weighted Average	NI	\$4,940	\$5,742	\$6,057	\$6,709	\$6,821	\$4,081	\$4,731	\$5,091	\$5,618	\$5,437	54.76%	54.83%	54.33%	54.43%	55.64%	55.03%	
<u>Northwest Natural Holding Company</u>																		
Northwest Natural Gas Company	NWN	N/A	\$720	\$823	\$835	\$978	N/A	\$710	\$775	\$865	\$995	N/A	50.36%	51.50%	49.11%	49.57%	49.34%	[11]
Average	NWN	\$0	\$720	\$823	\$835	\$978	\$0	\$710	\$775	\$865	\$995	N/A	50.36%	51.50%	49.11%	49.57%	49.34%	
<u>ONE Gas, Inc.</u>																		
Kansas Gas Service Company, Inc.	OGS	\$617	\$691	\$733	\$740	N/A	\$357	\$420	\$421	\$487	N/A	63.35%	62.20%	63.55%	60.33%	N/A	60.33%	[2]
Oklahoma Natural Gas Company	OGS	\$679	\$770	\$857	\$889	N/A	\$397	\$473	\$501	\$597	N/A	63.13%	61.94%	63.10%	59.85%	N/A	59.85%	[3]
Texas Gas Service Company, Inc.	OGS	\$626	\$720	\$767	\$822	N/A	\$368	\$442	\$446	\$548	N/A	63.01%	61.95%	63.23%	59.99%	N/A	59.99%	[11]
Average	OGS	\$1,923	\$2,181	\$2,357	\$2,452	\$0	\$1,121	\$1,335	\$1,368	\$1,632	\$0	63.16%	62.03%	63.28%	60.04%	N/A	60.04%	
<u>South Jersey Industries, Inc.</u>																		
South Jersey Gas Company	SJI	\$921	\$1,008	\$1,090	\$1,304	N/A	\$765	\$875	\$547	\$1,078	N/A	54.63%	53.55%	66.58%	54.73%	N/A	54.73%	[1]
Average	SJI	\$921	\$1,008	\$1,090	\$1,304	\$0	\$765	\$875	\$547	\$1,078	\$0	54.63%	53.55%	66.58%	54.73%	N/A	54.73%	
<u>Southwest Gas Corporation</u>																		
Southwest Gas Corporation	SWX	\$1,610	\$1,782	\$2,005	\$2,233	\$2,528	\$1,527	\$1,827	\$2,002	\$2,452	\$2,458	51.32%	49.38%	50.03%	47.66%	50.70%	49.18%	[11]
Average	SWX	\$1,610	\$1,782	\$2,005	\$2,233	\$2,528	\$1,527	\$1,827	\$2,002	\$2,452	\$2,458	51.32%	49.38%	50.03%	47.66%	50.70%	49.18%	
<u>Spire, Inc.</u>																		
Spire Gulf Inc.	SR	\$44	\$51	\$60	\$70	\$80	\$61	\$62	\$101	\$101	\$82	41.74%	45.31%	37.18%	40.69%	49.48%	45.09%	[4]
Spire Missouri Inc.	SR	\$1,171	\$1,260	\$1,339	\$1,435	\$1,578	\$879	\$829	\$929	\$1,097	\$1,346	57.13%	60.32%	59.05%	56.68%	53.96%	55.32%	[11]
Spire Alabama Inc.	SR	\$867	\$809	\$830	\$852	\$882	\$248	\$323	\$372	\$472	\$571	77.78%	71.48%	69.04%	64.35%	60.68%	62.52%	[11]
Average	SR	\$2,082	\$2,120	\$2,229	\$2,356	\$2,540	\$1,188	\$1,213	\$1,402	\$1,670	\$1,999	63.68%	63.60%	61.38%	58.52%	55.95%	57.24%	
Average												58.50%	57.36%	58.05%	54.78%	52.97%	54.92%	

Notes:

- [1] 2019 & 2020 Source: South Jersey Gas 2020 FERC Form 2, at 112
- [2] 2019 & 2020 Source: Kansas Gas Service 2020 FERC Form 2, at 112
- [3] 2019 & 2020 Source: Oklahoma Natural Gas Company 2020 FERC Form 2, at 112
- [4] 2020 & 2021 Source: Spire Gulf Inc. 2020 FERC Form 2, at 110 and 114
- [5] ATCO Gas Finance and Operations Reports to the Alberta Utilities Commission, 2016-2021, Schedule 11
- [6] AltaGas Canada distribution Finance and Operations Reports to the Alberta Utilities Commission, 2016-2021
- [7] Midstates Natural Gas is excluded from the analysis because S&P Capital IQ Pro does not report data regarding its long-term debt
- [8] Michigan Public Service Commission Case No. U-20479, SEMCO Energy Gas Company application, Exhibit No. A-2 (BHF-6), Schedule B-4
- [9] UNS Gas Annual Reports to the Arizona Corporation Commission, Financial Statements, at 4
- [10] Liberty Gas New Brunswick's Regulatory Financial Statements, Note 13. 2019 data is excluded because Liberty Gas New Brunswick no longer carried long-term debt as of June 30, 2019.
- [11] S&P Capital IQ
- [12] 2020 and 2021 data from Southern California Gas Company 2021 Statement of Operations

SCHEDULE 4 - Equity Ratio for Holding Companies

Proxy Group Two: Canadian Holding Companies

Company	Ticker	2017	2018	2019	2020	2021	2-Year Avg.	Source
Algonquin Power & Utilities	AQN	43.70%	45.95%	47.28%	51.52%	47.01%	49.27%	Annual Reports
AltaGas Inc.	ALA	40.20%	35.68%	42.22%	39.69%	38.78%	39.23%	Annual Reports
Canadian Utilities Ltd.	CU	32.59%	31.32%	33.45%	32.78%	31.76%	32.27%	Annual Reports
Emera Inc.	EMA	35.04%	36.79%	38.51%	42.72%	41.61%	42.17%	Value Line, June 17, 2022
Fortis Inc.	FTS	37.10%	37.20%	41.80%	40.50%	40.80%	40.65%	Value Line, June 10, 2022
Hydro One, Ltd.	H	48.22%	45.14%	44.07%	43.77%	44.43%	44.10%	Annual Reports
Average		39.47%	38.68%	41.22%	41.83%	40.73%	41.28%	

Proxy Group Four: US Holding Companies

Company	Ticker	2017	2018	2019	2020	2021	2-Year Avg.	Source
Atmos Energy Corporation	ATO	56.00%	65.70%	62.00%	60.00%	61.60%	60.80%	Value Line, May 27, 2022
New Jersey Resources Corporation	NJR	55.40%	54.60%	50.20%	44.90%	43.00%	43.95%	Value Line, May 27, 2022
NiSource Inc.	NI	36.50%	37.90%	36.90%	32.90%	33.50%	33.20%	Value Line, May 27, 2022
Northwest Natural Gas Company	NWN	52.10%	51.90%	51.80%	50.80%	47.20%	49.00%	Value Line, May 27, 2022
ONE Gas, Inc.	OGS	62.20%	61.40%	62.30%	58.50%	39.00%	48.75%	Value Line, May 27, 2022
South Jersey Industries, Inc.	SJI	51.50%	37.60%	40.80%	37.40%	38.40%	37.90%	Value Line, May 27, 2022
Southwest Gas Corporation	SWX	50.20%	51.70%	52.10%	49.50%	41.80%	45.65%	Value Line, May 27, 2022
Spire, Inc.	SR	50.00%	54.30%	55.00%	51.00%	43.20%	47.10%	Value Line, May 27, 2022
Average		51.74%	51.89%	51.39%	48.13%	43.46%	45.79%	

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 84 of 164

Question(s):

Concentric has stated the following on the referenced page:

Taken together [Figures 23 and 24], the analyses support an equity ratio in the range of 40% to 45% for Enbridge Gas. Within that range, Concentric specifically recommends an equity ratio of no less than 42% for Enbridge Gas for the reasons discussed later in this report.

Can Concentric please elaborate on the specific numbers in Figures 23 and 24 that Concentric used, and those that it gave less consideration to in determining its recommended equity ratio range of 40%-45% for Enbridge Gas.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Concentric considered all the data presented in Figures 23 and 24, provided at Exhibit 5, Tab 3, Schedule 1, Attachment 1, but placed the greatest weight on the currently authorized equity ratios for the Canadian Operating Companies and US Operating Companies, Median and Mean Results. The book and holding company equity ratios were given little weight, but provided for context. Exhibit 5, Tab 3, Schedule 1, Attachment 1, Figure 45, page 127, provides additional data relied upon by Concentric in reaching its ultimate equity ratio recommendation.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 75 of 164

Exhibit 1, Tab 4, Schedule 1, page 1

Exhibit 1, Tab 4, Schedule 1, Attachment 1

Question(s):

Concentric discusses the impact of the amalgamation of EGD and Union Gas, resulting in the current Enbridge Gas, the applicant utility. Concentric concludes that “the amalgamation of EGD and Union Gas did not reduce the operating risk profile of the resulting EGI as compared to EGD in 2012”, stating earlier in that section that “... S&P [Standard & Poor’s] observes that the amalgamation with Union Gas did not increase the geographic, economic, or regulatory diversification of EGI”.

Under “Conclusion”, Concentric states: “While the Company has grown in size due to the amalgamation of EGD and Union Gas, this did not reduce the operating risk profile of the resulting EGI”.

On page 1 of Exhibit 1, Tab 4, Schedule 1, Enbridge Gas describes its seven operating regions, and the map provided in Exhibit 1, Tab 4, Schedule 1, Attachment 1 shows these areas, comprising the amalgamation of EGD and Union Gas, along with a service area expansions since amalgamation five years ago. OEB staff observes that there is a fairly contiguous service area for Enbridge Gas as a result of the amalgamation.

- a) Please provide the Standard & Poor’s report that Concentric refers to in this section.
- b) In addition to the larger customer base and larger service area of Enbridge Gas as a result of the amalgamation of EGD and Union Gas, would the largely contiguous nature of the former EGD and Union Gas service areas not provide more opportunities for economies of scale, greater asset and labour utilization, and hence should result in lower operational risk for Enbridge Gas compared to EGD in 2012, all else being equal?
- c) Noting that the discussion under Amalgamation of EGD and Union Gas only references the Standard & Poor’s report, what analysis did Concentric conduct itself

regarding the impacts of the amalgamation on Enbridge Gas's operation risk compared to that of EGD in 2012. Please provide any analysis conducted by Concentric on this issue.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see Attachments 1 and 2. These reports were published by S&P Global Ratings in January 2021 and February 2022, after the amalgamation of EGD and Union. Both reports continue to indicate that a key risk to the credit of Enbridge Gas Inc. is a lack of geographic and regulatory diversity. That risk did not change after the amalgamation was completed on January 1, 2019.
- b) According to the January 2021 S&P report, the amalgamation of EGD and Union resulted in certain synergies that helped to support the financial measures of the combined company, Enbridge Gas. However, in Concentric's view, the fact that the customer base increased and the service territories of EGD and Union were largely contiguous does not mean that the combined company, Enbridge Gas, has lower operational risk going forward on the four factors discussed in Concentric's report: 1) Energy Transition; 2) climate change and severe weather; 3) higher insurance costs; and 4) safety requirements and cyber-security concerns.
- c) Concentric did not conduct any additional analysis on the effect of the amalgamation on Enbridge Gas's operational risk beyond what is contained in Concentric's report provided at Exhibit 5, Tab 3, Schedule 1 Attachment 1, pages 65 to 71.

RatingsDirect®

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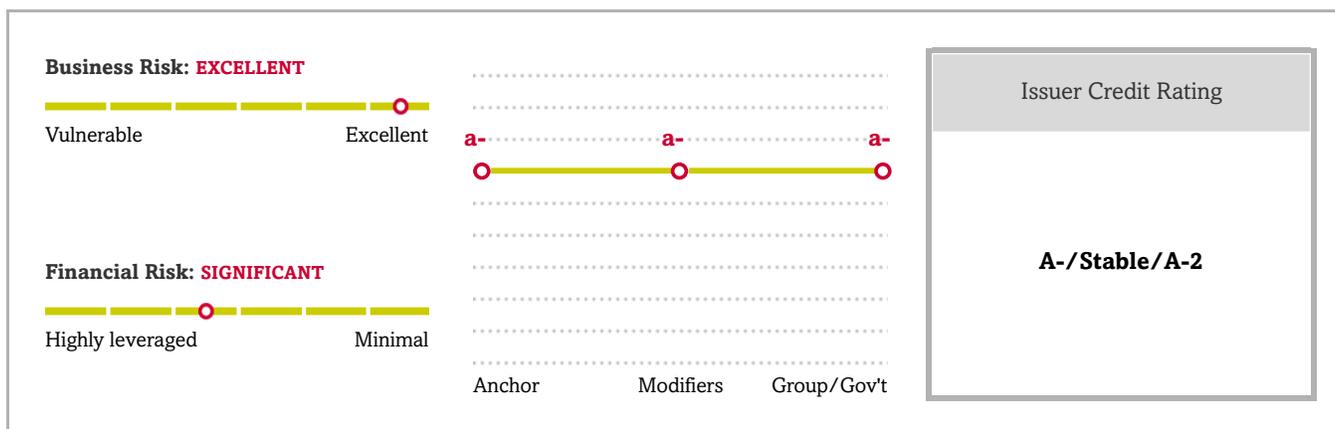
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Related Criteria

Enbridge Gas Inc.



Credit Highlights

Overview

Key strengths	Key risks
Enbridge Gas Inc. (EGI) is a low-risk rate-regulated natural gas distribution and transmission company.	EGI operates only in Ontario, hence limited geographic and regulatory diversification.
About two-thirds of EGI's distribution revenue comes from residential and small business customers, providing stable cash flows.	Negative discretionary cash flow, indicating external funding needs.
Commodity costs are passed through to customers and recovered through quarterly adjustment mechanism, limiting EGI's exposure to commodity risk.	

COVID-19 has had a modest impact on EGI's operations and cash flow so far. We don't expect the pandemic to have a persistent material effect on Enbridge Gas Inc.'s (EGI's) financial measures. EGI's financial performance has been in line with our expectation with funds from operation (FFO) to debt of about 11% for the 12 months ending Sept. 30, 2020. In addition, in March 2020, EGI's regulator, Ontario Energy Board (OEB), established deferral accounts for utilities to track incremental costs and lost revenues related to COVID-19. This allows EGI to potentially recover lost revenue, incremental expenses, or costs relating to bad debt expenses subject to OEB approval but is likely to result in cash flow volatility and lag for EGI in the short term. In addition, decrease in gas consumption from large commercial and industrial customers as a result of the pandemic is partially offset by increase in consumption from the higher margin residential segment. Furthermore, the company's synergies realization from the amalgamation of Enbridge Gas Distribution Inc. and Union Gas Limited in 2019 also help to support financial measures.

Large capital spending plan over the outlook period. EGI continues to have large capital expenditures through the 2021-2022 outlook period that is about 1.8x its depreciation cost, which could pressure credit metrics and can lead to higher execution risks, including completing its key capital projects on time and within its budget.

EGI lacks geographic and regulatory diversity. EGI operates only in Ontario. It is the largest gas distributor in Ontario and serves virtually all of Ontario with approximately 3.8 million residential, commercial, and industrial customers. However, compared with other utilities, EGI lacks geographic and regulatory diversity, making it reliant on the OEB to sustain its credit quality.

Outlook

The stable outlook on EGI reflects S&P Global Ratings' expectation that the company will continue to focus on and generate stable and predictable cash flows from its regulated gas distribution operation. We also expect EGI will execute its integration plans from the amalgamation and capital programs on time and on budget leading to FFO to debt of about 11%-12% during our two-year outlook period.

The stable outlook also reflects our view that Enbridge Inc. (Enbridge), the parent, will maintain FFO to debt in the 15%-17% range through 2022. Furthermore, the stable outlook on EGI reflects our expectation that both the utility's insulation features and Enbridge's strategy to preserve the utilities' credit strength will not change.

Downside scenario

We could lower the ratings on EGI if the utility's financial measures deteriorate, with FFO to debt approaching 10% with no prospects of improvement.

Alternatively, we could lower the rating on EGI if we lower our ratings on Enbridge. This could happen if Enbridge's consolidated adjusted FFO to debt stays below 13% or debt to EBITDA is sustained above 5x.

Upside scenario

Although unlikely, we can upgrade EGI over the next 18-24 months if we also upgrade Enbridge, and if EGI's stand-alone credit profile (SACP) indicates a higher SACP.

EGI could warrant a higher SACP if it improves its financial measures with FFO to debt consistently above 13%. An upgrade at the parent level would require Enbridge to maintain FFO to debt above 17% and adjusted debt to EBITDA of about 4x while maintaining its current level of asset mix and cash-flow stability.

Our Base-Case Scenario

Assumptions

- No material persistent impact from the COVID-19 pandemic.
- Stable regulatory regime in Ontario with no material adverse regulatory decisions.
- EGI will primarily operate under inflation-indexed rates through 2023, before starting a new rate application cycle in 2024.
- The annual revenue increases through 2023 will be subject to a productivity stretch factor constraint of 0.3%, that reduces the annual revenue increases by the equivalent amount.
- All earnings in excess of 150 basis points over the OEB-approved return on equity will be shared equally between EGI and its ratepayers.
- EGI will earn close to its authorized return on equity.
- EGI will maintain its deemed capital structure of 64%/36% debt to equity.
- Natural gas cost and the federal carbon levy remain a pass through to ratepayers.

- Capital expenditure of about C\$1.1 billion-C\$1.6 billion in each of 2020 and 2022.
- Dividends of about C\$450 million in 2020 and C\$200 million in each of 2021 and 2022.

Key Metrics

	2019a	2020e	2021f
FFO to debt (%)	13.1	11-12	11-12
FFO cash interest coverage (x)	4.2	3.5-4.0	3.5-4.0

a--Actual. e--Estimate. f--Foremost. FFO--Funds from operations.

Company Description

EGI operates as a rate-regulated natural gas distribution utility company in Ontario, Canada. The company was formed through the amalgamation of Enbridge Gas Distribution Inc. and Union Gas Ltd. in 2019. The company also owns and operates regulated and nonregulated natural gas storage facilities in Ontario. EGI's distribution rates are set under a five-year incentive regulation framework using a price cap mechanism and it serves about 3.8 million customers.

Peer comparison

Table 1

Enbridge Gas Inc.--Peer Comparison				
Industry Sector: Gas				
	Enbridge Gas Inc.	CU Inc.	Energir Inc.	Washington Gas Light Co.
Ratings as of Jan. 11, 2021	A-/Stable/A-2	A-/Stable/A-2	A/Stable	A-/Stable/A-2
	--Fiscal year ended Dec. 31, 2019--	--Fiscal year ended Dec. 31, 2019--	--Fiscal year ended Sept. 30, 2020--	--Fiscal year ended Dec. 31, 2019--
(Mil. Mix curr.)	C\$	C\$	C\$	\$
Revenue	5,075.0	2,787.0	2,569.3	1,330.7
EBITDA	1,639.0	1,557.0	786.4	333.5
Funds from operations (FFO)	1,239.5	1,178.5	685.4	254.3
Interest expense	394.5	389.7	163.5	75.3
Cash interest paid	387.5	384.5	163.8	63.6
Cash flow from operations	1,277.5	1,155.5	278.2	202.8
Capital expenditure	1,104.0	936.0	680.3	433.0
Free operating cash flow (FOCF)	173.5	219.5	(402.1)	(230.1)
Discretionary cash flow (DCF)	(1,076.5)	(171.0)	(872.4)	(359.0)
Cash and short-term investments	77.0	71.0	153.7	17.1
Debt	9,435.1	8,371.4	4,702.1	1,852.0
Equity	10,004.0	4,853.0	2,169.8	1,572.2

Table 1

Enbridge Gas Inc.--Peer Comparison (cont.)				
Adjusted ratios				
EBITDA margin (%)	32.3	55.9	30.6	25.1
Return on capital (%)	5.3	8.3	6.4	5.5
EBITDA interest coverage (x)	4.2	4.0	4.8	4.4
FFO cash interest coverage (x)	4.2	4.1	5.2	5.0
Debt/EBITDA (x)	5.8	5.4	6.0	5.6
FFO/debt (%)	13.1	14.1	14.6	13.7
Cash flow from operations/debt (%)	13.5	13.8	5.9	11.0
FOCF/debt (%)	1.8	2.6	(8.6)	(12.4)
DCF/debt (%)	(11.4)	(2.0)	(18.6)	(19.4)

Business Risk

Our assessment of EGI's business risk continues to reflect our view of the OEB's regulatory framework, which underpins the utility's predictable and steady cash flow. In our view, the regulatory process is transparent, consistent, and predictable. These factors collectively support EGI's timely recovery of prudently spent capital and operating expenses. In addition, the federal carbon levy is a flow through cost to customers and gas commodity costs are recovered through a quarterly adjustment mechanism from ratepayers, limiting EGI's exposure to commodity risk.

Further supporting our view is EGI's large customer base. EGI serves almost all of Ontario's gas distribution network with about 3.8 million of customers, most of whom are residential and small business customers. As such, we expect EGI's cash flows to remain stable. However, demand for natural gas in the residential customer class can vary due to weather-driven fluctuations that can result in some cash flow volatility. Our favorable view of EGI's business risk is slightly offset by the company's limited geographic footprint and exposure to a single regulatory regime.

Financial Risk

We assess EGI's financial measures using our low volatility financial benchmark table relative to the typical industrial issuer. This reflects the company's lower-risk regulated gas distribution operation and effective management of regulatory risk. EGI has a large capital program--about 1.8x that of depreciation expense--that will result in negative discretionary cash flow and continually rely on external financing to fund its capital programs.

In response to the coronavirus pandemic, the OEB set up deferral accounts for utilities in early 2020, including EGI, to track incremental costs and lost revenues related to the pandemic for later disposition, subject to OEB review and approval. As a result, we expect there will be some cash flow volatility associated with EGI's financial measures for 2020.

Under our base-case scenario that includes a short-term impact from the pandemic and a stable regulatory

environment with no material adverse regulatory decisions, capital spending of about C\$1.1 billion-C\$1.6 billion in each of 2020 and 2022, and net dividend payments of about C\$450 million in 2020 and about C\$200 million in each of 2021 and 2022, we expect EGI's FFO to debt to be about 11%-12% in 2020 and 2022.

Financial summary

Table 2

Enbridge Gas Inc.--Financial Summary			
Industry Sector: Gas			
	--Fiscal year ended Dec. 31--		
	2019	2018	2017
(Mil. C\$)			
Revenue	5,075.0	5,297.0	3,292.0
EBITDA	1,639.0	1,551.0	750.0
Funds from operations (FFO)	1,239.5	1,190.0	532.0
Interest expense	394.5	391.0	220.0
Cash interest paid	387.5	394.0	214.0
Cash flow from operations	1,277.5	1,725.0	558.0
Capital expenditure	1,104.0	1,288.0	794.0
Free operating cash flow (FOCF)	173.5	437.0	(236.0)
Discretionary cash flow (DCF)	(1,076.5)	(996.0)	(896.0)
Cash and short-term investments	77.0	17.0	20.0
Gross available cash	77.0	17.0	20.0
Debt	9,435.1	9,120.6	4,789.9
Equity	10,004.0	9,893.0	3,309.0
Adjusted ratios			
EBITDA margin (%)	32.3	29.3	22.8
Return on capital (%)	5.3	7.5	5.6
EBITDA interest coverage (x)	4.2	4.0	3.4
FFO cash interest coverage (x)	4.2	4.0	3.5
Debt/EBITDA (x)	5.8	5.9	6.4
FFO/debt (%)	13.1	13.0	11.1
Cash flow from operations/debt (%)	13.5	18.9	11.6
FOCF/debt (%)	1.8	4.8	(4.9)
DCF/debt (%)	(11.4)	(10.9)	(18.7)

Reconciliation

Table 3

Enbridge Gas Inc.--Reconciliation Of Reported Amounts With S&P Global Ratings' Adjusted Amounts							
--Fiscal year ended Dec. 31, 2019--							
Enbridge Gas Inc. reported amounts (mil. C\$)							
	Debt	EBITDA	Operating income	Interest expense	S&P Global Ratings' adjusted EBITDA	Cash flow from operations	Capital expenditure
	9,763.0	1,632.0	994.0	388.0	1,639.0	1,277.0	1,109.0

Table 3

Enbridge Gas Inc.--Reconciliation Of Reported Amounts With S&P Global Ratings' Adjusted Amounts (cont.)

S&P Global Ratings' adjustments							
Cash taxes paid	--	--	--	--	(12.0)	--	--
Cash interest paid	--	--	--	--	(381.0)	--	--
Reported lease liabilities	46.0	--	--	--	--	--	--
Operating leases	--	7.0	1.5	1.5	(1.5)	5.5	--
Postretirement benefit obligations/deferred compensation	334.1	--	--	--	--	--	--
Accessible cash and liquid investments	(77.0)	--	--	--	--	--	--
Capitalized interest	--	--	--	5.0	(5.0)	(5.0)	(5.0)
Nonoperating income (expense)	--	--	30.0	--	--	--	--
Debt: Other	(631.0)	--	--	--	--	--	--
Total adjustments	(328.0)	7.0	31.5	6.5	(399.5)	0.5	(5.0)
S&P Global Ratings' adjusted amounts							
	Debt	EBITDA	EBIT	Interest expense	Funds from operations	Cash flow from operations	Capital expenditure
	9,435.1	1,639.0	1,025.5	394.5	1,239.5	1,277.5	1,104.0

Liquidity

In our assessment, EGI's liquidity is adequate. We expect liquidity sources will cover uses by more than 1.1x in the next 12 months. We also expect that in the event of a 10% EBITDA decline, the company's sources of funds would still exceed its uses. In our opinion, EGI has solid relationships with its banks and generally prudent financial risk management. In the event of unexpected financial stress, we believe the utility would scale back on its capital expenditures and has the flexibility to suspend dividend payments to preserve its liquidity.

Principal liquidity sources

- Cash of about C\$10 million as of Sept. 30, 2020;
- Committed credit facilities availability of about C\$2 billion; and
- Cash FFO of about C\$1.2 billion.

Principal liquidity uses

- Debt maturities of about C\$1.6 billion as of Sept. 30, 2020, including current portion of long-term debt and outstanding commercial paper;
- Maintenance capital spending of about C\$370 million over the next 12 months; and
- Dividends of about C\$260 million, net of ongoing group support.

Debt maturities

- 2021: C\$375 million
- 2022: C\$125 million
- 2023: C\$350 million
- 2024: C\$300 million

Environmental, Social, And Governance

We view EGI's exposure to environmental, social, and governance-related risks as similar to the broader industry. EGI is a natural gas utility distributor. For natural gas network operators, environmental risks include gas leaks and explosions and emission of greenhouse gases (GHG), which can affect biodiversity. We view EGI's environmental risk is consistent with the broader industry because the company continually monitors and replaces aging infrastructure to reduce the potential for gas leaks and explosions. In addition, the company also participates in the federal government's carbon levy program, to offset its GHG footprint in its gas distribution operations. Furthermore, the company recently launched a pilot initiative to blend renewable hydrogen gas into existing EGI natural gas network in an effort to reduce GHG.

From a social perspective, EGI has a history of providing safe and reliable natural gas to its customers, which should enable it to maintain social cohesion. Governance factors are neutral. In our view, EGI's board is capably engaged in risk oversight on behalf of all stakeholders.

Group Influence

We view EGI as an insulated subsidiary within the Enbridge group. Specifically reflecting our views that EGI is incorporated as separate legal entity with financial performance and funding that are highly independent from the group, including issuing long- and short-term debt, maintaining its own separate credit facilities, and not commingling its funds, assets, or cash flows with the rest of the group. In addition, there is a strong economic basis for Enbridge to preserve EGI's credit strength, and we do not expect a default of the other group entities within Enbridge to directly lead to a default at EGI.

Issue Ratings - Subordination Risk Analysis**Capital structure**

As of Sept. 30, 2020, EGI's capital structure consists of about C\$970 million of short-term debt, including outstanding commercial paper and about C\$9.4 billion of senior unsecured long-term debt.

Analytical conclusions

We rate EGI's senior unsecured debt at 'A-', the same as the issuer credit rating (ICR) on EGI because the debt is issued by a qualifying investment-grade regulated utility. The rating on the commercial paper is 'A-2' reflecting our 'A-' ICR on EGI.

Ratings Score Snapshot

Issuer Credit Rating

A-/Stable/A-2

Business risk: Excellent

- **Country risk:** Very low
- **Industry risk:** Very low
- **Competitive position:** Excellent

Financial risk: Significant

- **Cash flow/leverage:** Significant

Anchor: a-

Modifiers

- **Diversification/portfolio effect:** Neutral
- **Capital structure:** Neutral
- **Financial policy:** Neutral
- **Liquidity:** Adequate
- **Management and governance:** Satisfactory
- **Comparable rating analysis:** Neutral

Stand-alone credit profile : a-

- **Group credit profile:** bbb+
- **Entity status within group:** Insulated (no impact)

Related Criteria

- General Criteria: Group Rating Methodology, July 1, 2019
- Criteria | Corporates | General: Corporate Methodology: Ratios And Adjustments, April 1, 2019
- Criteria | Corporates | General: Reflecting Subordination Risk In Corporate Issue Ratings, March 28, 2018
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria | Corporates | General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- Criteria | Corporates | General: Corporate Methodology, Nov. 19, 2013
- Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013

- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities, Nov. 13, 2012
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011

Business And Financial Risk Matrix						
Business Risk Profile	Financial Risk Profile					
	Minimal	Modest	Intermediate	Significant	Aggressive	Highly leveraged
Excellent	aaa/aa+	aa	a+/a	a-	bbb	bbb-/bb+
Strong	aa/aa-	a+/a	a-/bbb+	bbb	bb+	bb
Satisfactory	a/a-	bbb+	bbb/bbb-	bbb-/bb+	bb	b+
Fair	bbb/bbb-	bbb-	bb+	bb	bb-	b
Weak	bb+	bb+	bb	bb-	b+	b/b-
Vulnerable	bb-	bb-	bb-/b+	b+	b	b-

Ratings Detail (As Of January 19, 2021)*	
Enbridge Gas Inc.	
Issuer Credit Rating	A-/Stable/A-2
Commercial Paper	
<i>Local Currency</i>	A-2
<i>Canada National Scale Commercial Paper</i>	A-1(LOW)
Senior Unsecured	A-
Issuer Credit Ratings History	
02-Jan-2019	A-/Stable/A-2
Related Entities	
Enbridge Energy L.P.	
Issuer Credit Rating	BBB+/Stable/--
Senior Unsecured	BBB+
Enbridge Energy Partners L.P.	
Issuer Credit Rating	BBB+/Stable/NR
Senior Unsecured	BBB+
Enbridge Inc.	
Issuer Credit Rating	
<i>Foreign Currency</i>	BBB+/Stable/A-2
<i>Local Currency</i>	BBB+/Stable/--
Commercial Paper	
<i>Canada National Scale Commercial Paper</i>	A-1(LOW)
Preferred Stock	
<i>Canada National Scale Preferred Share</i>	P-2(Low)
Preferred Stock	BBB-
Senior Unsecured	BBB+
Subordinated	BBB-
Enbridge Pipelines Inc.	
Issuer Credit Rating	BBB+/Stable/--

Ratings Detail (As Of January 19, 2021)*(cont.)	
Commercial Paper	
<i>Canada National Scale Commercial Paper</i>	A-1(LOW)
Senior Unsecured	BBB+
Spectra Energy Capital LLC	
Issuer Credit Rating	BBB+/Stable/A-2
Commercial Paper	
<i>Local Currency</i>	A-2
Spectra Energy Corp	
Issuer Credit Rating	BBB+/Stable/--
Spectra Energy Partners LP	
Issuer Credit Rating	BBB+/Stable/NR
Senior Unsecured	BBB+
Texas Eastern Transmission L.P.	
Issuer Credit Rating	BBB+/Stable/--
Senior Unsecured	BBB+
Westcoast Energy Inc.	
Issuer Credit Rating	BBB+/Stable/--
Preferred Stock	
<i>Canada National Scale Preferred Share</i>	P-2(Low)
Preferred Stock	BBB-
Senior Unsecured	BBB+

*Unless otherwise noted, all ratings in this report are global scale ratings. S&P Global Ratings' credit ratings on the global scale are comparable across countries. S&P Global Ratings' credit ratings on a national scale are relative to obligors or obligations within that specific country. Issue and debt ratings could include debt guaranteed by another entity, and rated debt that an entity guarantees.

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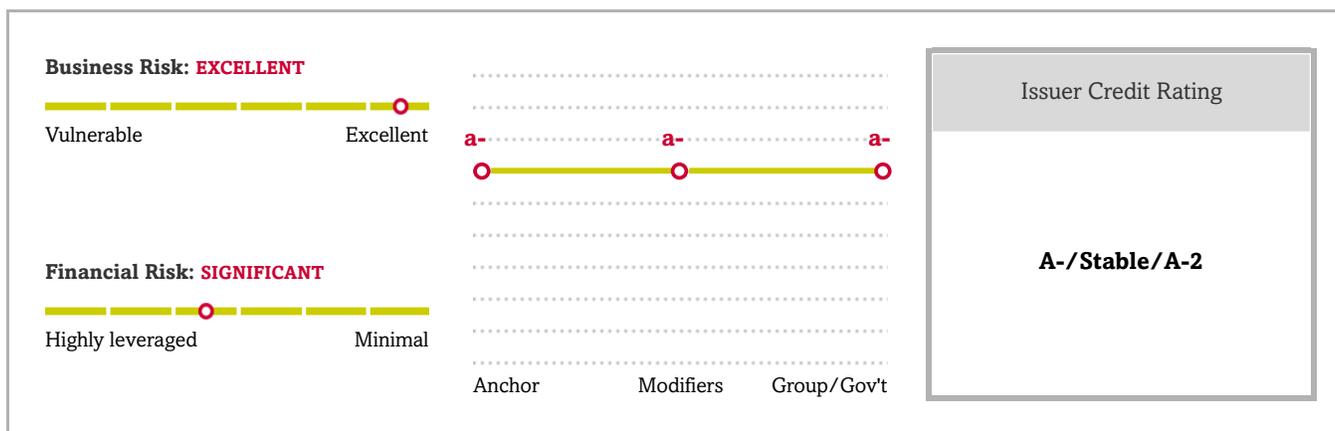
Group Influence

Issue Ratings--Subordination Risk Analysis

Ratings Score Snapshot

Related Criteria

Enbridge Gas Inc.



Credit Highlights

Overview

Key strengths	Key risks
Enbridge Gas Inc. (EGI) is a low-risk, rate-regulated natural gas distribution and transmission company.	EGI operates only in Ontario and therefore has limited geographic and regulatory diversification.
About two-thirds of EGI's distribution revenue comes from residential and small business customers, providing stable cash flows.	EGI has negative discretionary cash flow linked with increasing capital expenditure activities, indicating external funding needs.
Commodity costs are passed through to customers and recovered through a quarterly adjustment mechanism, limiting EGI's exposure to commodity risk.	

We expect EGI's financial measures to remain within its financial risk profile category through 2023. This includes a projected funds from operations (FFO) to debt ratio of about 11% through 2023. In addition, we anticipate EGI's capital expenditures to remain elevated during 2022, largely reflecting new customer connections and system replacement projects such as the Lake Shore and St. Laurent natural gas pipeline replacement projects.

Additionally, as in prior years, we expect in 2022 EGI will realize positive synergies from the amalgamation of Enbridge Gas Distribution Inc. (EGD) and Union Gas Ltd. (Union Gas), by continuing to integrate operations and optimizing storage and transmission assets.

Large capital spending primarily results in negative discretionary cash flow over our outlook period. EGI continues to have large capital expenditures through the 2022-2023 outlook period. They are about 2x its depreciation cost, which we expect will lead to negative discretionary cash flow over our forecast period, resulting in external funding needs.

EGI lacks geographic and regulatory diversity. EGI operates only in Ontario. It is the largest gas distributor in Ontario and serves virtually all of Ontario with approximately 3.8 million residential, commercial, and industrial customers. However, compared with other utilities, EGI lacks geographic and regulatory diversity, making it reliant on the Ontario Energy Board (OEB) and its regulation to sustain its credit quality.

Outlook

The stable outlook on EGI reflects S&P Global Ratings' expectation that the company will continue to focus on and generate stable and predictable cash flows from its regulated gas distribution operation. We expect that EGI will continue to benefit from modest growth in new customers, the integration of EGD and Union Gas operations and assets, and the timely and on-budget completion of capital programs. This leads to estimated FFO to debt of 11%-12% during our two-year outlook period.

The stable outlook also reflects our view that Enbridge Inc. (Enbridge), the parent, will maintain FFO to debt of 15%-17% in 2022. Furthermore, the stable outlook on EGI reflects our expectation that both the utility's insulation features and Enbridge's strategy to preserve the utilities' credit strength will not change.

Downside scenario

We could lower the ratings on EGI if the utility's financial measures deteriorate, with FFO to debt approaching 10% with no prospects of improvement.

Alternatively, we could lower the ratings on EGI if we lower our ratings on Enbridge. This could happen if Enbridge's consolidated adjusted FFO to debt falls below 13% or debt to EBITDA is sustained above 5x.

Upside scenario

Although unlikely, we could upgrade EGI over the next 18-24 months if we also upgrade Enbridge, and if EGI's stand-alone credit profile (SACP) indicates a higher SACP.

EGI could warrant a higher SACP if it improves its financial measures with FFO to debt consistently above 13%. An upgrade at the parent level would require Enbridge to maintain FFO to debt above 17% and adjusted debt to EBITDA of about 4x while maintaining its current level of asset mix and cash-flow stability.

Our Base-Case Scenario

Assumptions

- Stable and predictable cash flows from its regulated gas distribution operation, also benefiting from modest new customer growth.
- Stable regulatory regime in Ontario with no material adverse regulatory decisions.
- EGI will primarily operate under inflation-indexed rates throughout 2022 and 2023, before starting a new rate application cycle in 2024.
- The annual revenue increases through 2023 will be subject to a productivity stretch factor constraint of 0.3%, which reduces the annual revenue increases by the equivalent amount.
- All earnings exceeding 150 basis points over the OEB-approved return on equity will be shared equally between EGI and its ratepayers.
- EGI will earn close to its authorized return on equity.
- EGI will operate at or close to its authorized capital structure of 64%/36% debt to equity for the duration of the

outlook period.

- Natural gas cost and the federal carbon levy remain a pass-through to ratepayers.
- Annual capital expenditure estimated to be about C\$1.4 billion to C\$1.6 billion between 2022 and 2024.
- Dividends of about C\$200 million in 2021 and estimated to range from C\$525 to C\$575 million in each of 2022, 2023, and 2024.

Key metrics

	--Fiscal year end Dec. 31 --			
	2019a	2020a	2021e	2022f
FFO to debt (%)	13.1	11.3	11-12	11-12
FFO cash interest coverage (x)	4.2	3.9	4.0-4.5	4.0-4.5

*All figures adjusted by S&P Global Ratings. a--Actual. e--Estimate. f--Forecast.

Company Description

EGI operates as a rate-regulated natural gas distribution utility company in Ontario, Canada. The company was formed through the amalgamation of Enbridge Gas Distribution Inc. and Union Gas Ltd. in 2019. The company also owns and operates regulated and nonregulated natural gas storage facilities in Ontario. EGI's distribution rates are set under a five-year incentive regulation framework using a price cap mechanism, and it serves about 3.8 million customers.

Peer Comparison

Table 1

Enbridge Gas Inc.--Peer Comparison				
Industry Sector: Gas				
	Enbridge Gas Inc.	CU Inc.	Energir Inc.	Washington Gas Light Co.
Ratings as of Jan. 24, 2022	A-/Stable/A-2	A-/Stable/A-2	--/--/--	A-/Stable/A-2
	--Fiscal year ended Dec. 31, 2020--	--Fiscal year ended Dec. 31, 2020--	--Fiscal year ended Sep. 30, 2021--	--Fiscal year ended Dec. 31, 2020--
(Mil.)	C\$	C\$	C\$	\$
Revenue	4,515.0	2,730.0	2,434.2	1,234.3
EBITDA	1,575.0	1,421.0	796.9	370.7
Funds from operations (FFO)	1,117.5	1,045.5	577.5	307.6
Interest expense	404.5	389.7	145.6	76.0
Cash interest paid	391.5	376.5	143.7	66.0
Cash flow from operations	1,204.5	1,058.5	438.8	226.9
Capital expenditure	1,180.0	782.0	581.5	389.8
Free operating cash flow (FOCF)	24.5	276.5	(142.7)	(162.9)

Table 1

Enbridge Gas Inc.--Peer Comparison (cont.)				
Discretionary cash flow (DCF)	(1,225.5)	(149)	(668.2)	(262.9)
Cash and short-term investments	9.0	78.0	46.8	0.0
Debt	9,912.2	8,516.9	4,178.8	1,899.8
Equity	10,017.0	4,816.0	2,151.5	1,855.9
Adjusted ratios				
EBITDA margin (%)	34.9	52.1	32.7	30.0
Return on capital (%)	4.7	6.8	6.1	6.0
EBITDA interest coverage (x)	3.9	3.6	5.5	4.9
FFO cash interest coverage (x)	3.9	3.8	5.0	5.7
Debt/EBITDA (x)	6.3	6.0	5.2	5.1
FFO/debt (%)	11.3	12.3	13.8	16.2
Cash flow from operations/debt (%)	12.2	12.4	10.5	11.9
FOCF/debt (%)	0.2	3.2	(3.4)	(8.6)
DCF/debt (%)	(12.4)	(1.7)	(16.0)	(13.8)

N.M.--Not meaningful

Business Risk

Our assessment of EGI's business risk reflects our view of OEB's regulatory framework, which underpins the utility's predictable and steady cash flow. In our view, the regulatory process is transparent, consistent, and predictable. These factors collectively support EGI's timely recovery of prudently spent capital and operating expenses. In addition, the federal carbon levy is a flow-through cost to customers, and gas commodity costs are recovered through a quarterly adjustment mechanism from ratepayers, limiting EGI's exposure to commodity risk.

Further supporting our view is EGI's large customer base. EGI serves almost all of Ontario's gas distribution network with about 3.8 million customers, most of whom are residential and small business customers. As such, we expect EGI's cash flows to remain stable. However, demand for natural gas in the residential customer class can vary due to weather-driven fluctuations that can result in some cash flow volatility. Our favorable view of EGI's business risk is slightly offset by the company's limited geographic footprint and exposure to a single regulatory regime.

Financial Risk

We assess EGI's financial measures using our low volatility financial benchmark table relative to the typical industrial issuer. This reflects the company's lower-risk regulated gas distribution operation and effective management of regulatory risk. EGI has a large capital program--about 2x that of depreciation expense--that will result in negative discretionary cash flow and continually rely on external financing to fund its capital programs.

Under our base-case scenario, which includes a stable regulatory environment with no material adverse regulatory decisions, we expect capital spending of about C\$1.3 billion-C\$1.6 billion through 2022; net dividend payments of about C\$200 million in 2021 and C\$500-C\$550 million in 2022 and 2023; and FFO to debt of about 11%-12% between 2021 and 2023.

Financial summary

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	--Fiscal year ended Dec. 31--			
	2020	2019	2018	2017
(Mil. C\$)				
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Gross available cash	9.0	77.0	17.0	20.0
Debt	9,912.2	9,435.1	9,120.6	4,789.9
Equity	10,017.0	10,004.0	9,893.0	3,309.0
Adjusted ratios				
EBITDA margin (%)	34.9	32.3	29.3	22.8
Return on capital (%)	4.7	5.3	7.5	5.6
EBITDA interest coverage (x)	3.9	4.2	4.0	3.4
FFO cash interest coverage (x)	3.9	4.2	4.0	3.5
Debt/EBITDA (x)	6.3	5.8	5.9	6.4
FFO/debt (%)	11.3	13.1	13.0	11.1
Cash flow from operations/debt (%)	12.2	13.5	18.9	11.6
FOCF/debt (%)	0.2	1.8	4.8	(4.9)
DCF/debt (%)	(12.4)	(11.4)	(10.9)	(18.7)

N.M.--Not meaningful

Reconciliation

Table 3

Enbridge Gas Inc.--Reconciliation Of Reported Amounts With S&P Global Ratings' Adjusted Amounts

--Fiscal year ended Dec. 31, 2020--

Enbridge Gas Inc. reported amounts (mil. C\$)

	Debt	EBITDA	Operating income	Interest expense	S&P Global Ratings' adjusted EBITDA	Cash flow from operations	Capital expenditure
	10,103	1,566	911	398	1,575	1,202	1,185
S&P Global Ratings' adjustments							
Cash taxes paid	--	--	--	--	(66.00)	--	--
Cash interest paid	--	--	--	--	(385.00)	--	--
Reported lease liabilities	53.00	--	--	--	--	--	--
Operating leases	--	9.00	1.53	1.53	(1.53)	7.47	--
Postretirement benefit obligations/deferred compensation	424.15	--	--	--	--	--	--
Accessible cash and liquid investments	(9.00)	--	--	--	--	--	--
Capitalized interest	--	--	--	5.00	(5.00)	(5.00)	(5.00)
Nonoperating income (expense)	--	--	11.00	--	--	--	--
Debt: Other	(659.00)	--	--	--	--	--	--
Total adjustments	(190.85)	9.00	12.53	6.53	(457.53)	2.47	(5.00)

S&P Global Ratings' adjusted amounts

	Debt	EBITDA	EBIT	Interest expense	Funds from operations	Cash flow from operations	Capital expenditure
	9,912	1,575	924	405	1,117	1,204	1,180

Liquidity

In our assessment, EGI's liquidity is adequate. We expect liquidity sources will cover uses by more than 1.1x in the next 12 months. We also expect that in the event of a 10% EBITDA decline, the company's sources of funds would still exceed its uses. In our opinion, EGI has strong relationships with its banks and generally prudent financial risk management. In the event of unexpected financial stress, we believe the utility would scale back on its capital expenditures and has the flexibility to suspend dividend payments to preserve its liquidity.

Principal liquidity sources

- Cash of about C\$8 million as of Sept. 30, 2021;
- Committed credit facilities availability of about C\$2 billion;
- Cash FFO of about C\$1.2 billion; and
- Working capital inflows of about C\$31 million.

Principal liquidity uses

- Debt maturities of about C\$1.51 billion as of Sept. 30, 2021;
- Assumed maintenance capital spending of about C\$1.0 billion over the next 12 months; and
- Net dividends of about C\$444 million.

Debt maturities

- 2022: C\$125 million
- 2023: C\$350 million
- 2024: C\$300 million
- 2025: C\$745 million

Environmental, Social, And Governance

ESG Credit Indicators

E-1	E-2	E-3	E-4	E-5	S-1	S-2	S-3	S-4	S-5	G-1	G-2	G-3	G-4	G-5
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ESG credit indicators provide additional disclosure and transparency at the entity level and reflect S&P Global Ratings' opinion of the influence that environmental, social, and governance factors have on our credit rating analysis. They are not a sustainability rating or an S&P Global Ratings ESG Evaluation. The extent of the influence of these factors is reflected on an alphanumeric 1-5 scale where 1 = positive, 2 = neutral, 3 = moderately negative, 4 = negative, and 5 = very negative. For more information, see our commentary "ESG Credit Indicators: Definition And Applications," published Oct. 13, 2021.

ESG factors have no material influence on our credit rating analysis of EGI.

Group Influence

We view EGI as an insulated subsidiary within the Enbridge group. This is because EGI is incorporated as separate legal entity with financial performance and funding that are highly independent from the group, including issuing long- and short-term debt, maintaining its own separate credit facilities, and not commingling its funds, assets, or cash flows with the rest of the group. In addition, there is a strong economic basis for Enbridge to preserve EGI's credit strength, and we do not expect a default of the other group entities within Enbridge to directly lead to a default at EGI.

Issue Ratings--Subordination Risk Analysis

Capital structure

As of Sept. 30, 2021, EGI's capital structure consists of about C\$1.21 billion of short-term debt in outstanding commercial paper and about C\$9.7 billion of senior unsecured long-term debt.

Analytical conclusions

We rate EGI's senior unsecured debt at 'A-', the same as the issuer credit rating (ICR) on EGI because the debt is issued by a qualifying investment-grade regulated utility. The rating on the commercial paper is 'A-2' reflecting our 'A-

ICR on EGI.

Ratings Score Snapshot

Issuer Credit Rating

A-/Stable/A-2

Business risk: Excellent

- **Country risk:** Very low
- **Industry risk:** Very low
- **Competitive position:** Excellent

Financial risk: Significant

- **Cash flow/leverage:** Significant

Anchor: a-

Modifiers

- **Diversification/portfolio effect:** Neutral (no impact)
- **Capital structure:** Neutral (no impact)
- **Financial policy:** Neutral (no impact)
- **Liquidity:** Adequate (no impact)
- **Management and governance:** Satisfactory (no impact)
- **Comparable rating analysis:** Neutral (no impact)

Stand-alone credit profile : a-

- **Group credit profile:** bbb+
- **Entity status within group:** Insulated (no impact)

Issuer Credit Rating: A-/Stable/A-2

Business risk: Excellent

- Country risk: Very low
- Industry risk: Very low
- Competitive position: Excellent

Financial risk: Significant

- Cash flow/Leverage: Significant

Anchor: a-

Modifiers

- Diversification/Portfolio effect: Neutral
- Capital structure: Neutral
- Financial policy: Neutral
- Liquidity: Adequate
- Management and governance: Satisfactory
- Comparable rating analysis: Neutral

Stand-alone credit profile: a-

- Group credit profile: bbb+
- Entity status within group: Insulated (no impact)

Related Criteria

- General Criteria: Group Rating Methodology, July 1, 2019
- Criteria | Corporates | General: Corporate Methodology: Ratios And Adjustments, April 1, 2019
- Criteria | Corporates | General: Reflecting Subordination Risk In Corporate Issue Ratings, March 28, 2018
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria | Corporates | General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- Criteria | Corporates | General: Corporate Methodology, Nov. 19, 2013
- Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities, Nov. 13, 2012
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011

Business And Financial Risk Matrix						
Business Risk Profile	Financial Risk Profile					
	Minimal	Modest	Intermediate	Significant	Aggressive	Highly leveraged
Excellent	aaa/aa+	aa	a+/a	a-	bbb	bbb-/bb+
Strong	aa/aa-	a+/a	a-/bbb+	bbb	bb+	bb
Satisfactory	a/a-	bbb+	bbb/bbb-	bbb-/bb+	bb	b+
Fair	bbb/bbb-	bbb-	bb+	bb	bb-	b
Weak	bb+	bb+	bb	bb-	b+	b/b-
Vulnerable	bb-	bb-	bb-/b+	b+	b	b-

Ratings Detail (As Of February 1, 2022)*

Enbridge Gas Inc.	
Issuer Credit Rating	A-/Stable/A-2
Commercial Paper	
<i>Local Currency</i>	A-2
<i>Canada National Scale Commercial Paper</i>	A-1(LOW)
Senior Unsecured	A-
Issuer Credit Ratings History	
02-Jan-2019	A-/Stable/A-2
Related Entities	
Enbridge Energy L.P.	
Issuer Credit Rating	BBB+/Stable/--
Senior Unsecured	BBB+
Enbridge Energy Partners L.P.	
Issuer Credit Rating	BBB+/Stable/NR
Senior Unsecured	BBB+
Enbridge Inc.	
Issuer Credit Rating	
<i>Foreign Currency</i>	BBB+/Stable/A-2
<i>Local Currency</i>	BBB+/Stable/--
Commercial Paper	
<i>Canada National Scale Commercial Paper</i>	A-1(LOW)
Preferred Stock	
<i>Canada National Scale Preferred Share</i>	P-2(Low)
Preferred Stock	BBB-
Senior Unsecured	BBB+
Subordinated	BBB-
Enbridge Pipelines Inc.	
Issuer Credit Rating	BBB+/Stable/--
Commercial Paper	
<i>Canada National Scale Commercial Paper</i>	A-1(LOW)
Senior Unsecured	BBB+

Ratings Detail (As Of February 1, 2022)*(cont.)

Spectra Energy Capital LLC

Issuer Credit Rating	BBB+/Stable/A-2
Commercial Paper	
<i>Local Currency</i>	A-2

Spectra Energy Corp.

Issuer Credit Rating	BBB+/Stable/--
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Spectra Energy Partners L.P.

Issuer Credit Rating	BBB+/Stable/NR
Senior Unsecured	BBB+

Texas Eastern Transmission L.P.

Issuer Credit Rating	BBB+/Stable/--
Senior Unsecured	BBB+

Westcoast Energy Inc.

Issuer Credit Rating	BBB+/Stable/--
Preferred Stock	
<i>Canada National Scale Preferred Share</i>	P-2(Low)
Preferred Stock	BBB-
Senior Unsecured	BBB+

*Unless otherwise noted, all ratings in this report are global scale ratings. S&P Global Ratings' credit ratings on the global scale are comparable across countries. S&P Global Ratings' credit ratings on a national scale are relative to obligors or obligations within that specific country. Issue and debt ratings could include debt guaranteed by another entity, and rated debt that an entity guarantees.

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ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 77-79 of 164
Exhibit 10, Tab 1, Schedule 1, pages 10-11
Handbook for Utility Rate Applications, October 13, 2016
EB-2014-0219, Report of the Board on New Policy Options for the Funding of Capital Investments: The Advanced Capital Module, September 18, 2014
EB-2014-0219, Report of the Board on New Policy Options for the Funding of Capital Investments: Supplemental Report, January 22, 2016

Question(s):

On pages 77-79, Concentric documents its understanding of Enbridge Gas's regulatory framework under the OEB and considers that there is no material change in the relative regulatory risk since 2012. Concentric discusses the availability of the Z-factor for cost recovery for material events outside of the utilities ability to predict and control, and to deferral and variance accounts (DVAs) for cost pass-through. Concentric also points to the straight fixed variable (SFV) rate design proposal that Enbridge Gas is seeking approval for in this application.

However, OEB staff notes that Concentric makes no reference to the following:

- The Handbook for Utility Rate Applications (Rate Handbook), issued by the OEB on October 13, 2016. The Rate Handbook provided a higher level rate-setting policy for better alignment of rate-setting approaches and options across all energy sectors, including natural gas distribution.
- The OEB's policies for capital funding options as updated in the 2014-2016 period with the following two Reports of the Board:
 - EB-2014-0219, Report of the Board on New Policy Options for the Funding of Capital Investments: The Advanced Capital Module, September 18, 2014
 - EB-2014-0219, Report of the Board on New Policy Options for the Funding of Capital Investments: Supplemental Report, January 22, 2016
- These rate regulatory policies were not in existence when EGD's and Union Gas's cost of capital were last reviewed. Enbridge Gas has availed itself to the Incremental Capital Module in several rate applications since amalgamation, and, while it has not identified specific capital projects, in its system plan in the

application, for which it is seeking Advanced Capital Module or Incremental Capital Module cost recovery, the utility is requesting the availability of the Incremental Capital Module as part of the price cap proposal for 2025-2028,

Please explain why Concentric did not address the Rate Handbook or the OEB's capital funding options in assessing changes in Enbridge Gas's regulatory framework that were not available to EGD and Union Gas in 2012.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

As provided in Concentric's report at Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 79 of 164, Concentric considers regulatory risk to have modestly decreased since 2012, driven by the Company's straight-fixed-variable rate design proposal, and other factors such as the OEB's findings regarding IRP alternatives. Concentric appreciates that the Rate Handbook brings additional clarity and consistency to the rate application process, but Concentric does not consider this to significantly reduce regulatory risk from an investor's perspective. The predictableness of the rate setting process in Ontario has been consistently noted by, for instance, S&P, which found in 2012 that "[c]onsistent and predictable regulatory decisions from its [Enbridge Gas Distribution's] regulator, the Ontario Energy Board (OEB), support our view," (see, S&P Global, Enbridge Gas Distribution Inc., December 24, 2012) and which found in 2022 that "the regulatory process is transparent, consistent, and predictable" (see Concentric's report at Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 77 of 164). Please see the response at Exhibit I.5.3-EP-90 part a) and part b) for further discussion of the Company's capital funding options.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 87-88 of 164 EGI_Rebasing Appl_Concentric Equity Thickness Supporting Schedules_20221101.xlsx

Question(s):

Figure 25, on page 87 of 164, lists the Canadian operating companies (opcos) in one of Concentric's proxy groups. Figure 26 on page 88 of 164, list the Canadian holding companies in a second proxy group used by Concentric. In the spreadsheet EGI_Rebasing Appl_Concentric Equity Thickness Supporting Schedules_20221101.xlsx, on Sheet "Sch 4 – Op. Company Auth", these Canadian opcos and holdcos are provided, along with the authorized equity thicknesses for natural gas service opcos for the Canadian holdcos. Further data on the Canadian opcos and holdcos is provided on sheet "Schedule 2 – analysis", including the gross plant and accumulated depreciation of many, but not all, of the sampled companies; from this can be calculated the net book value (NBV) of in-service assets.

- a) Analysis of the data in sheet "Schedule 2 – analysis" would indicate that Enbridge Gas, with a gross book value of \$21,744M and accumulated depreciation of (\$4,905M) or a NBV of \$16,839M, is more than three times as large as the next largest in the list (FortisBC, with 2021 GBV of \$7,823M, accumulated depreciation of (\$2,335M) and an NBV of \$5,488M. Other Canadian opcos appear to be smaller still, and an examination of several of those for which data is listed as "NA" (not available) would indicate that they are smaller still. How has Concentric taken into account differences in the sizes of the Canadian opcos relative to Enbridge Gas in its analysis?
- b) How has Concentric factored Hydro One Inc., which has no gas operations in any operating subsidiaries into its analysis at the opco or holdco level?
- c) In calculating the authorized equity thickness of the holdco, as shown in sheet "Sch 4 – Op. Company Auth", Concentric has used the simple arithmetic average of the authorized equity thickness of subsidiary opcos for which data is available. No account is taken of differences in sizes of the opcos. Also, in calculating the average of the holdco proxy group, Concentric has again just taken the simple average.

- i. Why does Concentric consider that the simple average, at both holdco and holdco proxy group level, to be adequate for its analysis, without taking into account differences in sizes?
 - ii. For Algonquin Power & Utilities, OEB staff observes that only Liberty Gas New Brunswick (for which opco data is NA) operates in Canada, while all of the other subsidiary opcos listed for Algonquin Power & Utilities operate in the U.S. Further, OEB staff observes that the listed subsidiary gas opcos for AltaGas Inc. and Emera Inc. all operate in the U.S. Please explain why Concentric considers its Canadian holdco proxy group to be representative given the mix of data based on both Canadian and U.S. subsidiary opcos.
- d) Concentric uses the authorized ROE and the deemed equity thickness in its analysis, but does not appear to use any data on actual ROEs in its analysis. Please explain why Concentric does not use actual ROEs in its analysis.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see the response to Exhibit I.5.3-CME-46 part a).
- b) Concentric's analysis does not include Hydro One, Inc.
- c)
- i.-ii. Concentric agrees that the Canadian Holding Companies group owns primarily U.S.-based utilities. As discussed in response at Exhibit 1.5.3-Staff-226, Concentric placed the greatest weight on the currently authorized equity ratios for the Canadian Operating Companies and US Operating Companies, Median and Mean Results. Concentric's use of simple averages is generally consistent with our approach to analyzing average authorized ROEs and capital structures in cost of capital proceedings and is consistent, in our experience, with aggregated industry data available from industry data sources such as Regulatory Research Associates. Further, as noted in the request, Concentric did not have net book values for all companies in the proxy groups, and so would not be able to calculate a weighted average calculation for each group. Lastly, as noted in Concentric's Report (Exhibit 5, Tab 3, Schedule 1, Attachment 1, at 102 of 164), none of the companies in any of the proxy groups had a lower equity ratio than Enbridge Gas.

- d) Data on actual earned ROEs is not readily available on a consistently-reported basis for many utility companies in Canada or the U.S. While some companies are required to report that information to regulators, those filings are not always publicly-available. Further, while the earned return is calculable from financial statement data, in Concentric's experience, it is difficult to accurately calculate the earned ROE from financial statement data because certain adjustments (e.g., for goodwill) must be made for comparison purposes, but the data for such adjustments is often not readily discernible.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 91-92 of 164

Question(s):

Concentric documents how it has assessed the risk of the Canadian and U.S. operating companies (opcos) and holding companies (holdcos), relative to Enbridge Gas, on several dimensions, including:

- Energy Transition
- Size
- Regulatory framework.

With respect to Energy Transition, Concentric states:

The Energy Transition places gas distribution utilities' long-term ability to earn a return of invested capital at risk as increasing costs must be collected from declining volumes. Accordingly, as a general matter, companies whose assets have more remaining book life and lower depreciation rates have more exposure to Energy Transition risks than companies whose assets have less remaining book life and higher depreciation rates. All else equal, relatively higher remaining book lives and/or relatively lower depreciation rates indicate that it will take longer for an investor to recover the return of invested capital, therefore increasing exposure to Energy Transition risks such as stranded asset risk and volumetric risk. [Emphasis added - BOLD]

Concentric then discusses means available to Enbridge Gas and other gas utilities to mitigate some of these risks.

- a) As shown in Figure 29, Concentric notes that the average total life and the average remaining life of Enbridge Gas's assets is higher than that for the Canadian opco and holdco samples. and the percentage depreciation of assets is lower than for any of the Canadian and U.S. opco and holdco samples.
 - i. Has Concentric examined, and if so, taken into account the reasons, why Enbridge Gas's assets have longer remaining lives than other Canadian gas utilities or why Enbridge Gas's accumulated depreciation, in percentage terms

relative to the Gross Book Value of assets is below that of all samples? For example, are there differences in growth/expansion for Enbridge Gas, including as a result of the amalgamation five years ago, relative to that of other Canadian and U.S. utilities in Concentric's sample.

- ii. Are there other factors (business operating conditions), such as climate, terrain, residential and commercial mix of customers, that differ amongst the utilities in Concentric's samples and need to be accounted for in assessing the energy transition risk? In other words, does Concentric believe that "all else being equal" qualifier is satisfied in its assessment of energy transition risk in this section. Please explain your response.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a)
 - i. Concentric has not investigated the rate of growth/expansion for Enbridge Gas compared to industry peers in its evaluation of energy transition risk. Based on Concentric's analysis, however, Enbridge Gas has a relatively newer system, as indicated by the average total life and average remaining life of Enbridge Gas's assets compared to industry peers. This puts Enbridge Gas at as much as, if not greater, risk related to Energy Transition stranded cost risk than the proxy companies. In addition, as noted in Concentric's report, S&P found Enbridge Gas's ESG risks to be "similar to the broader industry."
 - ii. The rate and timing of Energy Transition will vary between jurisdictions, including for reasons such as political intervention, customer mix, and other factors. Concentric has not directly compared those factors between the proxy companies but has provided evidence throughout its report that: (a) Energy Transition risk is elevated across the industry; and (b) has increased significantly for Enbridge Gas since 2012. As such, even if all else is not equal among jurisdictions, Concentric concludes that this is a significant source of incremental risk for Enbridge Gas that should be considered in the setting of its equity ratio.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 94-96, 115 of 164
S&P Global Ratings, Updates And Insights On Regulatory Jurisdictions
Shaping Policies For North American Utilities --November 2020, November 9, 2020

Question(s):

On page 115 of 164 of its report, Concentric provides a map of the U.S. and Canada, showing the ranking of all states and provinces, by UBS Global Research report "North American Power & Utilities: Mind the Gap(s): 2021 Utility Outlook," December 14, 2020.

OEB staff notes that S&P Global Ratings provides similar maps, separately for the U.S. and for Canada, on pages 3-4 of its report, "Updates And Insights On Regulatory Jurisdictions Shaping Policies For North American Utilities - November 2020", issued November 9, 2020. This is shown in chart form on page 2 of the report. (ADD CHARTS)

- a) Please provide a copy of the UBS Global Research report identified in footnote 211 on page 95 of 164: UBS Global Research, "North American Power & Utilities: Mind the Gap(s): 2021 Utility Outlook," December 14, 2020.
- b) Concentric has noted that UBS and Standard & Poor's have different rankings of state and provincial regulatory jurisdictions. In particular, UBS ranks Ontario (the OEB) in the third category out of five, while Standard & Poor's ranks Ontario in the top (most credit favorable) category out of its five categories.
 - i. OEB staff observes that the regulatory jurisdiction that a firm operates in does not factor into the regulated firm's base credit rating. However, the ranking of the regulatory jurisdiction could, along with other factors, result in a raising or lowering of the firm's credit rating by one notch (e.g. a base credit rating of A could end up as A- or A+).¹⁰ (ADD FOOTNOTE) Does Concentric not consider the differences in UBS' and Standard & Poor's rankings of North American regulatory jurisdictions as a concern?
 - ii. What, based on Concentric's knowledge, are the reasons for the differences in UBS' and Standard & Poor's rankings of North American regulatory jurisdictions?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see Attachment 1.
- b)
 - i. No, Concentric does not consider the differences in the UBS and S&P rankings of regulatory jurisdictions a concern. First, the UBS report is from the perspective of equity investors, while the S&P report is from a debt perspective. Equity investors are concerned with earnings growth and the ability of the company to earn its authorized return, while credit rating agencies are focused on cash flows, debt levels, and the ability of the issuer to repay its debt obligations in a timely manner. As discussed on page 56 of Concentric's report, the interests of debt and equity investors are often aligned, but not always. In Concentric's view, it is important to consider the perspectives of both equity and debt investors.
 - ii. The six criteria used by UBS to evaluate regulatory jurisdictions are shown on page 90 of Concentric's report. The purpose of the UBS criteria is to determine whether to apply a valuation premium or discount to the utilities it covers. The regulatory environment is one important factor that S&P considers in assigning credit ratings for regulated utilities. As provided on page 91 of Concentric's report, S&P assesses the degree of credit supportiveness of the regulatory framework and how that affects the ability of the utility to meet its debt obligations. The predictability and stability of the regulatory environment are important considerations to credit rating agencies such as S&P, but they also consider factors such as the level of authorized returns, the percentage of debt in the capital structure, the ability to earn the allowed return, and the mechanisms in place to reduce regulatory lag.



North America Power & Utilities

Mind the Gap(s): 2021 Utility Outlook

Equities

Americas

Electric Utilities

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Regulated utility (RU) valuations are attractive.

The space is 28% undervalued when comparing dividend yields to Baa Corporate Bond Yields. They are also 12% undervalued relative to the S&P 500 based on FY2 relative P/E ratios. In the final quarter of 2020, equity income fund flows flipped from redemption to inflows. These factors bode well for RU performance heading into 2021, in our view.

Utility fundamentals improved in 2020.

Group rate-base growth prospects rose to 6.7% from 6.3% annually, while regulatory returns stayed firm at 854 bp over the 10-year T-note. Forward spending is highly aligned with policy priorities driven by lowering carbon emissions and improving resiliency. With the focus of the Biden Administration on environmental stewardship and continued advances in renewable and storage economics, we expect the group revision bias to continue positive over the next several years.

The gap in growth and regulatory quality within the group narrowed in 2020.

The range of first to fourth quartile EPS growth rates and the standard deviation of 5 year rate-base growth narrowed. This, plus distance from the trough of the 2020 Covid-19 economic bottom, allowed valuation spreads between quality and value to narrow from all time wide levels. Nonetheless, the gap remains 19% above normal. We expect the value bias to continue to outperform into the New Year. Multi-utility restructurings and business simplification execution should accelerate this trend.

ESG style investing is an increasing focus for RU managements, investors and policy makers.

2020 was a year that brought significant disclosure from corporates to clarify their ESG positions. We expect further release of improvement targets and actions to conform to best practices. Utility profiles are becoming more similar to one another as these objectives are revealed. We review the state of play for ESG metrics in this report.

Our Focus RU investment list for 2021 includes: one renewable market leader NEE; one annual total return leader DUK; one restructuring stock SRE and one value utility EIX. In conjunction with this report, we are raising our rating on H from Sell to Neutral, on SO from Neutral to Buy, and EVRG from Neutral to Buy. We are lowering our rating on ACO from Buy to Neutral and on CU from Neutral to Sell.

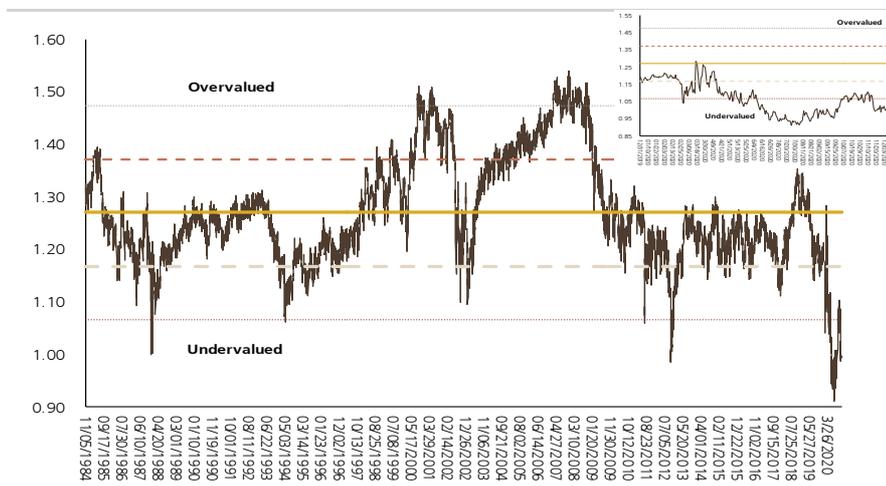
MIND THE GAP(S): 2021 UTILITY OUTLOOK

Group Valuation Attractive

Utilities did not deliver returns in 2020 consistent with their business performance. Year to date through 12/11/2020, the XLU was down 3.6%, the S&P 500 was up 13.4% and Baa corporate bonds were up 19.4% (yield lower 0.76%). Yet, even with the challenges Covid-19 presented to the US economy, RU's delivered against their pre-pandemic earnings guidance. Of the 29 companies in the group, 4 lowered guidance, 9 held their original earnings figures and 11 actually raised numbers. Additionally, the future growth for the group was bolstered with an increase of \$60B in Capex (13%) over the next 5 years, the primary driver to EPS growth. Overall we estimate that the forward 5 year annual EPS growth midpoint for the space rose 1%pt to 6% from 5%.

Entering 2021 and beyond, this leaves investors with one of the best valuation entry points in decades, in our view. On an absolute basis, RU's most closely track Baa corporate bonds. At this writing, Utilities are 28% undervalued comparing utility dividend yields to Baa yields. This is 2 standard deviations cheap as measured from 1980. The relative low point in this series was seen in August 2020.

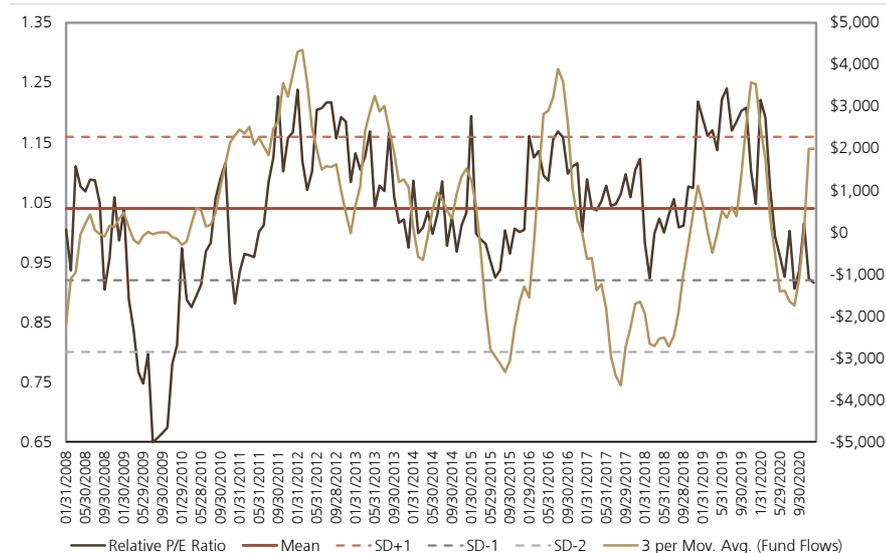
Figure 1: Utility Relative Value versus Baa Corporate Bonds



Source : Factset, UBS Equity Research

Relative to the S&P500, utilities are 12% undervalued. This series is also off from its relative lows achieved in August 2020. The turn can be traced to a shift in equity income fund flows, which we believe are the marginal investor for RU's. The three month rolling average equity fund flow trend turned positive in September. The relative performance of utilities compared to the overall US stock market is correlated with these flows.

Figure 2: Relative Value of FY2 Utility vs SPX P/E Ratios and 3 Month Rolling Average Equity Fund Flows



Source : Factset, Strategic Insight, UBS Equity Research

In 2021, RU investors should expect to gain 37% on an absolute and 13.5% on a relative to market basis (including an average dividend yield of 3.7% and growth of 4.9%). ([US Equity Strategy "Where's the upside to "normal"?" Parker](#)) The greatest risk to these returns is higher long term interest rates. Today, the utility group carries equity duration of 19 years. UBS recently published forecast for year end 2021 10-year T-Note yield is 1.50% ([Global Economics & Markets Outlook 2021-2022](#)). Should this forecast be realized, the annual absolute and relative total return figures would decline to 26% and 2.5%, respectively.

Fundamentals Strong and Converging

Based on strong alignment between policymakers, customers and investors on improving the environmental profile of the business and bolstering system resilience, RU growth plans are robust and supported by regulators. In this report we are updating our 5 year capex survey and reconciliation to rate-base growth. Through the mechanics of rate of return regulation, the growth in rate-base is the dominant driver of earnings and dividend growth for the group ([US Regulated Utilities and Power "Back to Basics"](#)).

Figure 3: 5-Year Regulated Utility Capex and Rate-base Growth (Dollars in Millions)

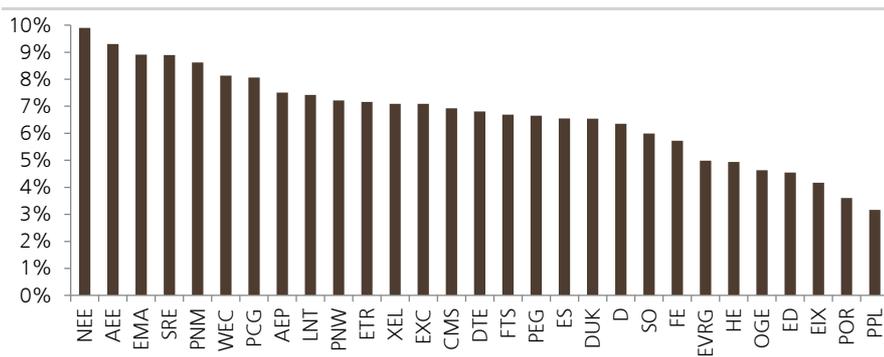
	2019A	2020E	2021E	2022E	2023E	2024E
Maintenance cap-ex, distribution	\$51,413	\$55,003	\$55,588	\$53,631	\$56,186	\$56,489
Transmission	\$21,308	\$24,302	\$24,838	\$24,623	\$23,646	\$23,244
Generation	\$17,503	\$23,147	\$18,670	\$18,194	\$17,070	\$14,937
Environmental	\$2,659	\$1,993	\$2,578	\$2,123	\$2,161	\$2,037
Grid-Modernization	\$2,214	\$4,326	\$5,507	\$5,132	\$4,095	\$3,933
UBS Universe Cap-ex	\$95,096	\$108,771	\$107,181	\$103,703	\$103,158	\$100,640
Year over Year	0.6%	14.4%	-1.5%	-3.2%	-0.5%	-2.4%
Rolling 3 year	7.3%	9.3%	5.0%	2.9%	-1.7%	-2.1%
	2019A	2020E	2021E	2022E	2023E	2024E
Starting Ratebase	\$653,560	\$708,343	\$772,905	\$832,276	\$884,957	\$934,088
Capital Expenditures	\$95,096	\$108,771	\$107,181	\$103,703	\$103,158	\$100,640
Depreciation	-\$40,313	-\$44,209	-\$47,811	-\$51,021	-\$54,027	-\$56,723
Bonus Depreciation	\$0	\$0	\$0	\$0	\$0	\$0
Ratebase Additions	\$54,783	\$64,562	\$59,370	\$52,682	\$49,131	\$43,917
Ending Ratebase	\$708,343	\$772,905	\$832,276	\$884,957	\$934,088	\$978,005
Year over Year	8.4%	9.1%	7.7%	6.3%	5.6%	4.7%
5 Year Forward Ratebase Growth	6.7%					

Source : Company reports, UBS Equity Research estimates

The companies contributing most greatly to the update are Duke Energy (+\$9.9B), Sempra Energy (+\$6.9B) and American Electric Power (+\$1.9B). Spending was evenly

spread between Generation, Transmission and Distribution (Electric and Gas). The spending is consistent with five multi-decade themes that we have pointed to in past research ([Power & Utilities "Future of the Btu: Updating the State of the Grid"](#) Ford). These are: 1) Transform the generation fleet from fossil fuels to renewables; 2) Invest in Transmission to improve resilience, protect against Cyber and Physical attacks and facilitate delivery of renewable generation; 3) Automate the distribution networks to enhance efficiency, customer service and reliability; 4) Modernize the gas distribution system to protect safety and lower transient methane; and 5) Support efficient electrification of the transportation, household and industrial sectors. Because of the ubiquitous nature of these work streams, individual regulated utility rate-base growth plans are converging. Over the last few years the standard deviation for growth has narrowed from 2.0% to 1.7%. Also, as investors can see visually in the following chart, there are very consistent growth expectations among the first three quartiles of corporates. Only in the fourth quartile does the spending expectation fall off. We believe this can be traced to balance sheet constraints or challenging regulation.

Figure 4: 5 Year Rate base Growth Forecast 2019A-2024E



Source : Company reports, UBS Equity Research estimates

Figure 5: Rate base and EPS Growth Guidance by Company

Company	Ticker	Rate base Growth Guidance	EPS Growth Guidance	Ratebase Guidance 2021 \$B	EPS Guidance 2021	When do they give new rate base guidance?	When do they give new forward EPS guidance?
AES Corp	AES	N/A	7%-9%	N/A	N/A	N/A	4Q Results
Alliant Energy	LNT	8.0%	5%-7%	\$12.2	\$2.50-\$2.64	November	3Q Results
Ameren corp	AEE	8.7%	6%-8%	N/A	N/A	4Q Results	4Q Results
American Electric Power	AEP	7.4%	5%-7%	\$55.5	\$4.51-\$4.71	November	November
CMS Energy	CMS	7.0%	6%-8%	N/A	\$2.82-\$2.86	4Q Results	3Q Results
Consolidated Edison	ED	5.5%	N/A	\$33.9	N/A	4Q Results	4Q Results
Dominion Energy	D	N/A	6.5%	N/A	N/A	4Q Results	4Q Results
DTE Energy	DTE	Elec 6-7%/Gas 8%	5%-7%	N/A	\$6.88-\$7.26	N/A	3Q Results
Duke Energy	DUK	6.5%	4%-6%	N/A	N/A	4Q Results	4Q Results
Edison International	EIX	7.6%	N/A	\$35.1	N/A	4Q Results	4Q Results
Emera Inc	EMA	7.5%-8.5%	N/A	C\$22.6	N/A	3Q Results	N/A
Energy Corp	ETR	8%	5%-7%	\$31.0	\$5.80-\$6.10	June	June
Eversource Energy	ES	6.9%	5%-7%	N/A	N/A	4Q Results	4Q Results
Exelon Corp.	EXC	7.3%	N/A	\$47.3	N/A	4Q Results	N/A
FirstEnergy Corp	FE	6.0%	5%-7%	\$27.2	N/A	4Q Results	4Q Results
Fortis Inc	FIS	6.5%-23/6%-25	N/A	C\$32.2	N/A	Sept	N/A
Hawaiian Electric Industries	HE	4-6%	N/A	\$3.7	N/A	3Q Results	N/A
NextEra Energy	NEE	FP&L 9%	6%-8%	N/A	\$2.40-\$2.54	June/July	June/July
OGE Energy Corp	OGE	5%	N/A	\$7.4	N/A	4Q Results	4Q Results
PG&E Corp	PCG	8%	N/A	\$47-\$48	\$0.95-\$1.05	4Q Results	4Q Results
Pinacle West Capital Corporation	PNW	6-7%	N/A	N/A	N/A	4Q Results	4Q Results
PNM Resources	PNM	7%	5%-6%	N/A	N/A	Dec	Dec
Portland General	POR	N/A	4%-6%	N/A	N/A	4Q Results	4Q Results
PPL Corporation	PPL	2.9%	N/A	\$19.9	N/A	4Q Results	4Q Results
Public Service Enterprise Group	PEG	7%-8%	N/A	\$24.5	N/A	3Q Results	N/A
Sempra Energy	SRE	9%	12%	\$42.4	\$7.50-\$8.10	March	March
Southern Company	SO	6%	4%-6%	N/A	N/A	4Q Results	4Q Results
WEC Energy Group	WEC	7%	5%-7%	N/A	\$3.99-\$4.03	3Q Results	3Q Results
Xcel Energy	XEL	6.3%	5%-7%	\$35.2	\$2.90-\$3.00	3Q Results	3Q Results

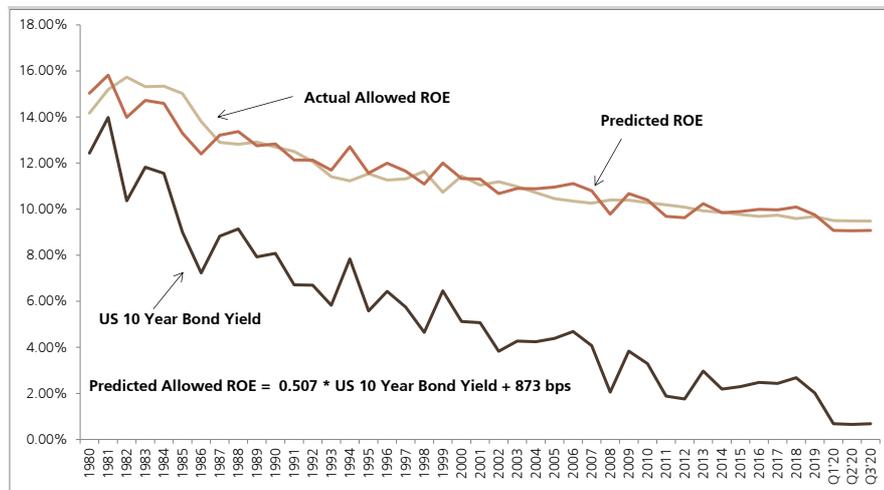
Source : Company reports, UBS Equity Research

The convergence of growth opportunities is also resulting in higher growth for the group at the midpoint. As seen in the table above, the typical mode EPS guidance provided by RU's is now 5-7% up from 4-6% a year ago. The top companies guide to 6-8% growth while the laggards are at 4-6%. This range is very narrow by historical standards.

A key factor that is contributing to higher rate-base growth is supportive regulation. Regulators in support of improving infrastructure consistent with the five multi-decade

themes noted above have consistently supported allowed return spreads that attract capital. In the last year, the spread between returns on common equity granted in rate cases and the US 10-Year Treasury Note was 854 bp. This is consistent with returns granted in the last decade and the highest in the last 40 years. Figure 6 shows the history of this relationship.

Figure 6: RU Authorized ROE and the 10-Year Treasury Note Relationship



Source : Factset, S&P Global Market Intelligence, UBS Equity Research

We are updating our regulatory rankings in our year-ahead report. We rank each jurisdiction using 6 equally weighted criteria. These are as follows: 1) Elected vs Appointed Commissions: Elected commissioners tend to focus more closely on managing customer affordability which can dampen investment vs appointed commissions that tend to be more policy driven, all else equal. 2) Allowed Return Spread: We measure the return spread over 10-year Treasury note of the ordered rate cases since 2010 by jurisdiction. As rate of return setting policies and practices are grounded in decades of case law, jurisdictions that allow high and low return spreads tend to continue with that practice. 3) Mechanisms that Reduce Regulatory Lag: Regulatory lag is the difference between authorized returns on equity and earned returns resulting from time lag between dollars invested in rate base and authorized revenues reflecting that spending. With the advent of computing power, several techniques to reduce rate lag have been incorporated into regulation, including tracking mechanisms, forward test years, formula rate plans and performance based regulation. Adoption has been uneven, so it is in the interest of investors to favor places that minimize lag. 4) Rate and Customer Bill Levels: Utilities' prices are often a material factor in state economic development. States with high prices vs their surroundings tend to scrutinize utility investment more closely than states with low bills. 5) Tendency to Settle vs Litigate Rate Cases: Settlements have the advantage of being quicker, less risky and less prone to legal appeal than fully litigated rate proceedings. States that regularly settle are preferred by investors. 6) UBS subjective Investor Friendliness Factor: Based on our knowledge of current commission actions.

Figure 7: UBS Regulatory Rankings

TIER 1	TIER 2	TIER 3	TIER 4	TIER 5
	FERC			
		Missouri		
		Ohio		
		Virginia		
		North Dakota		
		Washington		
		Tennessee		
		New Jersey		
		Oregon		
		South Carolina		
		Massachusetts		
		Wyoming		
	Arkansas	Texas	Hawaii	
	Utah	Delaware	Mississippi	
Florida	Nova Scotia	Minnesota	Kansas	New Mexico
Michigan	Idaho	Newfoundland & Labrador	Alaska	New York
British Columbia	Pennsylvania	California	Nebraska	District of Columbia
North Carolina	Illinois	Ontario	Connecticut	South Dakota
Georgia	Colorado	West Virginia	Rhode Island	Arizona
Indiana	Kentucky	Prince Edward Island	Alberta	Maine
Wisconsin	Louisiana	Maryland	Nevada	Vermont
Alabama	Iowa	Oklahoma	New Hampshire	Montana
JD Power Average Customer Service Scores				
736	727	717	711	700

Source : State and federal regulatory commissions, company reports, UBS Equity Research. States highlighted in red deteriorated by a category since our prior update, those in green improved by a category.

ESG is here to stay

We believe the ESG profile and policies of electric and gas utilities will take on greater significance over the the coming year. This view should manifest itself through the ever increasing priorities and demands of both investors and policy makers, but also through the growth opportunities and focus of the companies themselves. We are following this theme through both company disclosures, the stated goals of regulators and policy makers and the assessments of independent expert firms (primarily MSCI & Sustainalytics).

All of the electric and gas utilities in our coverage universe have stated environmental goals and ambitions. It is worth noting that over the past year, many of these companies have hosted ESG investor days, have crafted presentation and marketing materials targeted to the ESG community, have published sustainability and ESG reports and disclosed detailed ESG data addressing not only environmental impacts and goals, but also the social and governance standards they are working to.

Figure 8: Published Environmental Aspirations/Targets

Ticker	Company Name	Environmental Targets	Source
AEE	Ameren Corp	Carbon emissions: 50%/85% reduction by '30/'40 ('05 base) Net Zero carbon emissions by 2050	ESG Presentation - November 2020
AEP	American Electric Power	Carbon emissions: 70%/80% reduction by '30/'50 ('00 base) Aspiration of zero emissions	2020 EEL ESG/Sustainability Report
AES	AES Corp.	Carbon Intensity: 50%/70% reduction by '22/'30 ('16 base) Net Zero carbon emissions from electricity by 2050	ESG Update - December 2020
CMS	CMS Energy	Carbon emissions: 70%/>90% reduction by '32/'40 ('05 base) Methane emissions: Net zero by 2030	ESG Presentation August 2020
D	Dominion Energy	Carbon emissions: 55%/80% reduction by '30/'50 ('05 base) Methane emissions: 50% reduction by '30 ('10 base)	2019 Investor Day ESG Presentation
DTE	DTE Energy	Carbon emissions: 50%/80% reduction by '30/'40 ('05 base) Net Zero carbon emissions by 2050	Investor Presentation November 2020
DUK	Duke Energy	Carbon emissions: 50%/net zero target by '30/'50 ('05 base) Methane emissions: Net zero by 2030	ESG Investor Day - October 2020
ED	Consolidated Edison	Committed to 100% clean energy by 2040	ESG Investor Presentation - August 2020
EXI	Edison International	80%/100% carbon-free power delivered by '30/'45	2019 Sustainability Report
ES	Eversource Energy	Carbon Neutral by 2030	ESG Presentation - June 2020
ETR	Entergy Corp	Carbon emissions: 50% reduction by '30 ('00 base) Net Zero carbon emissions by 2050	ESG Presentation: Investor Day September 2020
EVRG	Eversource Energy	Carbon emissions: 85% reduction by '30 ('05 base)	November 2020 Investor Update
EXC	Exelon Corp	Additional 15% reduction in GHG emissions internal sources	Investor Presentation: Fall/Winter 2020
FE	FirstEnergy Corp	Carbon emissions: 90% reduction by '45	Q3 2020 Investor FactBook
FTS	Fortis Inc.	Carbon emissions: 75% reduction by '35 ('19 base)	November 2020 Investor Presentation
HE	Hawaiian Electric Industries	Committed to meeting state RPS & carbon goals	November 2020 Investor Presentation
LNT	Alliant Energy	Carbon emissions: 50% reduction by '40 Net Zero carbon emissions by 2050	Corporate Responsibility Report
NEE	NextEra Energy	Carbon emissions: 67% reduction by '25 ('05 base)	2020 ESG Report
OGI	OGE Energy Corp	Carbon emissions: 50% reduction by '30 ('05 base)	November 2020 Investor Update Presentation
PEG	Public Service Enterprise Group	PSEG Power GHG emissions reduction by 80% by '46 ('05 base) PSEG Power Net-Zero emissions by 2050	November 2020 Investor Presentation
PNM	PNM Resources	Emissions free by 2040	November 2020 Investor Presentation
PNW	Pinnacle West Capital Corp.	100% clean, carbon-free electricity by 2050	November 2020 Investor Presentation
POR	Portland General	GHG emissions: 80% reduction by '50 ('10 base)	November 2020 Investor Presentation
PPL	PPL Corporation	Carbon emissions: 80% reduction by '50 ('10 base)	2019 Sustainability Report
SO	Southern Company	GHG emissions: 50%/net zero reduction target by '25/'50	October 2020 Investor Presentation
SRE	Sempra Energy	Deliver 100% renewable/zero-carbon electricity by '45 Deliver 20% renewable natural gas by '30	2019 Corporate Sustainability Report
WEC	WEC Energy Group	Carbon emissions: 70% reduction/net-zero by '30/'50 ('05 base) Methane emissions: 30% per mile of pipe by 2030 ('11 base)	2019 Corporate Responsibility Report
XEL	Xcel Energy	Carbon emissions: 50%/80% reduction by '23/'30 Carbon free by 2050	Investor Fact Book - November 2020
VST	Vistra Energy	GHG emissions: 60% reduction by '30 ('10 base) Net Zero carbon emissions by 2050	Investor Presentation November 2020
NRG	NRG Energy	Carbon emissions: 50% reduction by '25 ('14 base) Net Zero carbon emissions by 2050	2019 Sustainability Report

Source : UBS Equity Research, Company Reports

In the tables below, we detail the publicly disclosed grades and numerical scores assigned to the companies in our coverage universe by both MSCI and Sustainalytics. The manner in which these two firms arrive at and assign scores and grades is somewhat opaque, however, each draws on the vast amount of data disclosed publicly by the companies when arriving at their respective conclusions. Given the significant amount of new disclosures that have occurred over the past year and the annual and exhaustive nature of the reviews these firms undertake, we expect that over time scores will improve and compress across the sector.

Figure 9: MSCI ESG Grades (categories ranked alphabetically)

Ticker	MSCI Rating	Comment
Industry Average	BBB	Among 147 Companies; Utilities Industry
NEE	AAA	Unchanged since October 2017
AES	AA	Upgraded from A in November 2019
CMS	AA	Unchanged since November 2017
ED	AA	Unchanged since August 2018
ES	AA	Unchanged since December 2017
EXC	AA	Unchanged since May 2016
FTS	AA	Upgraded from A in November 2019
H	AA	Unchanged since November 2019
LNT	AA	Upgraded from A in September 2020
PEG	AA	Upgraded from A in March of 2020
SO	AA	Unchanged since December 2018
XEL	AA	Unchanged since October 2017
AEP	A	Unchanged since November 2017
D	A	Unchanged since May 2019
DTE	A	Upgraded from BBB in November 2019
DUK	A	Upgraded from BBB in August 2020
EMA	A	Upgraded from BBB in December 2019
ETR	A	Unchanged since November 2017
PNW	A	Unchanged since October 2017
SRE	A	Downgraded from AA in November 2019
WEC	A	Unchanged since November 2017
AEE	BBB	Unchanged since August 2016
AWK	BBB	Unchanged since November 2017
EIX	BBB	Unchanged since December 2018
FE	BBB	Upgraded from BB in November 2019
OGE	BBB	Upgraded from BB in May of 2019
PPL	BBB	Unchanged since October 2018
WTRG	BBB	Unchanged since August 2018
EVRG	BB	Upgraded from B in November 2019
PCG	BB	Unchanged since September 2018
NRG	B	Unchanged since December 2017
VST	B	Unchanged since September 2018

Source : MSCI

Figure 10: Sustainalytics ESG Scores

Quartile	Ticker	Score	GICS Rank	GICS Total
1st Quartile	ES	23.0	49	484
	EXC	24.1	70	
	H	24.2	72	
	ED	25.2	80	
	CMS	28.0	115	
	LNT	28.4	116	
	PNW	28.7	120	
2nd Quartile	EIX	28.9	124	
	AWK	29.0	126	
	NEE	29.0	127	
	FTS	29.1	131	
	PEG	29.3	134	
	XEL	29.9	146	
	SRE	30.0	149	
	DTE	31.1	159	
	SO	31.7	169	
	NRG	31.8	170	
	WEC	32.3	174	
	D	32.8	181	
	DUK	33.0	185	
	AES	33.2	187	
	AEE	34.1	195	
	AEP	34.4	197	
EME	34.7	202		
ETR	35.1	211		
PPL	35.2	212		
3rd Quartile	FE	38.3	258	
	WTRG	38.7	264	
	OGE	40.8	290	
	PCG	43.3	322	
	VST	43.4	323	
	HE	44.5	337	
4th Quartile	EVRG	47.8	389	

Source : Sustainalytics

We also review the scores assigned to our coverage group by the Center for Political Accountability (CPA), and the Zicklin Center for Business Ethics Research at The Wharton School at the University of Pennsylvania. The CPA-Zicklin Index is compiled annually, benchmarking the disclosure and accountability policies and practices for election related spending by individual companies. The subject matter of this index has taken on increased significance over the past year with events in both Illinois and Ohio, while also being a source of shareholder activism through annual proxy filings. We expect investors will pay increasing attention to these disclosure policies and assessments going forward.

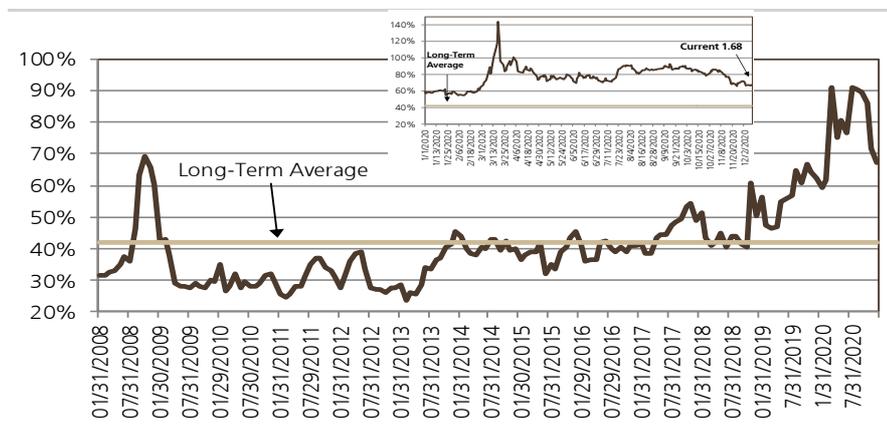
Figure 11: CPA-Zicklin Index of Corporate Political Disclosure and Accountability

CPA-Zicklin Index of Corporate Political Disclosure and Accountability - S&P 500						
Category	Ticker	Company	2020 Score	2019 Score	Yr/Yr Change	Comment
Trendsetters	AEE	Ameren Corp	97.1	97.1		
	EIX	Edison International	97.1	97.1		
	SRE	Sempra Energy	95.7	95.7		
	ED	Consolidated Edison	94.3	90.0	4.3	No Tier Change
	EXC	Exelon Corp	94.3	94.3		
	D	Dominion Energy	91.4	91.4		
	PPL	PPL Corp	91.4	88.6	2.8	Up from First Tier in '19
	ETR	Entergy Corp	90.0	90.0		
First Tier <i>Avg Score 89.9</i>	EVRG	Energy	88.6	4.3	84.3	Up from Bottom Tier in '19
	WEC	WEC Energy Group	88.6	61.4	27.2	Up from Second Tier in '19
	ES	Eversource Energy	85.7	58.6	27.1	Up from Third Tier in '19
	PNW	Pinnacle West Capital Corp	85.7	85.7		
	PEG	Public Service Enterprise Group	85.7	84.3	1.4	No Tier Change
	LNT	Alliant Energy Corp	82.9	41.4	41.5	Up from Third Tier in '19
	AWK	American Water Works Co.	82.9	82.9		
	XEL	Xcel Energy Inc.	81.4	81.4		
	AES	AES Corp	80.0	80.0		
Second Tier <i>Avg Score 70.6</i>	AEP	American Electric Power Co.	65.7	68.6	(2.9)	No Tier Change
	CMS	CMS Energy	61.4	61.4		
	DUK	Duke Energy Corp	61.4	61.4		
	SO	Southern Company	61.4	80.0	(18.6)	Down from First Tier in '19
	NEE	NextEra Energy Inc.	60.0	25.7	34.3	Up from Fourth Tier in '19
Third Tier <i>Avg Score 51.8</i>	NRG	NRG Energy Inc.	57.1	41.4	15.7	No Tier Change
	FE	FirstEnergy Corp	48.6	48.6		
Fourth Tier <i>Avg Score 28.1</i>	DTE	DTE Energy	37.1	35.7	1.4	No Tier Change
Bottom Tier <i>Avg Score 6.8</i>	N/A	N/A				

Source : Center for Political Accountability: CPA-Zicklin Index

Relative Valuation Narrowing from Historic Spreads

Figure 12: First to Fourth Quartile P/E Ratio



Source : Factset, UBS Equity Research

As discussed above, we believe that the growth prospects and regulatory treatment of utilities in the US are strong and converging. These trends should allow the valuation spreads between issuers in the industry to narrow. As noted in prior reports ("[Now and Then: Utility Investing in the Spring of COVID-19](#)" and "[Halftime: Regulated Utility Strategy for 2H'20](#)"), the dispersion of multiples in the group tends to widen as the economy enters recessions and normalize thereafter. We measure this by looking at the ratio of 1st quartile utility FY2 price to earnings ratios to fourth quartile ratios. Normally, this relationship trades at approximately 1.4x. During the great financial recession, the factor opened to 1.7x before normalizing. At this year's pandemic lows, the ratio increased to 2.4x. As of Friday 12/11, the ratio had recovered to 1.68x. We expect at least a full return to the average in 2021 and possibly more.

Accelerating the thematic is a spate of business simplification/restructurings announced by multi and integrated utilities in 2H 2020. We believe these action demonstrate both that corporates recognize the growth opportunity in their US utilities is superior to their diversified ops, and that valuations applied to diversified operations are at significant discounts to stand alone trading values. The table below outlines the restructurings announced, the timing for completion and our estimate of the trading value of diversified ops vs relevant market comps. We recommend all of the restructuring companies yet to close their transactions and expect that execution vs the plan will unlock value and drive continued convergence in group valuation.

Figure 13: Restructurings Announced and What's Priced In?

Ticker	Restructuring Announced	Timing for Completion	Valuation of Non-Regulated in UBS SOTP	What's Priced In?
D	Sale of gas transmission & storage	4Q 2020	\$0	\$0
DTE	Spin of Midstream GS&P Business	2H'2021	\$13	\$6
PEG	Sale of Non-Nuclear Fossil Fleet	2H 2021	\$6	(\$3)
EXC	Potential Separation of ExGen	2H 2021/1H 2022	\$11	(\$4)
SRE	Formation of Sempra Infra. Partners	1Q 2021	\$58	\$5
OGE	26% ENBL ownership	Unknown	\$2	(\$5)
PPL	Sale of UK Utility	By mid-2021	\$5	\$2

Source : UBS Equity Research Estimates

Best Ideas for 2021 and Valuation Methodology

Growth: NEE

NEE remains our top recommendation in the growth category. The company will file a combined utility rate case for FPL and Gulf in early 2021 with a decision from the Florida Public Service Commission in October/November of next year. The main issues in the rate case are expected to be the combination of Gulf and FPL and examination of appropriate cost allocation and ROE. The ROE adder is likely to remain in place in our view given the utility's clean energy profile, customer service rankings, best in class cost structure, and hurricane and nuclear operations risk premiums.

FPL in combination with Gulf Power will grow rate base at 9.9% through 2024 the highest 5 year growth rate in the industry. Capital deployment will be mainly driven by increasing utility scale solar generation on the utility grid in Florida, transition of the Gulf Power generation fleet toward gas and renewables, and storm hardening investment on the transmission and distribution network.

At NEER, backlog continues to grow and with 4.8GWs added to the backlog year to date in 2020, and despite COVID dislocations all 2020 wind and solar projects are expected to reach their in-service dates this year. Current 2019 - 2022 backlog expectations now stand at 15.5- 19.8GWs of development vs. ~24GWs currently in operation, growing the overall MWs by ~75% in the next two years. Overall NEER enjoys ~20% market share and significant comparative advantages versus other renewable developers. Among these are significant data modeling capability of utility systems, economies of scale for procurement and costs, lower cost of financing given the strong balance sheet, no need for tax equity should credits expire, and significant operational asset experience.

NEE guidance is for 6%-8% long term adjusted earnings per share growth off of the 2021 adjusted EPS guidance range of \$2.40-\$2.54, which equates to NEE's adj. eps guidance ranges of \$2.55-\$2.75 in 2022, and \$2.77 - \$2.97 in 2023. Dividends per share are expected to grow ~10% annually through at least 2022, and management has continued to express that they would be disappointed if they did not achieve adjusted eps over time at the top end of the range.

Restructuring/ Business Simplification Opportunity: SRE

On December 2, Sempra Energy announced several transactions that would acquire the non SRE stake in IEnova, combine the IEnova assets and Sempra LNG assets into newly formed Sempra Infrastructure Partners (SIP), and sell down a minority stake in SIP to highlight the value of the infrastructure assets, and fund future LNG development and IEnova capital growth opportunities.

We took a look at several different potential comp groups for SIP (see our separate Sempra note also published this morning), which resulted in indicative valuation ranges from \$157/share - \$231/share using P/E and \$166/share - \$216/share using EV/EBITDA. On average, P/E valuations yield 20.0x or \$178/share (~38% upside to current prices) and EV/EBITDA valuations average 11.8x multiple yields \$184/share (~43% upside). Averaging both methodologies yields \$181/share (~40% upside) which is in-line with our current SOTP of \$182/share.

We see the completion of the SIP transactions as a catalyst for realization of the upside in Sempra shares, with expected completion of all the SIP transactions, including the minority stake sale by the end of 1Q 2021.

Total Return - DUK

Duke Energy represents an attractive total return investment opportunity with earnings projected to grow at the top end of the 4-6% guidance range, and a dividend yield in excess of 4%. Positive catalysts through the coming year include the resolution of rate case proceedings in North Carolina, the potential for legislative action establishing environmental standards and modernizing regulatory mechanisms in the state of North Carolina, the execution of the company's renewable heavy capital spending plan and a continuing improvement in the company's ESG profile.

The UBS EPS estimates for Duke Energy for 2020 through 2022 are \$5.07/\$5.27/\$5.50 per share, respectively. Our valuation target of \$112/share is premised on a P/E ratio based methodology. Starting with a peer group derived average P/E ratio, we apply a premium to reflect the relative valuation of the group vs. the broader market (+10%), a premium to reflect the nature of the regulatory jurisdictions the company operates in (+5%) and a discount to reflect the company's projected earnings growth rate (-5%).

In 2020, Duke Energy successfully completed rate case proceedings in Indiana and Kentucky. In North Carolina, material elements of an ongoing rate proceeding for DEC and DEP have been settled; final orders are expected in late 2020 and early 2021, respectively. The unsettled portion of the North Carolina case addresses the company's ability to earn a return on deferred coal ash remediation expenses. The base EPS guidance for 2021 of \$5.15 does not assume a favorable outcome on that issue. Early in 2021 two independent committees formed by the Governor of North Carolina to formulate environmental policies and targets for the state, and consider modernizing regulatory mechanisms will issue their final recommendations. We expect the legislature to consider the passage into law of some of these recommendations during the 2021 legislative session.

Duke Energy's ESG policies and goals include the retirement of all coal units in the Carolinas, a reduction in system wide carbon emissions of at least 50% by 2030 (off an '05 base), and a net-zero carbon emissions goal by 2050. These targets will be achieved with significant investments in renewables, grid modernization, vehicle fleet electrification and gas system upgrades. Additional investments are being made in renewable natural gas, hydrogen, energy storage, advanced nuclear technology and carbon capture projects. Finally, Duke Energy has expressed a strong commitment to the highest governance and social responsibility standards, with increased levels of disclosure around political expenditures and executive compensation tied to the achievement of safety, customer satisfaction and corporate performance goals.

Value: EIX

The end of wildfire season provides the catalyst to buy EIX which has a capital plan supported by California policy goals to achieve net zero CO2 emissions by 2045. The basis for a valuation is \$0.10/share below the company's "range case" guidance for the general rate case outcome at 90% of requested cap-ex. We see upside to our 5 year cap-ex and rate base growth forecast on a continuation of the company's plan to 6.6% growth from our modeled 5.7% growth. EIX has provided guidance for a \$1B equity need to address its best estimate to settle 2017-2018 wildfire liabilities and timing will be as needed. Our \$75 EIX price target represents \$5B of market cap in upside.

Our valuation methodology for North American utilities is price to earnings based. The adjustments applied fall into 6 categories. These are as follows: 1) Group Valuation Bias: Flowing from our valuation work +10% for Regulated Utility undervaluation (+5% for a year of earnings growth and +5% for undervaluation greater than 1 standard deviation); 2) Growth Adjustment: We adjust our valuations based on the growth quartile each utility occupies. First quartile receives a 5% premium, second quartile a 2% premium, third quartile a 2% discount and fourth quartile a 5% discount; 3) Regulatory Adjustment: Our valuation adjustments for regulation are based on our proprietary Regulatory Rankings. First quartile jurisdictions receive 5%, second quartile 2%, third quartile -2% and fourth quartile -5%; 4) Earnings Consistency Adjustment: For companies that fall in the top quartile of % Time Beat/Meet, we include +5%; 5) Multi Utility Diversified Valuation: For multi utilities (those with more than 15% diversified or foreign earnings), we perform a sum-of-parts analysis applying business/region appropriate valuations to those diversified businesses; 6) One-off Adjustments: In special situations, we value risk on an issue specific basis. Common areas where we apply such an adjustment include: ESG advantage, large project risk, legal risk, and announced M&A completion risk. We identify the following risk factors for the sector overall: rising interest rates; regulatory and policy risks; operational risks; construction risks; cybersecurity risk to the transmission grid and/or customer data, and extreme weather.

Figure 14: North America Regulated Utilities Comp Table

Rating	Ticker	Company	12/11/2020	Price Target	Total Return inc. Div. Yld	UBS 2019A EPS	UBS 2020A EPS	UBS 2021E EPS	UBS 2022E EPS	2021 P/E Ratio	2021 Prem/ Disc	2022 P/E Ratio	2022 Prem/ Disc	Current Dividend Yield	5 Yr EPS Growth	5 Yr DPS Growth	Regulatory Quartile
Buy	FE	FirstEnergy Corp	\$30.38	\$43	47%	\$2.58	\$2.55	\$2.62	\$2.76	11.6x	(38%)	11.0x	(37%)	5.1%	3.8%	0.5%	2nd
Buy	SRE	Sempra Energy	\$128.00	\$182	45%	\$6.78	\$7.46	\$8.08	\$8.54	15.8x	(15%)	15.0x	(14%)	3.0%	7.0%	8.0%	3rd
Buy	EXC	Exelon	\$41.19	\$54	35%	\$3.22	\$3.17	\$3.16	\$3.19	13.0x	(30%)	12.9x	(26%)	3.7%	-0.2%	5.0%	2nd
Buy	ETR	Entergy Corp	\$102.78	\$132	32%	\$5.33	\$5.62	\$5.90	\$6.20	17.4x	(6%)	16.3x	(6%)	3.7%	6.0%	2.3%	2nd
Buy	AEP	American Electric Power	\$82.76	\$105	30%	\$4.24	\$4.30	\$4.61	\$5.01	17.9x	(4%)	16.5x	(5%)	3.6%	5.8%	6.8%	2nd
Buy	EMA	Emera Inc (CS)	\$54.07	\$68	30%	\$2.60	\$2.63	\$2.99	\$3.21	18.1x	13%	16.8x	12%	4.4%	5.5%	4.9%	1st
Buy	DUK	Duke Energy	\$91.54	\$112	26%	\$5.05	\$5.07	\$5.27	\$5.50	17.4x	(7%)	16.6x	(5%)	4.1%	3.7%	2.0%	1st
Buy	OGF	OGE Energy Corp	\$32.16	\$39	26%	\$2.16	\$2.07	\$2.22	\$2.32	14.5x	(22%)	13.9x	(20%)	5.0%	3.3%	5.3%	3rd
Buy (CBE)	PCG	PG&E Corp	\$11.94	\$15	26%	\$3.93	\$1.60	\$0.98	\$1.11	12.2x	(35%)	10.8x	(38%)	0.0%	N/A	N/A	3rd
Buy	PEG	Public Service Ent Group	\$56.48	\$68	24%	\$3.29	\$3.42	\$3.46	\$3.46	16.3x	(12%)	16.3x	(6%)	3.5%	2.3%	4.9%	2nd
Buy	EVRG	Evergy	\$55.13	\$66	24%	\$2.89	\$3.06	\$3.24	\$3.46	17.0x	(9%)	15.9x	(9%)	3.9%	6.6%	5.6%	3rd
Buy	EIX	Edison International	\$62.80	\$75	23%	\$4.70	\$4.49	\$4.67	\$4.80	13.4x	(28%)	13.1x	(25%)	4.1%	1.2%	4.0%	3rd
Buy	FTS	Fortis Inc (CS)	\$53.02	\$62	20%	\$2.55	\$2.60	\$2.86	\$3.05	18.6x	(0%)	17.4x	(0%)	3.4%	6.8%	6.0%	3rd
Neutral	D	Dominion Energy	\$74.91	\$86	20%	\$4.13	\$3.50	\$3.87	\$4.12	19.3x	4%	18.2x	4%	5.0%	2.5%	-4.1%	2nd
Buy	AEE	Ameren Corp	\$77.47	\$89	18%	\$3.35	\$3.47	\$3.76	\$4.04	20.6x	10%	19.2x	10%	2.7%	6.6%	5.3%	2nd
Neutral	POR	Portland General	\$41.54	\$47	17%	\$2.39	\$1.58	\$2.60	\$2.65	15.9x	(14%)	15.7x	(10%)	3.9%	3.8%	5.7%	3rd
Neutral	PNW	Pinnacle West Capital Corp	\$79.72	\$90	17%	\$4.77	\$5.10	\$5.00	\$5.24	15.9x	(14%)	15.2x	(13%)	4.2%	3.9%	6.0%	4th
Buy	AES	AES Corp.	\$21.15	\$24	16%	\$1.36	\$1.38	\$1.55	\$1.67	13.7x	(27%)	12.6x	(27%)	2.8%	7.0%	4.8%	1st
Buy	PPL	PPL Corporation	\$28.08	\$31	16%	\$2.37	\$2.40	\$2.40	\$2.45	11.7x	(37%)	11.5x	(34%)	5.9%	1.0%	0.1%	1st
Neutral	CMS	CMS Energy	\$59.38	\$67	16%	\$2.49	\$2.68	\$2.87	\$3.07	20.7x	11%	19.4x	11%	2.8%	7.2%	7.0%	1st
Buy	SO	Southern Company	\$60.42	\$67	15%	\$3.11	\$3.22	\$3.30	\$3.55	18.3x	(2%)	17.0x	(2%)	4.1%	5.6%	3.9%	1st
Buy	NEE	NextEra Energy	\$73.80	\$83	14%	\$2.09	\$2.27	\$2.46	\$2.64	30.0x	61%	27.9x	60%	1.9%	7.9%	10.9%	1st
Neutral	ED	Consolidated Edison	\$73.16	\$80	14%	\$4.38	\$4.25	\$4.58	\$4.76	16.0x	(14%)	15.4x	(12%)	4.2%	3.2%	3.5%	4th
Buy	DTE	DTE Energy	\$125.07	\$137	13%	\$6.30	\$6.70	\$7.21	\$7.58	17.4x	(7%)	16.5x	(5%)	3.2%	6.8%	6.2%	1st
Neutral	ES	Eversource Energy	\$85.79	\$94	12%	\$3.46	\$3.67	\$3.87	\$4.08	22.2x	19%	21.0x	21%	2.6%	6.0%	6.0%	3rd
Neutral	LNT	Alliant Energy	\$51.71	\$56	11%	\$2.33	\$2.48	\$2.58	\$2.75	20.0x	8%	18.8x	8%	2.9%	5.4%	6.2%	1st
Neutral	ACO	ATCO Ltd. (CS)	\$38.37	\$40	9%	\$3.18	\$2.85	\$2.93	\$3.08	13.1x	(18%)	12.4x	(17%)	4.5%	1.7%	7.4%	4th
Neutral	XEL	Xcel Energy	\$65.00	\$69	9%	\$2.64	\$2.77	\$3.02	\$3.20	21.5x	15%	20.3x	17%	2.5%	6.7%	6.0%	2nd
Neutral	H	Hydro One Ltd (CS)	\$29.00	\$30	7%	\$1.41	\$1.47	\$1.48	\$1.58	19.6x	5%	18.4x	6%	3.4%	4.5%	4.7%	4th
Neutral	PNM	PNM Resources	\$49.09	\$50	5%	\$2.16	\$2.27	\$2.32	\$2.50	21.2x	32%	19.7x	31%	2.5%	5.9%	5.6%	4th
Neutral	WEC	WEC Energy Group	\$92.24	\$93	4%	\$3.58	\$3.74	\$4.00	\$4.26	23.1x	24%	21.7x	24%	2.7%	6.7%	7.2%	1st
Sell	CU	Canadian Utilities Ltd (CS)	\$32.23	\$30	(2%)	\$2.23	\$1.84	\$2.00	\$2.12	16.1x	0%	15.2x	1%	5.2%	1.3%	4.8%	4th
Sell	CLP	Caribbean Utilities Corp Ltd	\$15.11	\$13	(9%)	\$0.84	\$0.65	\$0.69	\$0.77	21.9x	37%	19.6x	31%	4.6%	3.6%	1.4%	4th
Sell	HE	Hawaiian Electric Industries	\$37.47	\$32	(11%)	\$1.88	\$1.99	\$1.82	\$2.20	20.6x	10%	17.0x	(2%)	3.5%	3.1%	3.2%	4th
Overall Average										17.2x		16.2x					
Electric Utility Normalized (ex AES, EIX, EXC, PCG, PEG, PPL)										18.6x		17.4x					
Water																	
Neutral	AWK	American Water	\$148.28	\$152	4%	\$3.63	\$3.85	\$4.17	\$4.52	35.5x	0%	32.8x	(1%)	1.2%	6.9%	10.0%	1st
Neutral	WTRG	Essential Utilities	\$47.59	\$45	(4%)	\$1.48	\$1.58	\$1.68	\$1.79	28.4x	(20%)	26.6x	(20%)	1.8%	6.6%	7.0%	1st
Sell	AWR	American States Water	\$77.11	\$70	(8%)	\$2.03	\$2.25	\$2.36	\$2.51	32.7x	(8%)	30.8x	(7%)	1.4%	7.3%	6.0%	3rd
Neutral	SWJ	SJW Group	\$69.34	\$62	(9%)	\$2.03	\$2.30	\$2.36	\$2.55	29.4x	(17%)	27.2x	(18%)	1.7%	7.4%	7.0%	3rd
Sell	CWT	California Water Service	\$52.28	\$43	(16%)	\$1.31	\$1.55	\$1.69	\$1.79	31.0x	(13%)	29.2x	(12%)	1.5%	9.0%	5.0%	3rd
Water Utility Average										35.5x		33.0x					

Source : Factset, UBS Equity Research Estimates

Figure 15: Rating, Price Target, and UBSe EPS Forecast Changes

Ticker		Rating	Price Target	EPS Forecast		
				2020E	2021E	2022E
ACO (C\$)	Prior	Buy	\$49	\$2.88	\$3.25	\$3.42
	New	Neutral	\$40	\$2.85	\$2.93	\$3.08
CU (C\$)	Prior	Neutral	\$34	\$1.92	\$2.15	\$2.30
	New	Sell	\$30	\$1.84	\$2.00	\$2.12
EVRG	Prior	Neutral	\$62	\$3.05	\$3.24	\$3.46
	New	Buy	\$66	\$3.05	\$3.24	\$3.46
EXC	Prior	Buy	\$52	\$3.17	\$3.16	\$3.19
	New	Buy	\$54	\$3.17	\$3.16	\$3.19
FE	Prior	Buy	\$45	\$2.55	\$2.62	\$2.76
	New	Buy	\$43	\$2.55	\$2.62	\$2.76
H (C\$)	Prior	Sell	\$27	\$1.41	\$1.42	\$1.49
	New	Neutral	\$30	\$1.47	\$1.48	\$1.58
SO	Prior	Neutral	\$58	\$3.22	\$3.30	\$3.55
	New	Buy	\$67	\$3.22	\$3.30	\$3.55
WEC	Prior	Neutral	\$99	\$3.74	\$4.00	\$4.26
	New	Neutral	\$93	\$3.74	\$4.00	\$4.26

Source : UBS Equity Research Estimates; For Rating Changes see separate individual company notes also published this morning.

ATCO Ltd.

We are downgrading ATCO Ltd to Neutral from Buy. See our separate ATCO Ltd note also published this morning. We are lowering our eps forecast to C\$2.85/C\$2.93/C\$3.08 from C\$2.88/C\$3.25/C\$3.42. We are also lowering our price target to C\$40 from C\$49.

Our current price target of C\$40 is premised on an SOTP analysis: UPO eps in '22 of C\$2.61, the group multiple of 17.4x and a 20% discount - C\$36/share. A comparable group multiple of 10x our Structures eps estimate of C\$0.35 in '22 - C\$3/share, and a 5x EV/EBITDA port multiple on Neltume Ports '22e EBITDA of C\$55mln on allocated net debt of C\$170mln - C\$1/share. Our prior C\$49 price target was premised upon a SOTP analysis: UPO eps in '22e of C\$2.77, the group multiple of 16.9x at a 10% discount - C\$42/share. A comparable group multiple of 8.7x our Structures eps estimate of C\$0.49 in '22 - C\$4/share, and a 7.1x EV/EBITDA port multiple on Neltume Ports '22e EBITDA of C\$63mln on allocated debt of C\$170mln - C\$3/share.

Canadian Utilities Ltd.

We are downgrading CU to Sell from Neutral. See our separate CU note also published this morning. We are lowering our UBSe eps forecast to C\$1.84/C\$2.00/C\$2.12 from C\$1.92/C\$2.15/C\$2.30 for '20-'22 respectively. Our C\$30 price target is premised upon a 20% net discount to the 17.4x group multiple applied to our UBSe '22 eps forecast of C\$2.12. The 20% net discount is derived from a 10% premium for group undervaluation vs. interest rates, a 5% discount for 4th quartile regulation, a 5% discount for 4th quartile eps growth, a 10% discount for downside risks to the Alberta economy, and a 10% discount for low projected DPS growth of <2%/yr. through 2022. Our prior price target of C\$34 was premised upon a 15% discount to the then regulated utility multiple of 17.6x our prior UBSe forecast of C\$2.30.

Evergy Inc.

We raise our rating on EVRG to a Buy from Neutral and increase our price target to \$66 from \$62. Our thesis reflects EVRG's decision to go external and hire David Campbell CEO (effective Jan 4, 2021). This makes the path toward M&A unclear, but we view him as a disciplined allocator of capital and as a person who can work with regulators that will drive performance. We forecast above average 5 year EPS growth for EVRG at 6.6%, but the company plan could deliver more with regulatory support and execution based on 6-8% guidance. EVRG also offers a 3.9% yield and 6% dividend growth. The stock is undervalued at an 8% discount on our '22E and while it may face near term selling pressure from disappointed investors looking for M&A, we see 25% total return based on execution and a revaluation to an average P/E multiple a year from now.

The upside scenario is tied to acceleration of fleet transformation which could include securitization. The main risk is regulatory and particularly in Kansas which we rank as third quartile driven by a low ROE spread to the 10 year treasury granted on average of 712 bp over the last 5 cases.

The price target increase reflects an 8% increase in the group average multiple and we see a 2.2:1 upside/downside skew which does not include M&A. Our price target reflects a group average multiple comprising a +2% benefit for second quartile EPS growth, -2% for regulation, and +10% for the group's 12 month return and is 19.4x \$3.46 in 2022. Our prior \$62 target was 17.9x \$3.46. Our standalone upside valuation of \$73 reflects STP approval, 8% growth and securitization and \$47 on the downside which includes 5% EPS growth.

Exelon Corp

We are updating our price target for EXC to \$54 from \$52 premised upon the regulatory quartile moving from 3rd to 2nd in our valuation methodology.

Our current price target of \$54 is premised upon an SOTP analysis. We value the utilities at \$45/share which is a net 12% premium to the group multiple of 17.4x our \$2.23/share UPO earnings forecast for 2022. Our 12% net premium is derived from a 10% premium for the overall regulated group, a 2% premium for 2nd quartile regulation, a 5% premium for 1st quartile UPO eps growth, and a 5% discount for pending IL legislation. We value ExGen at \$9/share, on a 6.6x EV/EBITDA multiple on UBSe 2022 EBITDA of \$1,758mln, plus NPV of hedges of \$0.7Bln, less net debt of \$3.1Bln.

Our prior price target of \$52 was premised upon an SOTP analysis. We valued the utilities at \$43/share which was a net 8% premium to the group multiple of 17.8x our \$2.23/share UPO earnings forecast for 2022. Our 8% net premium was derived from a 10% premium for the overall regulated group, a 2% discount for 3rd quartile regulation, a 5% premium for 1st quartile UPO eps growth, and a 5% discount for pending IL legislation. We value ExGen at \$9/share, on a 6.6x EV/EBITDA multiple on UBSe 2022 EBITDA of \$1,758mln, plus NPV of hedges of \$0.7Bln, less net debt of \$3.1Bln.

FirstEnergy Corp.

We are lowering our price target on FE to \$43 from \$45 to reflect an incremental 5% discount for the legal discount (-20% versus -15% previously). Our \$43 target is a 10% overall discount valuation that reflects +2% for regulation, -2% or third quartile EPS growth, +10% for the group's 12 month return and -20% for Ohio risk. It is 15.7x \$2.76 in 2022. Previously our \$45 target was a 5% discount with +2% for regulation, -2% for EPS growth, +10% for the group's 12 month return and -15% for the legal discount. It was 16.3x \$2.76 in 2022.

Hydro One

We are upgrading Hydro One to Neutral from Sell. See our separate Hydro One note published this morning. We are updating our UBSe eps forecast to C\$1.47/C\$1.48/C\$1.58 from C\$1.41/C\$1.42/C\$1.49. We are increasing our price target to C\$30 from C\$27. Our C\$30 price target is premised upon a 8% net premium to the regulated utility multiple of 17.4x on our updated UBSe '22 eps of C\$1.58. Our prior price target of C\$27 was premised upon no premium to the then regulated utility multiple of 18.2x and our prior UBSe '22 eps of C\$1.49. Our increase in net premium is due to our eps forecast now implying 3rd quartile growth vs. 4th quartile growth previously, and a reduction in our discount for the Ontario ownership stake of ~40% to 5% from 10%.

Southern Company

We are upgrading Southern Company to Buy from Neutral. See our separate SO note published this morning. We are reiterating our UBSe eps forecast of \$3.22/\$3.30/\$3.55 for '20-'22 and are increasing our price target to \$67/share from \$58/share as a result of lowering our discount for Vogtle new nuclear construction from 25% to 10%.

Our current price target of \$67 is premised upon a net 7% premium to the regulated average group multiple of 17.4x our UBSe '22 eps forecast of \$3.55. Our 7% net premium is derived from an overall relative group value premium of 10%, a first quartile regulatory ranking premium of 5%, an eps growth premium of 2%, and a Vogtle

Construction risk discount of 10%. Our prior price target of \$58 was premised upon a net 8% discount to the then regulated group multiple of 17.7x our UBSe '22 eps forecast of \$3.55. Our net 8% discount was derived from a 10% overall relative group value premium, a first quartile regulatory ranking premium of 5%, an eps growth premium of 2%, and a Vogtle construction risk discount of 25%.

WEC Energy Group

We are updating our price target for WEC to \$93 from \$99 on multiple compression.

Our current price target of \$93 is premised upon the current 17.4x group multiple and a 25% premium applied to our UBSe 2022 eps forecast of \$4.26. Our prior price target of \$99 was premised on the then group multiple of 18.5x and a 25% premium applied to our UBSe 2022 eps forecast of \$4.26. The 25% premium is derived from a 10% premium for the overall regulated group, a 5% premium for 1st quartile regulation, a 5% premium for 1st quartile eps growth, and 5% premium for earnings consistency.

Valuation Method and Risk Statement

Our valuation methodology for North American utilities is price to earnings based. The adjustments applied fall into 6 categories. These are as follows: 1) Group Valuation Bias: Flowing from our valuation work +10% for Regulated Utility undervaluation (+5% for a year of earnings growth and +5% for undervaluation greater than 1 standard deviation); 2) Growth Adjustment: We adjust our valuations based on the growth quartile each utility occupies. First quartile receives a 5% premium, second quartile a 2% premium, third quartile a 2% discount and fourth quartile a 5% discount; 3) Regulatory Adjustment: Our valuation adjustments for regulation are based on our proprietary Regulatory Rankings. First quartile jurisdictions receive 5%, second quartile 2%, third quartile -2% and fourth quartile -5%; 4) Earnings Consistency Adjustment: For companies that fall in the top quartile of % Time Beat/Meet, we include +5%; 5) Multi Utility Diversified Valuation: For multi utilities (those with more than 15% diversified or foreign earnings), we perform a sum-of-parts analysis applying business/region appropriate valuations to those diversified businesses; 6) One-off Adjustments: In special situations, we value risk on an issue specific basis.

Common areas where we apply such an adjustment include: ESG advantage, large project construction risk, legal risk, and announced M&A completion risk.

We identify the following risk factors for the sector overall: rising interest rates; regulatory and policy risks; operational risks; construction risks; cybersecurity risk to the transmission grid and/or customer data, and extreme weather events.

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12-Month Rating	Definition	Coverage ¹	IB Services ²
Buy	FSR is > 6% above the MRA.	50%	31%
Neutral	FSR is between -6% and 6% of the MRA.	38%	29%
Sell	FSR is > 6% below the MRA.	12%	19%
Short-Term Rating	Definition	Coverage ³	IB Services ⁴
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 30 September 2020.

1:Percentage of companies under coverage globally within the 12-month rating category.

2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.

3:Percentage of companies under coverage globally within the Short-Term rating category.

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Company Disclosures

Company Name	Reuters	12-month rating	Price	Price date
ATCO Ltd	ACOX.TO	Buy	C\$38.37	11 Dec 2020
American Electric Power Inc ^{16,7}	AEP.O	Buy	US\$82.76	11 Dec 2020
Canadian Utilities Ltd	CU.TO	Neutral	C\$32.23	11 Dec 2020
DTE Energy Co ¹⁶	DTE.N	Buy	US\$125.07	11 Dec 2020
Dominion Energy Inc ^{16,7}	D.N	Neutral	US\$74.91	11 Dec 2020
Duke Energy Corp ^{16,7}	DUK.N	Buy	US\$91.54	11 Dec 2020
Edison International ^{16,7}	EIX.N	Buy	US\$62.80	11 Dec 2020
Evergy, Inc ¹⁶	EVRG.N	Neutral	US\$55.13	11 Dec 2020
Exelon Corp ^{16,7}	EXC.O	Buy	US\$41.19	11 Dec 2020
FirstEnergy Corp ¹⁶	FE.N	Buy	US\$30.38	11 Dec 2020
Hydro One	H.TO	Sell	C\$29.00	11 Dec 2020
NextEra Energy Inc ^{4,16,6,7}	NEE.N	Buy	US\$73.80	11 Dec 2020
OGE Energy Corp ¹⁶	OGE.N	Buy	US\$32.16	11 Dec 2020
PPL Corp ¹⁶	PPL.N	Buy	US\$28.08	11 Dec 2020
Public Service Enterprise Group ^{16,7}	PEG.N	Buy	US\$56.48	11 Dec 2020
Sempra Energy ^{16,7}	SRE.N	Buy	US\$128.00	11 Dec 2020
Southern Co ¹⁶	SO.N	Neutral	US\$60.42	11 Dec 2020
WEC Energy Group Inc ¹⁶	WEC.N	Neutral	US\$92.24	11 Dec 2020

Source: UBS. All prices as of local market close.

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ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 97 of 164

Question(s):

On page 97 of 164 of its report, Concentric provides Figure 37, documenting its summary of the regulatory mechanisms for Enbridge Gas and for the Canadian and U.S. opco and holdco samples.

In interrogatory 5.20-Staff-13, OEB staff noted that lengthy history going back as far as the late 1990s of formulaic rate adjustment plans under PBR/IRM in Ontario for the rate regulation of EGD, Union and, since amalgamation, Enbridge Gas. PBR/IRM has also been used extensively for rate regulation in the electricity distribution sector in Ontario, and has also been, more recently used for electricity transmission and distribution.

- a) In the left column, Concentric has a label for “Formula-Based Ratemaking or Multi-Year Rate Plans”
- i. What is the definition of Formula-Based Ratemaking plans that Concentric has used?
 - ii. What is the definition of Multi-Year plans that Concentric has used?
 - iii. Why does Concentric consider Formula-Based Ratemaking plans and Multi-Year plans to be equivalent or interchangeable in terms of assessing the comparability of Enbridge Gas to each of the samples?
- b) Given the long experience of PBR/IRM rate adjustment plans, including for rate regulation of natural gas distributors in Ontario, does Concentric consider that Ontario is, less, or equally, as risky as that of other jurisdictions in Canada and the U.S. that have Formula-Based Ratemaking frameworks in place? Please explain your response.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

a)

i.-ii. Figure 32: Summary of Regulatory Mechanisms for Proxy Groups summarizes Schedule 3 to Concentric's report (pages 152 to 153). The data in Schedule 3 was sourced from a report from S&P Global and Regulatory Research Associates (RRA) titled "Alternative Regulatory Paradigms Offer Utility Investors A Degree Of Certainty," April 21, 2020. In that report, RRA defines formula-based ratemaking (RBR) as:

Formula-based ratemaking plans generally refer to frameworks where the commission established a revenue requirement, including a target ROE, capital structure and rate of return for an initial rate base as part of a traditional cost or service base rate proceeding. Once the initial parameters are set, rates may adjust periodically to reflect changes in expenses, revenue and capital investment. These changes generally occur on an annual basis, and there may be limitations on the percentage change that can be implemented in a given year or period of years.

RRA defines multi-year rate plans (MYRP) as:

As the name suggests, under multiyear rate plans, the commission approves a succession of rate changes that are designed to take into account anticipated changes in revenues, expenses and rate base. The commission may approve a static authorized ROE or the plan may provide for adjustments to the ROE during the plan's term. These plans often include true-up mechanisms to ensure that the company makes the investments it has committed to make at the inception of the plan. The plans often include earnings sharing mechanisms and may also include performance-based ratemaking provisions.

iii. Concentric does not consider FBRs and MYRPs to be equivalent and interchangeable. Rather, as noted by S&P Global/RRA in the aforementioned report, both FBRs and MYRPs are "innovative forms of regulation to address challenges associated with expanding utility capital spending plans, modest to flat sales growth in most parts of the country, regulatory lag and changes in the way the utilities are expected to do business." RRA continues:

Alternative ratemaking plans is a term applied to a wide-ranging complement of mechanisms that are generally outside of the traditional base rate case model. These plans can be broadly or narrowly focused. Broad-based plans like formula based ratemaking, multiyear rate plans and earnings sharing mechanisms streamline the regulatory process, lessen the burden on regulatory commissions, their staff and stakeholders and reduce regulatory lag for utilities.

As such, while FBRs and MYRPs may have distinct elements (and also vary between jurisdictions), they are broadly considered under the umbrella of "alternative regulatory paradigms" that are intended as solutions to certain ratemaking and cost recovery challenges.

- b) From the perspective of the use of an incentive regulation (IR) framework in Ontario to the use of FBRs in other jurisdictions, Concentric considers Ontario to be roughly equal from a risk perspective. As discussed in the response to part a)i. to this response, while FBRs (including Ontario's IR framework) may have distinct elements (and also vary between jurisdictions), they are broadly considered under the umbrella of "alternative regulatory paradigms" that are intended as solutions to certain ratemaking and cost recovery challenges. This view is supported, for example, by the regulatory rankings provided by debt and equity investors that are discussed in Concentric's report (see, e.g., Figure 31 on page 95), which, while focused on more than the structure of the ratemaking approach in each jurisdiction, provide a broad measure of the investment community's views on relative risk. Further, while Concentric appreciates Ontario's long experience with IR, as noted in Concentric's report, other regulatory jurisdictions (e.g., New York) have touted the supportiveness of the ratemaking mechanisms they offer.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 109 of 164

Question(s):

Concentric has provided the table for “Bloomberg Beta Coefficients” in Figure 40.

Please expand on this table to show the data from 2012 to 2021 for each of the proxy groups.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Please see Attachment 1. In responding to this request, Concentric determined that the 2012 beta coefficients for the U.S. gas and electric proxy groups in Figure 40 should have been labeled as being sourced from Value Line, and there was an incorrect figure reported for the Canadian proxy group. As such, Attachment 1 includes both Bloomberg betas (as corrected for the Canadian proxy group) for all proxy groups and Value Line betas for the U.S. proxy group for the requested period.

Bloomberg Beta Coefficients

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Canadian Proxy Group	0.6852	0.6688	0.7254	0.7585	0.8072	0.8125	0.7526	0.7409	0.8759	0.8375	0.8089
U.S Gas Proxy Group	0.7441	0.7730	0.7856	0.7373	0.7036	0.6930	0.6174	0.6074	0.8617	0.8522	0.8062
U.S Electric Utility Universe ex-PG&E	0.7780	0.7715	0.7418	0.6806	0.6492	0.6363	0.5561	0.5427	0.8917	0.8920	0.8601

Source: Bloomberg Professional

Value Line Beta Coefficients

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
U.S Gas Proxy Group	0.68	0.75	0.80	0.77	0.73	0.73	0.65	0.66	0.88	0.89	0.86
U.S Electric Utility Universe ex-PG&E	0.72	0.73	0.74	0.75	0.70	0.71	0.61	0.59	0.89	0.90	0.88

Source: Value Line

Value Line Beta	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ATO	0.7	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.8	0.8	0.8
NJR	0.65	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.95	1	0.95
NI	0.8	0.85	0.85	NMF	NMF	0.6	0.5	0.55	0.85	0.85	0.85
NWN	0.55	0.65	0.7	0.65	0.6	0.7	0.6	0.6	0.8	0.85	0.8
OGS	n/a	n/a	n/a	n/a	n/a	0.7	0.65	0.65	0.8	0.8	0.8
SJI	0.65	0.7	0.8	0.8	0.8	0.85	0.8	0.8	1.05	1.05	0.9
SWX	0.75	0.8	0.85	0.8	0.75	0.8	0.7	0.7	0.95	0.95	0.9
SR	n/a	n/a	n/a	n/a	0.7	0.7	0.65	0.65	0.85	0.85	0.85
Average	0.683	0.750	0.800	0.770	0.725	0.731	0.650	0.656	0.881	0.894	0.856

Value Line Beta	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ALE	0.7	0.75	0.8	0.8	0.75	0.8	0.65	0.65	0.85	0.9	0.90
LNT	0.7	0.75	0.8	0.8	0.7	0.7	0.6	0.6	0.85	0.85	0.85
AEE	0.8	0.8	0.75	0.75	0.65	0.7	0.55	0.55	0.85	0.8	0.85
AEP	0.65	0.7	0.7	0.7	0.65	0.65	0.55	0.55	0.75	0.75	0.75
AGR	n/a	n/a	n/a	n/a	n/a	n/a	0.3	0.4	0.85	0.85	0.85
AVA	0.7	0.7	0.8	0.8	0.7	0.75	0.65	0.6	0.9	0.95	0.90
BKH	0.8	0.85	0.9	0.95	0.9	0.9	0.8	0.7	0.95	1	0.95
CNP	0.75	0.8	0.75	0.85	0.85	0.9	0.85	0.8	1.15	1.15	1.10
CMS	0.75	0.7	0.7	0.75	0.65	0.65	0.55	0.5	0.8	0.8	0.80
ED	0.6	0.6	0.6	0.6	0.55	0.5	0.4	0.45	0.75	0.75	0.75
D	0.7	0.7	0.7	0.7	0.65	0.65	0.6	0.55	0.8	0.85	0.85
DTE	0.75	0.8	0.75	0.75	0.65	0.65	0.55	0.55	0.95	0.95	0.95
DUK	0.6	0.65	0.6	0.65	0.6	0.6	0.5	0.5	0.85	0.85	0.85
EIX	0.75	0.75	0.75	0.7	0.65	0.65	0.6	0.6	0.9	1	0.95
ETR	0.7	0.7	0.7	0.7	0.65	0.65	0.6	0.6	0.95	0.95	0.95
ES	n/a	n/a	n/a	0.75	0.7	0.65	0.6	0.55	0.9	0.9	0.90
EXC	0.8	0.75	0.7	0.7	0.65	0.7	0.65	0.65	0.95	0.95	0.95
FE	0.75	0.75	0.7	0.7	0.65	0.7	0.6	0.65	0.85	0.85	0.85
EVRG	n/a	NMF	1	0.95	0.85						
HE	0.7	0.7	0.8	0.8	0.7	0.7	0.6	0.55	0.8	0.85	0.80
IDA	0.7	0.7	0.8	0.8	0.75	0.7	0.6	0.55	0.8	0.85	0.80
MGEE	0.6	0.65	0.7	0.75	0.7	0.75	0.6	0.55	0.7	0.75	0.70
NEE	0.7	0.7	0.7	0.75	0.65	0.65	0.55	0.55	0.9	0.9	0.90
NWE	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.9	0.95	0.90
OGE	0.75	0.85	0.9	0.95	0.9	0.95	0.85	0.75	1.1	1.05	1.00
OTTR	0.9	0.95	0.9	0.85	0.85	0.9	0.75	0.7	0.85	0.9	0.85
PNW	0.7	0.7	0.7	0.75	0.7	0.7	0.6	0.55	0.85	0.95	0.90
PNM	0.95	0.9	0.85	0.85	0.75	0.75	0.65	0.6	0.95	0.95	0.90
POR	0.75	0.75	0.8	0.8	0.7	0.7	0.6	0.6	0.85	0.9	0.85
PPL	0.65	0.65	0.6	0.7	0.7	0.75	0.7	0.7	1.15	1.1	1.10
PEG	0.75	0.75	0.75	0.75	0.7	0.7	0.6	0.65	0.9	0.9	0.90
SRE	0.8	0.8	0.75	0.8	0.8	0.8	0.75	0.75	0.95	1	0.95
SO	0.55	0.55	0.55	0.6	0.55	0.55	0.5	0.5	0.9	0.95	0.95
WEC	0.6	0.65	0.65	0.7	0.6	0.6	0.5	0.5	0.8	0.8	0.80
XEL	0.65	0.65	0.7	0.65	0.6	0.6	0.55	0.5	0.8	0.8	0.80
Average	0.72	0.73	0.74	0.75	0.70	0.71	0.61	0.59	0.89	0.90	0.88

	2012			2013	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
ALE US Equity	0.61495701	0.74329724	ALE US Equity	0.7062432	0.80415409
LNT US Equity	0.71900738	0.81266346	LNT US Equity	0.73251457	0.82166816
AEE US Equity	0.79895269	0.8659598	AEE US Equity	0.7073838	0.80491449
AEP US Equity	0.65113802	0.76741767	AEP US Equity	0.58313946	0.72208575
AGR US Equity	#N/A N/A	#N/A N/A	AGR US Equity	#N/A N/A	#N/A N/A
AVA US Equity	0.6265285	0.75101149	AVA US Equity	0.7135261	0.80900931
BKH US Equity	0.80127044	0.86750495	BKH US Equity	0.86969479	0.91312073
CNP US Equity	0.87723336	0.91814639	CNP US Equity	0.82099269	0.88065299
CMS US Equity	0.6925937	0.79505452	CMS US Equity	0.59173625	0.72781689
ED US Equity	0.44002139	0.62667466	ED US Equity	0.43724506	0.62482379
D US Equity	0.56592798	0.71061155	D US Equity	0.55790829	0.70526514
DTE US Equity	0.72272283	0.8151404	DTE US Equity	0.76202768	0.84134337
DUK US Equity	0.53615887	0.69076567	DUK US Equity	0.49463782	0.66308525
EIX US Equity	0.80270116	0.86845875	EIX US Equity	0.75860543	0.8390619
ETR US Equity	0.54124306	0.6941551	ETR US Equity	0.56118919	0.70745239
ES US Equity	0.5883802	0.72557955	ES US Equity	0.58258269	0.72171457
EXC US Equity	0.78690888	0.85793067	EXC US Equity	0.5987977	0.73252447
FE US Equity	0.67638126	0.78424633	FE US Equity	0.63099505	0.75398916
EVRG US Equity	0.66096265	0.77396736	EVRG US Equity	0.65355401	0.76902831
HE US Equity	0.65821599	0.77213627	HE US Equity	0.82740676	0.88492899
IDA US Equity	0.64471393	0.76313499	IDA US Equity	0.72571771	0.81713697
MGEE US Equity	0.49702649	0.66467768	MGEE US Equity	0.56585575	0.71056339
NEE US Equity	0.6777582	0.78516428	NEE US Equity	0.60732504	0.73820931
NWE US Equity	0.7509069	0.83392959	NWE US Equity	0.66664019	0.77775235
OGE US Equity	0.80428549	0.86951497	OGE US Equity	0.77610187	0.85072607
OTTR US Equity	0.96946163	0.97963129	OTTR US Equity	0.93184883	0.95455634
PNW US Equity	0.6904002	0.7935922	PNW US Equity	0.74775958	0.8318314
PNM US Equity	1.00209557	1.00138704	PNM US Equity	0.9975729	0.99837195
POR US Equity	0.62129288	0.74752111	POR US Equity	0.60536945	0.7369056
PPL US Equity	0.60626705	0.73750399	PPL US Equity	0.53360307	0.68906182
PEG US Equity	0.64494126	0.76328654	PEG US Equity	0.65742347	0.77160793
SRE US Equity	0.71262646	0.80840955	SRE US Equity	0.66016636	0.77343651
SO US Equity	0.35357797	0.56904629	SO US Equity	0.35017554	0.56677803
WEC US Equity	0.46847462	0.64564329	WEC US Equity	0.4587466	0.63915801
XEL US Equity	0.47527436	0.65017641	XEL US Equity	0.47006794	0.64670549
Average	<u>0.66707084</u>	<u>0.77803944</u>	Average	<u>0.65719279</u>	<u>0.77145414</u>

	2014			2015	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
ALE US Equity	0.72755819	0.81836394	ALE US Equity	0.6151857	0.7434497
LNT US Equity	0.68402762	0.78934385	LNT US Equity	0.56614407	0.7107556
AEE US Equity	0.62789843	0.75192477	AEE US Equity	0.52246511	0.68163659
AEP US Equity	0.54118048	0.69411338	AEP US Equity	0.4553256	0.63687737
AGR US Equity	#N/A N/A	#N/A N/A	AGR US Equity	#N/A N/A	#N/A N/A
AVA US Equity	0.70195264	0.80129375	AVA US Equity	0.62537783	0.75024438
BKH US Equity	0.86883934	0.91255044	BKH US Equity	0.7190334	0.8126808
CNP US Equity	0.71087144	0.80723955	CNP US Equity	0.61760426	0.74506205
CMS US Equity	0.64287743	0.76191067	CMS US Equity	0.50719931	0.6714595
ED US Equity	0.36239422	0.57492373	ED US Equity	0.28593198	0.52394941
D US Equity	0.49353428	0.66234957	D US Equity	0.41486189	0.60990183
DTE US Equity	0.63189803	0.75459114	DTE US Equity	0.54393846	0.69595202
DUK US Equity	0.37572458	0.58381055	DUK US Equity	0.33260783	0.55506634
EIX US Equity	0.59736974	0.73157251	EIX US Equity	0.4440955	0.6293907
ETR US Equity	0.57372761	0.71581125	ETR US Equity	0.47678726	0.651185
ES US Equity	0.59931828	0.73287153	ES US Equity	0.51969343	0.67978882
EXC US Equity	0.53605495	0.69069639	EXC US Equity	0.44331138	0.62886796
FE US Equity	0.59436636	0.72957028	FE US Equity	0.50371828	0.66913883
EVRG US Equity	0.58848352	0.72564842	EVRG US Equity	0.53236926	0.68823929
HE US Equity	0.62617889	0.75077842	HE US Equity	0.52713783	0.68475171
IDA US Equity	0.77948767	0.85298325	IDA US Equity	0.68089908	0.78725818
MGEE US Equity	0.60495032	0.73662618	MGEE US Equity	0.53058876	0.6870523
NEE US Equity	0.59418867	0.72945182	NEE US Equity	0.54765532	0.69842989
NWE US Equity	0.72802353	0.81867417	NWE US Equity	0.59883033	0.73254623
OGE US Equity	0.75434398	0.83622096	OGE US Equity	0.66351025	0.77566574
OTTR US Equity	0.82654793	0.88435644	OTTR US Equity	0.68836713	0.79223683
PNW US Equity	0.64322476	0.76214222	PNW US Equity	0.56548836	0.71031847
PNM US Equity	0.7887764	0.85917568	PNM US Equity	0.5569099	0.70459956
POR US Equity	0.65781353	0.77186797	POR US Equity	0.59681626	0.73120353
PPL US Equity	0.42641553	0.61760418	PPL US Equity	0.41928147	0.61284818
PEG US Equity	0.6217872	0.74785065	PEG US Equity	0.52119453	0.68078954
SRE US Equity	0.64478157	0.76318008	SRE US Equity	0.6135311	0.74234664
SO US Equity	0.33295006	0.55529449	SO US Equity	0.27895612	0.51929889
WEC US Equity	0.47363855	0.64908587	WEC US Equity	0.40394826	0.60262615
XEL US Equity	0.47007314	0.64670896	XEL US Equity	0.39442438	0.59627696
Average	<u>0.61268408</u>	<u>0.74178197</u>	Average	<u>0.52097617</u>	<u>0.68064397</u>

	2016		2017		
	Bloomberg Beta		Bloomberg Beta		
	Raw	Adjusted	Raw	Adjusted	
ALE US Equity	0.57445216	0.71629428	ALE US Equity	0.54140477	0.6942629
LNT US Equity	0.48329702	0.65552479	LNT US Equity	0.44298224	0.62864854
AEE US Equity	0.48644681	0.65762463	AEE US Equity	0.43596121	0.6239679
AEP US Equity	0.458497	0.63899161	AEP US Equity	0.4249292	0.6166133
AGR US Equity	0.27853098	0.51901546	AGR US Equity	0.31102185	0.54067583
AVA US Equity	0.51555554	0.67703026	AVA US Equity	0.50298277	0.66864849
BKH US Equity	0.58378499	0.7225161	BKH US Equity	0.60302617	0.73534343
CNP US Equity	0.58536203	0.72356745	CNP US Equity	0.58200673	0.7213306
CMS US Equity	0.3952988	0.5968599	CMS US Equity	0.36409491	0.57605751
ED US Equity	0.24745894	0.49830098	ED US Equity	0.21200614	0.47466601
D US Equity	0.45498503	0.63665032	D US Equity	0.43450273	0.62299559
DTE US Equity	0.46154753	0.64102528	DTE US Equity	0.43733496	0.62488372
DUK US Equity	0.29874078	0.53248853	DUK US Equity	0.25938961	0.50625468
EIX US Equity	0.4119285	0.60794625	EIX US Equity	0.34918455	0.56611737
ETR US Equity	0.46328787	0.64218549	ETR US Equity	0.44749542	0.63165729
ES US Equity	0.47154102	0.64768754	ES US Equity	0.40834798	0.60555926
EXC US Equity	0.40893601	0.60595128	EXC US Equity	0.36298654	0.5753186
FE US Equity	0.50253043	0.66834693	FE US Equity	0.52074688	0.68049111
EVRG US Equity	0.47193355	0.64794922	EVRG US Equity	0.40391953	0.60260699
HE US Equity	0.45330604	0.635531	HE US Equity	0.40366741	0.60243892
IDA US Equity	0.66283851	0.77521792	IDA US Equity	0.62312463	0.74874226
MGEE US Equity	0.5658729	0.71057483	MGEE US Equity	0.56767396	0.71177552
NEE US Equity	0.45433223	0.63621513	NEE US Equity	0.43021848	0.62013945
NWE US Equity	0.50258703	0.66838467	NWE US Equity	0.5066391	0.67108602
OGE US Equity	0.55702387	0.70467554	OGE US Equity	0.59526629	0.73017022
OTTR US Equity	0.74447438	0.82964129	OTTR US Equity	0.78054542	0.85368841
PNW US Equity	0.52301559	0.68200357	PNW US Equity	0.49954954	0.6663597
PNM US Equity	0.57370653	0.71579719	PNM US Equity	0.54313555	0.69541674
POR US Equity	0.52905511	0.68602988	POR US Equity	0.46711104	0.64473424
PPL US Equity	0.44107204	0.62737509	PPL US Equity	0.45723823	0.63815244
PEG US Equity	0.4482719	0.63217494	PEG US Equity	0.45170319	0.63446245
SRE US Equity	0.59018719	0.72678419	SRE US Equity	0.60715437	0.73809553
SO US Equity	0.29569125	0.53045553	SO US Equity	0.28917049	0.5261084
WEC US Equity	0.34876977	0.56584085	WEC US Equity	0.34028364	0.56018349
XEL US Equity	0.33692096	0.55794173	XEL US Equity	0.30026066	0.53350177
Average	<u>0.47374972</u>	<u>0.64915999</u>	Average	<u>0.45448761</u>	<u>0.63631871</u>

	2018			2019	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
ALE US Equity	0.35312735	0.56874588	ALE US Equity	0.33936698	0.55957239
LNT US Equity	0.34847947	0.56564732	LNT US Equity	0.30089393	0.53392395
AEE US Equity	0.27749431	0.51832436	AEE US Equity	0.25165442	0.50109794
AEP US Equity	0.29232833	0.52821361	AEP US Equity	0.29083814	0.52722016
AGR US Equity	0.25585617	0.50389908	AGR US Equity	0.25920711	0.50613301
AVA US Equity	0.33516554	0.55677146	AVA US Equity	0.31983069	0.54654833
BKH US Equity	0.38573125	0.5904816	BKH US Equity	0.30550883	0.53700051
CNP US Equity	0.45245048	0.63496064	CNP US Equity	0.43495748	0.62329875
CMS US Equity	0.2568434	0.50455722	CMS US Equity	0.2175154	0.47833882
ED US Equity	0.17748205	0.45165018	ED US Equity	0.18792788	0.458614
D US Equity	0.30368367	0.53578375	D US Equity	0.25643762	0.5042867
DTE US Equity	0.32256851	0.54837352	DTE US Equity	0.28758241	0.52504969
DUK US Equity	0.17210134	0.44806308	DUK US Equity	0.19624426	0.4641582
EIX US Equity	0.3251503	0.5500947	EIX US Equity	0.32039294	0.54692316
ETR US Equity	0.33752129	0.55834194	ETR US Equity	0.32647199	0.55097582
ES US Equity	0.3457532	0.56382983	ES US Equity	0.3339713	0.55597531
EXC US Equity	0.33411501	0.55607111	EXC US Equity	0.35499001	0.56998764
FE US Equity	0.4469923	0.63132188	FE US Equity	0.41850352	0.61232955
EVRG US Equity	0.26958398	0.51305086	EVRG US Equity	0.24132485	0.49421163
HE US Equity	0.28724708	0.52482614	HE US Equity	0.28749551	0.52499176
IDA US Equity	0.41012407	0.60674331	IDA US Equity	0.32943565	0.55295157
MGEE US Equity	0.34255694	0.56169901	MGEE US Equity	0.34413604	0.56275173
NEE US Equity	0.35774545	0.57182458	NEE US Equity	0.26658558	0.51105194
NWE US Equity	0.33910851	0.55940008	NWE US Equity	0.3215981	0.54772659
OGE US Equity	0.44513292	0.63008231	OGE US Equity	0.41983989	0.61322046
OTTR US Equity	0.53010899	0.68673246	OTTR US Equity	0.52116531	0.68077006
PNW US Equity	0.29144611	0.52762546	PNW US Equity	0.24648304	0.49765039
PNM US Equity	0.38150149	0.58766178	PNM US Equity	0.34463251	0.56308271
POR US Equity	0.33385436	0.55589734	POR US Equity	0.29094911	0.52729414
PPL US Equity	0.45072594	0.63381096	PPL US Equity	0.46831917	0.64553966
PEG US Equity	0.41631548	0.61087088	PEG US Equity	0.40635725	0.60423212
SRE US Equity	0.46219622	0.64145773	SRE US Equity	0.43333161	0.62221485
SO US Equity	0.20229475	0.46819182	SO US Equity	0.23672646	0.49114606
WEC US Equity	0.23023258	0.48681686	WEC US Equity	0.21531822	0.47687405
XEL US Equity	0.22144482	0.48095841	XEL US Equity	0.21718021	0.47811536
Average	<u>0.33412753</u>	<u>0.55607946</u>	Average	<u>0.31409067</u>	<u>0.54272169</u>

	2020			2021	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
ALE US Equity	0.853976	0.90264164	ALE US Equity	0.86929151	0.91285188
LNT US Equity	0.79761455	0.86506772	LNT US Equity	0.81133279	0.87421312
AEE US Equity	0.70182078	0.80120584	AEE US Equity	0.71104483	0.80735515
AEP US Equity	0.77499867	0.84999061	AEP US Equity	0.76940661	0.84626261
AGR US Equity	0.57706276	0.71803466	AGR US Equity	0.61028378	0.74018179
AVA US Equity	0.7658011	0.84385896	AVA US Equity	0.74552241	0.83033997
BKH US Equity	1.01582769	1.01054169	BKH US Equity	1.0096259	1.0064072
CNP US Equity	1.21934983	1.14622175	CNP US Equity	1.23284074	1.15521561
CMS US Equity	0.7292035	0.81946081	CMS US Equity	0.72992442	0.81994141
ED US Equity	0.53058455	0.68704949	ED US Equity	0.54411863	0.69607213
D US Equity	0.63518787	0.75678434	D US Equity	0.63702916	0.75801186
DTE US Equity	0.90231321	0.93486613	DTE US Equity	0.91006369	0.94003306
DUK US Equity	0.74066489	0.82710166	DUK US Equity	0.7175102	0.81166535
EIX US Equity	0.90773638	0.93848154	EIX US Equity	0.90516185	0.9367652
ETR US Equity	0.95823112	0.97214436	ETR US Equity	0.95480018	0.96985709
ES US Equity	0.86406835	0.90936981	ES US Equity	0.85208793	0.90138294
EXC US Equity	0.9296229	0.9530724	EXC US Equity	0.96622008	0.97747028
FE US Equity	0.84105858	0.89403011	FE US Equity	0.8354461	0.8902885
EVRG US Equity	0.80371742	0.86913625	EVRG US Equity	0.81246575	0.87496842
HE US Equity	0.58250362	0.72166186	HE US Equity	0.59480895	0.72986534
IDA US Equity	0.84802675	0.89867551	IDA US Equity	0.79208694	0.86138268
MGEE US Equity	0.5427351	0.69514978	MGEE US Equity	0.54647055	0.69764006
NEE US Equity	0.71951016	0.81299864	NEE US Equity	0.77370522	0.84912832
NWE US Equity	1.05090575	1.03392683	NWE US Equity	1.04486009	1.02989643
OGE US Equity	1.06103587	1.04068017	OGE US Equity	1.07022622	1.04680701
OTTR US Equity	0.8887461	0.92582148	OTTR US Equity	0.87522276	0.916806
PNW US Equity	0.88989523	0.92658756	PNW US Equity	0.88370879	0.9224633
PNM US Equity	1.09174118	1.06115017	PNM US Equity	1.04392382	1.02927226
POR US Equity	0.82145384	0.88096042	POR US Equity	0.81682638	0.87787548
PPL US Equity	1.16582537	1.11053914	PPL US Equity	1.141259	1.09416173
PEG US Equity	0.89149161	0.92765179	PEG US Equity	0.89735432	0.93156023
SRE US Equity	0.88238953	0.9215838	SRE US Equity	0.88902571	0.92600788
SO US Equity	0.84579629	0.89718855	SO US Equity	0.85991891	0.90660354
WEC US Equity	0.74036132	0.82689928	WEC US Equity	0.72826151	0.81883282
XEL US Equity	0.74537526	0.83024187	XEL US Equity	0.75101362	0.83400074
Average	<u>0.83761809</u>	<u>0.89173648</u>	Average	<u>0.83808141</u>	<u>0.89204535</u>

	2022	
	Bloomberg Beta	
	Raw	Adjusted
ALE US Equity	0.81596007	0.87729794
LNT US Equity	0.77721987	0.8514714
AEE US Equity	0.71140805	0.80759729
AEP US Equity	0.72658547	0.81771547
AGR US Equity	0.59070126	0.7271269
AVA US Equity	0.67501086	0.78333274
BKH US Equity	0.94274759	0.96182211
CNP US Equity	1.11110922	1.07406207
CMS US Equity	0.71512414	0.81007466
ED US Equity	0.54797463	0.69864276
D US Equity	0.60229982	0.7348592
DTE US Equity	0.84082835	0.89387663
DUK US Equity	0.68795337	0.79196099
EIX US Equity	0.89697928	0.93131021
ETR US Equity	0.88929724	0.92618889
ES US Equity	0.80600915	0.87066406
EXC US Equity	0.92813404	0.95207984
FE US Equity	0.76917351	0.84610721
EVRG US Equity	0.76564088	0.84375215
HE US Equity	0.61299623	0.74199007
IDA US Equity	0.74384927	0.82922455
MGEE US Equity	0.5340745	0.68937611
NEE US Equity	0.83184783	0.88788968
NWE US Equity	0.90110965	0.93406376
OGE US Equity	0.9687563	0.97916107
OTTR US Equity	0.84047067	0.89363818
PNW US Equity	0.84707444	0.89804064
PNM US Equity	0.86807869	0.91204334
POR US Equity	0.7489466	0.83262274
PPL US Equity	1.04783216	1.03187778
PEG US Equity	0.86568516	0.91044767
SRE US Equity	0.83572064	0.89047152
SO US Equity	0.78572578	0.85714195
WEC US Equity	0.69865691	0.79909661
XEL US Equity	0.72219708	0.81478991
Average	<u>0.79009082</u>	<u>0.86005195</u>

	2012			2013	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
ATO US Equity	0.62935577	0.75289632	ATO US Equity	0.67468004	0.78311219
NJR US Equity	0.56082026	0.70720643	NJR US Equity	0.60126703	0.73417068
NI US Equity	0.79345867	0.86229716	NI US Equity	0.79190672	0.86126253
NWN US Equity	0.49636685	0.66423792	NWN US Equity	0.59757987	0.7317126
OGS US Equity	#N/A N/A	#N/A N/A	OGS US Equity	#N/A N/A	#N/A N/A
SJI US Equity	0.54178524	0.69451655	SJI US Equity	0.60286643	0.73523694
SWX US Equity	0.7964444	0.86428762	SWX US Equity	0.83065637	0.88709537
SR US Equity	0.49449466	0.66298981	SR US Equity	0.51741033	0.67826677
Average	<u>0.61610369</u>	<u>0.74406169</u>	Average	<u>0.65948097</u>	<u>0.77297958</u>

	2014			2015	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
ATO US Equity	0.67060386	0.78039477	ATO US Equity	0.5584857	0.70565008
NJR US Equity	0.66411567	0.77606935	NJR US Equity	0.65090393	0.76726162
NI US Equity	0.68988815	0.79325084	NI US Equity	0.62732546	0.75154279
NWN US Equity	0.65074971	0.7671588	NWN US Equity	0.53652037	0.69100667
OGS US Equity	0.70692298	0.80460727	OGS US Equity	0.67548807	0.78365088
SJI US Equity	0.72529011	0.81685191	SJI US Equity	0.66104969	0.77402539
SWX US Equity	0.76592607	0.84394227	SWX US Equity	0.64390489	0.76259564
SR US Equity	0.55421919	0.70280576	SR US Equity	0.49365079	0.66242724
Average	<u>0.67846447</u>	<u>0.78563512</u>	Average	<u>0.60591612</u>	<u>0.73727004</u>

	2016		2017		
	Bloomberg Beta		Bloomberg Beta		
	Raw	Adjusted	Raw	Adjusted	
ATO US Equity	0.51795898	0.67863253	ATO US Equity	0.52119734	0.68079142
NJR US Equity	0.63754131	0.75835329	NJR US Equity	0.59921151	0.73280034
NI US Equity	0.64938619	0.76624979	NI US Equity	0.65944623	0.77295643
NWN US Equity	0.46944605	0.6462909	NWN US Equity	0.41522795	0.61014587
OGS US Equity	0.61987035	0.74657277	OGS US Equity	0.59603368	0.73068181
SJI US Equity	0.55296328	0.7019685	SJI US Equity	0.53013404	0.68674916
SWX US Equity	0.52615124	0.68409399	SWX US Equity	0.5275647	0.68503628
SR US Equity	0.47036669	0.64690466	SR US Equity	0.46675853	0.64449924
Average	<u>0.55546051</u>	<u>0.7036333</u>	Average	<u>0.53944675</u>	<u>0.69295757</u>

	2018		2019		
	Bloomberg Beta		Bloomberg Beta		
	Raw	Adjusted	Raw	Adjusted	
ATO US Equity	0.3325948	0.55505765	ATO US Equity	0.32066789	0.54710645
NJR US Equity	0.49188051	0.66124706	NJR US Equity	0.52989785	0.6865917
NI US Equity	0.44776359	0.63183608	NI US Equity	0.34957246	0.56637598
NWN US Equity	0.39469935	0.59646027	NWN US Equity	0.3557377	0.5704861
OGS US Equity	0.46914689	0.64609147	OGS US Equity	0.41274069	0.60848771
SJI US Equity	0.54777815	0.69851178	SJI US Equity	0.56246127	0.70830043
SWX US Equity	0.38891578	0.59260459	SWX US Equity	0.38562864	0.59041319
SR US Equity	0.33627765	0.55751286	SR US Equity	0.37209094	0.58138815
Average	<u>0.42613209</u>	<u>0.61741522</u>	Average	<u>0.41109968</u>	<u>0.60739371</u>

	2020			2021	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
ATO US Equity	0.69320517	0.79546216	ATO US Equity	0.69294524	0.79528887
NJR US Equity	0.82981786	0.88653638	NJR US Equity	0.79795867	0.86529713
NI US Equity	0.79011488	0.86006799	NI US Equity	0.76126234	0.84083315
NWN US Equity	0.67571172	0.78379997	NWN US Equity	0.65593257	0.77061401
OGS US Equity	0.79449236	0.86298628	OGS US Equity	0.79731478	0.86486787
SJI US Equity	0.87336172	0.91556533	SJI US Equity	0.85735827	0.90489647
SWX US Equity	0.92973934	0.95315003	SWX US Equity	0.91308219	0.94204537
SR US Equity	0.7536219	0.83573957	SR US Equity	0.75041095	0.83359896
Average	<u>0.79250812</u>	<u>0.86166346</u>	Average	<u>0.77828312</u>	<u>0.85218023</u>

	2022	
	Bloomberg Beta	
	Raw	Adjusted
ATO US Equity	0.68776735	0.79183698
NJR US Equity	0.75526923	0.83683779
NI US Equity	0.76112913	0.84074435
NWN US Equity	0.57823958	0.7188192
OGS US Equity	0.69109081	0.7940526
SJI US Equity	0.68937961	0.79291181
SWX US Equity	0.79954442	0.86635428
SR US Equity	0.7125169	0.80833652
Average	<u>0.70936713</u>	<u>0.80623669</u>

	2012			2013	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
AQN CN Equity	0.6492137	0.7661348	AQN CN Equity	0.5861228	0.7240746
ALA CN Equity	0.6793081	0.7861975	ALA CN Equity	0.5967138	0.7311352
CU CN Equity	0.3604681	0.5736397	CU CN Equity	0.3296595	0.5531008
EMA CN Equity	0.4313705	0.6209075	EMA CN Equity	0.5052907	0.6701871
FTS CN Equity	0.5188881	0.6792519	FTS CN Equity	0.4981295	0.665413
H CN Equity	#N/A N/A	#N/A N/A	H CN Equity	#N/A N/A	#N/A N/A
	<u>0.5278497</u>	<u>0.68522628</u>		<u>0.50318326</u>	<u>0.66878214</u>

	2014			2015	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
AQN CN Equity	0.6277942	0.7518553	AQN CN Equity	0.6720017	0.7813267
ALA CN Equity	0.7475079	0.8316636	ALA CN Equity	0.9519101	0.9679304
CU CN Equity	0.4095173	0.6063388	CU CN Equity	0.5267696	0.6845062
EMA CN Equity	0.5645183	0.7096718	EMA CN Equity	0.5623366	0.7082173
FTS CN Equity	0.5909275	0.7272777	FTS CN Equity	0.5367932	0.6911886
H CN Equity	#N/A N/A	#N/A N/A	H CN Equity	0.5767047	0.717796
	<u>0.58805304</u>	<u>0.72536144</u>	Average	<u>0.63775265</u>	<u>0.7584942</u>

	2016			2017	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
AQN CN Equity	0.7316464	0.8210894	AQN CN Equity	0.7217158	0.8144691
ALA CN Equity	1.220124	1.146738	ALA CN Equity	1.268119	1.178734
CU CN Equity	0.765778	0.8438436	CU CN Equity	0.8171121	0.8780659
EMA CN Equity	0.558742	0.7058209	EMA CN Equity	0.5506712	0.7004405
FTS CN Equity	0.5911312	0.7274135	FTS CN Equity	0.5866566	0.7244305
H CN Equity	0.397546	0.598358	H CN Equity	0.3683166	0.578872
Average	<u>0.71082793</u>	<u>0.80721057</u>	Average	<u>0.71876522</u>	<u>0.812502</u>

	2018			2019	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
AQN CN Equity	0.6080091	0.7386654	AQN CN Equity	0.6147785	0.7431782
ALA CN Equity	1.264752	1.17649	ALA CN Equity	1.089924	1.059939
CU CN Equity	0.6864575	0.7909638	CU CN Equity	0.6935809	0.7957126
EMA CN Equity	0.4467594	0.6311666	EMA CN Equity	0.4734717	0.6489747
FTS CN Equity	0.5047339	0.6698159	FTS CN Equity	0.5674208	0.7116067
H CN Equity	0.2625118	0.5083361	H CN Equity	0.2285919	0.4857231
Average	<u>0.62887062</u>	<u>0.75257297</u>	Average	<u>0.61129463</u>	<u>0.74085572</u>

	2020			2021	
	Bloomberg Beta			Bloomberg Beta	
	Raw	Adjusted		Raw	Adjusted
AQN CN Equity	0.7718485	0.8478905	AQN CN Equity	0.7604315	0.8402793
ALA CN Equity	1.350522	1.233669	ALA CN Equity	1.29217	1.194768
CU CN Equity	0.9206583	0.947096	CU CN Equity	0.8255483	0.88369
EMA CN Equity	0.6270379	0.7513511	EMA CN Equity	0.5519948	0.7013229
FTS CN Equity	0.6911323	0.7940802	FTS CN Equity	0.5976032	0.7317281
H CN Equity	0.5218647	0.6812363	H CN Equity	0.509878	0.6732453
Average	<u>0.81384395</u>	<u>0.87588718</u>	Average	<u>0.75627097</u>	<u>0.8375056</u>

	2022	
	Bloomberg Beta	
	Raw	Adjusted
AQN CN Equity	0.7259104	0.8172655
ALA CN Equity	1.224001	1.149322
CU CN Equity	0.751165	0.8341017
EMA CN Equity	0.5334014	0.6889274
FTS CN Equity	0.5571147	0.7047361
H CN Equity	0.4881565	0.6587644
Average	<u>0.7132915</u>	<u>0.8089</u>

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 116-118 of 164

Question(s):

On pages 116-118 of its report, Concentric discusses “Credit Rating Agency Perspectives” on the regulatory environments of Canadian and U.S. utilities. In particular, on page 117 of 162, Concentric documents five quotations from a Moody’s Investors Service’s report, “Proposed Refinements to the Regulated Utilities Rating Methodology and Our Evolving View of US Utility Regulation”, issued September 23, 2013. Concentric then goes on to state, on the same page:

To our knowledge, S&P has not opined on the relative risks of the Canadian and U.S. regulatory environments as directly as Moody’s. However, as noted previously, S&P does assess the credit supportiveness of regulatory jurisdictions in the U.S. and Canadian provinces, ranking them all credit supportive (on a scale from “credit supportive” to “most credit supportive”).[footnote omitted] In this ranking system, S&P categorizes Ontario as “most credit supportive.” S&P indicates, however, that all regulation is credit supportive, and that its rankings between jurisdictions are only a matter of degree.

OEB staff observes that the Moody’s report, dated in September 2013, is from the same period as when EGD’s cost of capital, including the deemed equity thickness was last reviewed.

- a) Given that the Moody’s report dates from about the same time period as when Enbridge Gas Distribution’s equity thickness was last reviewed, and in light of the more recent reports from UBS Investors Services and Standard & Poor’s, both from November 2020, what meaningful information is being conveyed in the quotations from the September 2013 Moody’s report regarding similarities and differences of regulatory environments for Canadian and U.S. utilities since the last review in 2013?
- b) Please provide Concentric’s understanding of “credit supportive” as used by Standard & Poor’s in its regulatory jurisdictional analyses and as used in conducting credit rating assessments of regulated utilities.

- c) Does Concentric consider that being credit supportive is expected and even required of regulators in Canada and the U.S., in order to satisfy the Fair Return Standard, essentially the same in both countries, as established by key Supreme Court Decisions¹ in the 1920s to 1940s period, and upheld in court decisions since? Please explain your response.
- d) While Standard and Poor's does state that the degree of credit supportiveness of North American regulatory jurisdictions may be "a matter of degree", Standard and Poor's report on its methodology for assessing country, regulatory, and other operational environmental factors pertinent to regulated utilities, indicates that these are considered and used for adjusting the final credit ratings of regulated utilities.² OEB staff thus views that differences between regulatory jurisdictions in North America are not immaterial, and can have real impacts on the cost of debt and equity financing for regulated firms operating in their jurisdictions. Concentric, earlier in its report, notes differences in state and provincial regulatory jurisdictions as assessed by UBS Investor Services and by Standard & Poor's. Please provide, with explanation, Concentric's views on the materiality of regulatory jurisdictional differences in North America as they impact on the credit rating of Canadian and U.S. regulated utilities.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) The OEB Decision and Order for EB-2011-0354 was issued on February 7, 2013, or seven months before Moody's published its September 2013 report in which the rating agency changed its view on U.S. regulation relative to other countries including Canada. Prior to the September 2013 report, Moody's had indicated that it considered the U.S. regulatory environment as riskier than Canada due to the fact that U.S. utilities had fewer regulatory mechanisms to allow them to earn their authorized return and to mitigate regulatory lag. In the September 2013 report, Moody's indicated that it was changing its previous viewpoint, and that it no longer considered the U.S. as being more risky than Canada due to the increased prevalence of adjustment clauses and cost recovery mechanisms that were being approved in the U.S. When the OEB made its decision in Enbridge Gas Distribution's 2011 application, this Moody's report had not yet been issued. The

¹ *Bluefield Waterworks & Improvement Co. v. Public Service Commission of West Virginia et. al.* 262 U.S. 679 (1923), *Northwestern Utilities Limited v. City of Edmonton*, [1929] S.C.R. 186, *Federal Power Commission v. Hope Natural Gas* 320 U.S. 591 (1944). See EB-2009-0084, *Report of the Board on the Cost of Capital for Ontario's Regulated Utilities*, December 11, 2009, pp. 16-17

² Standard & Poor's, **Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry**, November 19, 2013 (as updated)

report is important because it supports the use of U.S. companies as reasonable comparators for Ontario utilities such as Enbridge Gas. In the U.S., the average gas distributor has an authorized equity ratio of approximately 53.5%, as shown in Figure 45 of Concentric's report.

- b) In its report "Updated Views on North American Utility Regulatory Jurisdictions – June 2021," S&P refers to credit supportiveness as "sustain[ing] credit quality."
- c) One prong of the fair return standard is that the authorized return must enable the utility to maintain its financial integrity or soundness. In Concentric's view, this is consistent with the notion that the authorized return should be supportive of credit quality. The utility needs the ability to attract capital on reasonable terms under a variety of economic and financial market conditions in order to finance its capital investments. A credit supportive regulatory environment is instrumental in ensuring that the utility remains financially healthy and can raise capital even as business and operating risks change over time.
- d) Standard and Poor's has indicated that it considers all regulation to be "credit supportive" for utility issuers as contrasted with other corporate issuers that do not operate under a regulatory framework. Concentric's understanding is that credit supportiveness is a matter of degree. From a credit ratings perspective, Concentric does not view the differences in S&P's regulatory ranking to be a material driver of ratings differentials. This is supported by S&P's statements that "We therefore designate all these jurisdictions from credit supportive to most credit supportive, and these vary only in degree," and that "[o]ften they simply designate a stable jurisdiction **slightly** better or worse than its closest peers in credit quality."
(emphasis added)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 120 of 164

Question(s):

Concentric has stated the following on the referenced page:

...our analysis shows that Canadian utilities are choosing to invest in U.S. where higher returns are available than in Canada. This is direct market evidence of better potential reward for taking on a similar level of risk.

- a) Please explain and elaborate upon the assertion associated with "similar level of risk" in this statement. Is Concentric of the view that every Canadian utility (holdco) M&A transaction in the US involved a higher reward for relatively the same or lower risk? Please explain your response and identify specific examples that Concentric is aware of.
- b) b)Isn't it possible that lack of available investment opportunities, and the desire for portfolio diversification are greater drivers of expansion outside of Canada? Please elaborate on why Concentric agrees or disagrees with this statement.

Response:

The following response was provided by Concentric Energy Advisors.

- a) Concentric has not evaluated every cross-border transaction for its risk-reward tradeoff, but cite three specific "case studies" on pp. 119-120 of our Report. We also base our statement on a few observations. First, we observe that average awarded ROEs and equity ratios for U.S. companies are higher than those in Canada, and the U.S. credit ratings are equivalent or a notch higher. Figure 23 in Concentric's Report illustrates this difference for the gas utilities in our sample, where the Canadian Operating Companies have an average 41.7% equity ratio vs. 51.4% for the U.S. operating companies. The credit ratings for U.S. utility comparators are a notch higher than their Canadian peers (A vs. A-). Authorized ROEs for Canadian gas distributors

average 8.86% vs. 9.83% for U.S. gas distributors. Using credit rating as a measure of financial and business risk, U.S. companies offer a greater equity return for equivalent (or slightly lower risk). Second, Concentric provides consulting support to both Canadian and U.S. companies on utility investments and transactions. In this work, we routinely evaluate risks and potential returns, and reach the same conclusion, that U.S. utilities offer greater returns for equivalent or lower risk.

- b) Yes. Risk and return are not the exclusive drivers of Canadian investment in U.S. utilities, but they are an important consideration. U.S. utilities attract investment capital from both domestic and foreign investors, but Canadian companies have been the most active foreign investors over the past two decades. We attribute this to comparable country risk, geographic proximity, the emergence of a North American energy market, constructive regulatory regimes, a greater number of investment opportunities and opportunity for diversification, and the aforementioned greater return for risk.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 121 of 164

Question(s):

Concentric has provided the US/Canada comparison table for “Country Risk Ratings” in Figure 44.

Other than Sovereign risk rating (where Canada is rated A and US is rated AA), Canada has the same or higher rating across all risk categories, and higher in both political and banking sector risk ratings (which one may argue are relatively more relevant for investors in Enbridge Gas). As such, would Concentric agree that investment risk in Canada remains lower than in the US? If not, please explain.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

No. The overall country risk rating is the same, A. Further, based on our research and interviews with equity analysts and investors (including utility investors), we are not aware of any country risk differential that is applied or would favor Canada over the U.S.

There are also other agencies that produce country risk rankings that confirm this perspective. COFACE, the international risk advisor, ranks the U.S. and Canada both as A2/A1 on their country risk and business climate (see Table 1). Only Norway ranks higher at A1/A1. Thirteen countries rank the same as the U.S. and Canada (Australia, Japan, New Zealand, Singapore, South Korea, Taiwan, Denmark, Finland, Luxembourg, Netherlands, Sweden, Switzerland, and Israel.)

Table 1

AMERICA	COUNTRY RISK ASSESSMENT	BUSINESS CLIMATE ASSESSMENT
CANADA	A2	A1
UNITED STATES OF AMERICA	A2	A1

Source: [https://www.coface.com/Economic-Studies-and-Country-Risks/Comparative-table-of-country-assessments/\(ca\)/198](https://www.coface.com/Economic-Studies-and-Country-Risks/Comparative-table-of-country-assessments/(ca)/198)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Manufacturers & Exporters (CME)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, p. 5 of 164

Question(s):

- a) Please provide all credit ratings agency reports for Enbridge Gas since EB-2017-0306/0307;
- b) To the extent not already provided in the request above, please provide all documents relied on in the creation of this report that are not already linked in the report.

Response:

- a) Please see response at Exhibit I.1.8-STAFF-14 parts a) iv. and b) ii.
- b) The following response was provided by Concentric Energy Advisors, Inc.:

Please see Attachment 1. Table 1 below is a list of the source documents used by Concentric to develop its report and the corresponding footnote numbers.

Table 1

Page Numbers	Footnote Number(s)
1-15	1, 95, 99, 105, 122, 125, 131, 134, 174, 206, 231, 232
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44-161	5
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This page is intentionally left blank. Due to size, this Attachment has not been included.

Please see Exhibit I.5.3-CME-41 Attachment 1.pdf on the OEB's RDS.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Manufacturers & Exporters (CME)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, p. 16 of 164

Question(s):

At page 16, Concentric quoted from the Board's EB-2011-0354 decision. As part of that decision, the Board determined "[t]he evidence does not demonstrate a tangible risk that new environmental policy and laws in relation to gas distribution will be implemented over the near term, or if implemented, will be likely to have a detrimental effect on Enbridge in terms of volume over the near term."

a) How does Concentric understand the phrase "near term" in relation to EGI and the horizon for risks.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

a) To Concentric's knowledge, the OEB did not define the precise meaning of "near term" in its EB-2011-0354 decision. From a risk horizon perspective, Concentric understands that the OEB has considered risk both retrospectively and prospectively. As the Board made clear in its EB-2011-0354 decision, the retrospective period the Board found relevant was that between its last decision and the current period:

In EB-2006-0034, the Board performed an assessment of the change in Enbridge's risk and determined the appropriate equity ratio for Enbridge at that time. In this proceeding, the Board's task in assessing the change in risk is to examine how risk has changed from the time the issue was previously decided in EB-2006-0034.

And prospectively, the OEB indicated:

Regarding the risk of future events, the Board agrees with CCC that the relevant future risks are those that are likely to affect Enbridge in the near term. Any risks that may materialize over the longer term can be taken

into account in subsequent proceedings. In considering the risk of future events, the Board will take into account the fact that, generally, the more distant the potential event, the more speculative is any conclusion on the likelihood that the risk will materialize.”¹

Concentric’s risk analysis considered both a retrospective view, from the time of the OEB’s last decisions on this matter in 2012 for EGD and Union prior to amalgamation, and a prospective view of business and financial risk. Even though investors consider both longer term and near term risks, Concentric considers near term risks as those likely to impact Enbridge Gas over the five-year rate period from 2024 to 2028.

¹ EB-2011-0354, Ontario Energy Board Decision on Equity Ratio and Order, February 7, 2013, at 7.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Manufacturers & Exporters (CME)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, p. 41-44 of 164

Question(s):

At page 41, Concentric outlined EGI's recent experience regarding leave to construct applications. In some cases, it cited the number of interrogatories received or the number of intervenors to conclude that EGI's experience with regulatory opposition is consistent with the industry wide trend of increasing opposition and increased operational risk.

- a) Please provide a list of all leave to construct applications submitted by either EGD or Union since 2012. For each one, please provide:
- i. The number of intervenors;
 - ii. The number of interrogatories received; and
 - iii. The outcome of the application.

Response:

- a) Due to the volume of Leave to Construct applications filed between 2012-2023, for ease of review Enbridge Gas has summarized the number of approved intervenors and interrogatories received for Pipeline Projects by year in Table 1. Similarly, Enbridge Gas has summarized the number of approved intervenors and interrogatories received for Storage Project Applications by year in Table 2.

Table 1
Average Number of Intervenors & Interrogatories received for LTC Applications < \$100 Million in Capital Cost

Year	Average # Intervenors and OEB Staff	Average # Interrogatories
2012	1	16
2013	1	0
2014	1	12
2015	2	16
2016	2	36
2017	2	36
2018	2	35
2019	4	96
2020	8	258
2021	4	95
2022	7	204

Please note, in Table 1 Enbridge Gas has only included Pipeline Projects where Leave to Construct was sought with capital costs less than \$100 million. Large Projects with capital cost estimates over \$100 million, regardless of the general state of regulatory opposition, have historically drawn widespread attention and resulting interest during the discovery phases of the OEB proceedings. Enbridge Gas also did not include proceedings that sought approval (under Section 36) for Union's proposed volumetric-based System Expansion Surcharge (SES) for Community Expansion Projects, as the number of interrogatories and intervenors largely reflects intervenor participation related to Union's proposal for the SES.

Table 2
Average Number of Intervenors & Interrogatories received for Storage Project Applications

Year	Average # Intervenors and OEB Staff	Average # Interrogatories
2012	2	8
2013	1	0
2014	2	4
2015	2	6
2016	4	21
2017	2	10
2019	1	0
2020	2	56
2021	3	54

A list of all pipeline and storage projects for which Leave to Construct was sought between 2012 to 2022 can be found at Attachment 1 to this response. The outcome of each project application is accessible via the hyperlinks to OEB Decision and Order provided. Please note that the information contained in Attachment 1 was compiled on a best-efforts basis directly from the OEB's website (listing of archived applications available via regulatory document search).

Table 1: Pipeline Projects < \$100 Million

Year	Average # Intervenors	Average # Interrogatories
2012	1	16
2013	1	0
2014	1	12
2015	2	16
2016	2	36
2017	2	36
2018	2	35
2019	4	96
2020	8	258
2021	4	95
2022	7	204

Table 2: Storage Projects

Year	Average # Intervenors	Average # Interrogatories
2012	2	8
2013	1	0
2014	2	4
2015	2	6
2016	4	21
2017	2	10
2019	1	0
2020	2	56
2021	3	54

Table 1 Data										
Project	Docket	Applicant	# Intervenor Approved and OEB Staff	# Interrogatories	Decision and Order	Technical Conference prescribed (y/n)	# Undertakings from Technical Conference	Oral Hearing (y/n)	# Undertakings from Oral Hearing	Capital Cost from OEB Application
Projects included in Table 1										
Angus Reinforcement Project	EB-2012-0013	Enbridge Gas Distribution	1	1	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3820477/File/document	n	n/a	n	n/a	4,134,983.00
Ottawa Reinforcement Project	EB-2012-0099	Enbridge Gas Distribution	1	27	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3752371/File/document	n	n/a	n	n/a	51,236,000.00
Thunder Bay Pipeline Project	EB-2012-0226/EB-2012-0227	Union Gas	2	36	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3835667/File/document	n	n/a	n	n/a	26,726,000.00
Durham York Energy Centre Pipeline	EB-2012-0382	Enbridge Gas Distribution	1	8	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3884040/File/document	n	n/a	n	n/a	3,900,000.00
Owen Sound Replacement Project	EB-2012-0430	Union Gas	2	44	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3736878/File/document	n	n/a	n	n/a	23,907,000.00
Leamington Expansion Pipeline Project (Pipeline)	EB-2012-0431	Union Gas	1	11	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3883643/File/document	n	n/a	n	n/a	8,392,000.00
Leamington Expansion Pipeline Project (Stations)	EB-2012-0432	Union Gas	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3819888/File/document	n	n/a	n	n/a	1,778,000.00
2013 Panhandle Replacement	EB-2012-0433	Union Gas	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3819888/File/document	n	n/a	n	n/a	2,368,000.00
Ashmore Station (Request to Vary from GTA Project)	EB-2012-0434/EB-2018-0034	Enbridge Gas Distribution	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4171364/File/document	n	n/a	n	n/a	14,373,588.00
Dawn Parkway NPS 36 Stratford-Caradoc Project	EB-2013-0191	Union Gas	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3995487/File/document	n	n/a	n	n/a	1,520,000.00
Dawn Parkway NPS 48 Replacement	EB-2013-0284	Union Gas	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4080327/File/document	n	n/a	n	n/a	3,915,000.00
Panhandle NPS16 Replacement (Highway 40- Chatham Kent)	EB-2013-0407	Union Gas	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4247237/File/document	n	n/a	n	n/a	NA
Panhandle NPS16 Replacement Project	EB-2013-0420	Union Gas	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4171364/File/document	n	n/a	n	n/a	29,597,000.00
Sarnia Expansion Pipeline Project	EB-2014-0333	Union Gas	2	7	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4672887/File/document	n	n/a	n	n/a	24,318,000.00
Bay of Quinte Replacement Pipeline Project	EB-2014-0350	Union Gas	1	16	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4707272/File/document	n	n/a	n	n/a	8,900,000.00
Ottawa Innes Road Pipeline Replacement Project	EB-2012-0438/EB-2014-0017/EB-2015-0037	Enbridge Gas Distribution	1	14	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3810747/File/document	n	n/a	n	n/a	7,254,286.00
Panhandle 2015 Replacement Project	EB-2015-0041	Union Gas	1	8	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4618457/File/document	n	n/a	n	n/a	9,737,000.00
Sudbury NPS 10 Replacement	EB-2015-0042	Union Gas	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4754487/File/document	n	n/a	n	n/a	NA
Sudbury Expansion Project	EB-2015-0120	Union Gas	3	50	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4806667/File/document	n	n/a	n	n/a	10,825,000.00
Canadian Nuclear Laboratories	EB-2015-0194	Enbridge Gas Distribution	2	7	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4825867/File/document	n	n/a	n	n/a	15,503,141.00
Panhandle Relocation Project	EB-2015-0366	Union Gas	1	14	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4936414/File/document	n	n/a	n	n/a	NA
Leamington Pipeline Expansion Project	EB-2016-0013	Union Gas	5	80	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4953347/File/document	n	n/a	Y	7	12,344,000.00
Seaton Land Development Project	EB-2016-0054	Enbridge Gas Distribution	1	9	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4932738/File/document	n	n/a	n	n/a	4,052,672.00
Sudbury Replacement Project	EB-2016-0122	Union Gas	2	27	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4914556/File/document	n	n/a	n	n/a	2,188,144.00
Sudbury Water Treatment Project	EB-2016-0222	Union Gas	1	29	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4930927/File/document	n	n/a	n	n/a	8,393,741.00
2017 Panhandle Replacement Project (Jefferson)	EB-2017-0118	Union Gas	1	10	https://www.rds.ceb.ca/CMW/ebDrawer/Record/49758717/File/document	n	n/a	n	n/a	1,518,500.00
Fenelon Falls Community Expansion Project	EB-2017-0147	Enbridge Gas Distribution	6	76	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4900928/File/document	n	n/a	n	n/a	23,055,488.00
2018 Sudbury Replacement Project	EB-2017-0180	Union Gas	1	33	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4916167/File/document	n	n/a	n	n/a	74,057,000.00
Scugog Island Community Expansion Project	EB-2017-0261	Enbridge Gas Distribution	1	26	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5011616/File/document	n	n/a	n	n/a	3,448,948.00
2018 Oxford Reinforcement Project	EB-2018-0003	Union Gas	1	18	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5088936/File/document	n	n/a	n	n/a	7,396,000.00
Libery Village Project	EB-2018-0096	Enbridge Gas Distribution	1	11	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50212125/File/document	n	n/a	n	n/a	3,623,263.00
Bathurst Reinforcement Project	EB-2018-0097	Enbridge Gas Distribution	1	47	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5030367/File/document	n	n/a	n	n/a	47,144,665.00
Don River 30" Pipeline Project	EB-2018-0108	Enbridge Gas Distribution	1	28	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5075597/File/document	n	n/a	n	n/a	25,316,141.00
2019 Community Expansion Project	EB-2018-0142	Enbridge Gas Distribution	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5084887/File/document	n	n/a	n	n/a	NA
Chatham-Kent Rural Project	EB-2018-0188	Enbridge Gas Distribution	3	76	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5048415/File/document	n	n/a	n	n/a	19,100,000.00
Georgian Sands Pipeline Project	EB-2018-0226	Enbridge Gas Inc	2	56	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5048124/File/document	n	n/a	n	n/a	2,827,537.00
Stratford Reinforcement Project	EB-2018-0306	Enbridge Gas Distribution	3	46	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50381627/File/document	n	n/a	n	n/a	28,540,000.00
St Laurent Pipeline Project	EB-2019-0006	Enbridge Gas Inc	1	29	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50371373/File/document	n	n/a	n	n/a	5,510,519.00
Chippewa of the Thames First Nation Community Expansion	EB-2019-0139	Enbridge Gas Inc	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50486747/File/document	n	n/a	n	n/a	0
Owen Sound Reinforcement Project	EB-2019-0183	Enbridge Gas Inc	3	171	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5170927/File/document	n	n/a	n	n/a	68,965,000.00
Saugenev First Nation Community Expansion	EB-2019-0187	Enbridge Gas Inc	2	37	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5070967/File/document	n	n/a	n	n/a	2,537,360.00
North Bay Community Expansion Project	EB-2019-0188	Enbridge Gas Inc	3	129	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50767077/File/document	n	n/a	n	n/a	10,095,260.00
Sarnia Reinforcement Project	EB-2019-0218	Enbridge Gas Inc	2	59	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50718267/File/document	n	n/a	n	n/a	NA
Low Carbon Energy Project	EB-2019-0244	Enbridge Gas Inc	3	247	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50481847/File/document	n	n/a	n	n/a	NA
Cherry to Bathurst	EB-2020-0136	Enbridge Gas Inc	7	269	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5073227/File/document	n	n/a	n	n/a	NA
London Lines Replacement Project	EB-2020-0192	Enbridge Gas Inc	9	210	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50713267/File/document	n	n/a	n	n/a	NA
St Laurent Ottawa North Pipeline Project	EB-2020-0293	Enbridge Gas Inc	6	266	https://www.rds.ceb.ca/CMW/ebDrawer/Record/507170157/File/document	Y	n/a	n	n/a	37
Greenstone Pipeline Project	EB-2021-0205	Enbridge Gas Inc	4	95	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5152267/File/document	n	n/a	n	n/a	NA
Waterfront Toronto Relocation Project	EB-2022-0003	Enbridge Gas Inc	7	99	https://www.rds.ceb.ca/CMW/ebDrawer/Record/505627/File/document	n	n/a	n	n/a	NA
Dawn to Corunna	EB-2022-0086	Enbridge Gas Inc	11	459	https://www.rds.ceb.ca/CMW/ebDrawer/Record/502437/File/document	Y	52	n	n/a	NA
Haldimand Shores Community Expansion Project	EB-2022-0088	Enbridge Gas Inc	2	42	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5038267/File/document	n	n/a	n	n/a	NA
Crowland Test Well Drilling Project	EB-2022-0155	Enbridge Gas Inc	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5068627/File/document	n	n/a	n	n/a	NA
Panhandle Regional Expansion Project	EB-2022-0157	Enbridge Gas Inc	12	419	NA	Y	49	n	n/a	NA
Projects excluded from Table 1										
Section 36 Approval Applications										
Kettle Point & Lambton Shores Community Expansion	EB-2015-0179	Union Gas								2,095,346.00
Milverton, Roskoff, Warburg Community Expansion	EB-2015-0178	Union Gas								5,976,200.00
Moravintown Island Community Expansion	EB-2015-0179	Union Gas	22	582	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5012474/File/document	Y	18	N	n/a	563,873.00
Prince Township Community Expansion	EB-2015-0179	Union Gas								2,720,959.00
Projects > \$100 M										
Parkway West Project	EB-2012-0433	Union Gas	40	527						219,400,000.00
GTA Reinforcement Project (without Stations)	EB-2012-0451	Enbridge Gas Distribution	40	942	https://www.rds.ceb.ca/CMW/ebDrawer/Record/44170176/File/document	Y	52	Y	45	667,400,000.00
Brantford-Kinross Project	EB-2013-0074	Union Gas	6	0						96,056,000.00
Union's Dawn Parkway 2016 Expansion Project	EB-2014-0261	Union Gas	16	188	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4765371/File/document	n	n/a	Y	0	231,037,000.00
Panhandle Reinforcement Project	EB-2016-0186	Union Gas	15	389	https://www.rds.ceb.ca/CMW/ebDrawer/Record/50274373/File/document	Y	24	Y	11	264,468,000.00
Kingsville Transmission Reinforcement Project	EB-2018-0013	Union Gas	4	28	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5025647/File/document	n	n/a	n	n/a	105,716,000.00
Windsor Line Replacement Project	EB-2019-0172	Enbridge Gas Inc	3	69	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5034347/File/document	Y	22	n	n/a	106,805,000.00
2019 Dawn Parkway Expansion	EB-2019-0159	Enbridge Gas Inc	18	714	https://www.rds.ceb.ca/CMW/ebDrawer/Record/5042007/File/document	n	n/a	n	n/a	203,526,396.00

Table 2 Data										
Project	Docket	Applicant	# Intervenor Approved	# Interrogatories	Decision and Order	Technical Conference prescribed (y/n)	# Undertakings from Technical Conference	Oral Hearing (y/n)	# Undertakings from Oral Hearing	Capital Cost from OEB Application
Jacob Pool Storage Development	EB-2011-0013	Union Gas								NA
Jacob Pool Storage Development	EB-2011-0014	Union Gas	4	55	https://www.rds.ceb.ca/CMW/ebDrawer/Record/2861837/File/document	Y	1	n	n/a	NA
Jacob Pool Storage Development	EB-2011-0015	Union Gas								NA
Application to Drill Wells in the Kimball-Coilville DSA	EB-2012-0060	Enbridge Gas Distribution	3	15	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3513627/File/document	n	n/a	n	n/a	NA
Bentpath Rosedale Pool - Well Drilling Project	EB-2012-0391	Union Gas	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/3777677/File/document	n	n/a	n	n/a	NA
License to drill within the Kimball-Coilville DSA	EB-2013-0289	Enbridge Gas Distribution	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4160337/File/document	n	n/a	n	n/a	NA
Chatham D Designated Storage Area Amendment	EB-2014-0298	Enbridge Gas Distribution	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4170176/File/document	n	n/a	n	n/a	NA
2015 Storage Enhancement Project	EB-2014-0306	Union Gas	2	1	https://www.rds.ceb.ca/CMW/ebDrawer/Record/44658547/File/document	n	n/a	n	n/a	NA
Application to Drill Well in the Wilksport DSA	EB-2014-0378	Enbridge Gas Distribution	1	0	https://www.rds.ceb.ca/CMW/ebDrawer/Record/4416037/File/document	n	n/a	n	n/a	

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Manufacturers & Exporters (CME)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, p. 56 of 164

Question(s):

At page 56, Concentric opined that “EB-2016-0004 moderately increases the Company’s risk relative to 2012 in two ways: (1) it increases the Company’s exposure to forecast risk, as noted by the OEB, and (2) it weakens the Company’s growth prospects because it now faces increased competition from other utilities to serve currently unserved areas.”

- a) Please provide Concentric’s view on the impact of amalgamation on the Company’s growth prospects due to the lessening of competition as a result of Union and EGD becoming one company

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric’s view is that the amalgamation of EGD and Union did not materially affect the Company’s growth prospects, because EGD and Union serve distinct service areas.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Manufacturers & Exporters (CME)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, p. 71 of 164

Question(s):

At page 71, Concentric opined that “In summary, the risks associated with changing climate parameters and severe weather events have increased for EGI since 2012, at the asset, industry, distribution system and macroeconomic levels.”

- a) Please provide a list of all severe weather related outages to EGI (EGD or Union) since 2012, and the financial impact of those events on the utility.
- b) Please list, to the extent possible, all severe weather related outages to EGD and Union from the period 2002-2012 and the financial impact of those events on the utility.

Response:

a - b) Please see response at Exhibit I.5.3-IGUA-45.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Manufacturers & Exporters (CME)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, p. 100 of 164

Question(s):

At page 100, Concentric stated that “The OEB concluded that “size is not a key determinant of, or proxy for, risk... Given the Company’s lack of geographic diversity and the OEB’s prior findings with regard to size and risk, Concentric finds that Enbridge Gas’ larger size relative to the proxy companies does not warrant an adjustment to our recommended equity thickness.”

- a) Without respect to the OEB’s conclusion regarding utility size, is it Concentric’s view that the size of a utility is a determinant of risk?
- b) Given the breadth of EGI’s service territory (throughout Northern, Eastern and Southern Ontario) please explain how Concentric views “geographic risk” and diversity. For instance, would a utility that served South Western Ontario and South Eastern Michigan have greater geographic diversity than EGI as it currently exists?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Size is a determinant of risk for a utility. In particular, small size and lack of economic or geographic diversification is considered a risk factor by credit rating agencies such as Moody’s Investors Service. Historical return data from Ibbotson and Associates (now published by Kroll) show that investors require higher returns for companies with small market capitalizations relative to larger companies. When companies grow beyond a certain size, however, that large size or scale becomes less important to equity investors and credit rating agencies. For example, Enbridge Gas Distribution and Union Gas were already large gas distributors in Ontario prior to the amalgamation. While the combined company, Enbridge Gas, is larger in terms of number of customers, revenues, annual throughput, etc., there is no evidence that equity investors or analysts consider that additional size and scale as reducing the

business or financial risk of Enbridge Gas as compared to the situation prior to the amalgamation.

- b) As provided at page 94-95 of Concentric's Report, credit rating agencies consider the degree of economic and geographic diversification as a risk factor for a utility. Standard and Poor's and Moody's have observed that Enbridge Gas provides service in a single province, and as such, lacks economic and geographic diversification. Credit rating agencies do not have this same concern with utilities that provide service across multiple provincial or state jurisdictions because their financial performance does not depend entirely on the economic conditions, demographic trends, and regulatory decisions of one specific jurisdiction.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1 (Capital Structure)

Question(s):

- a) Please provide the difference in the total return on equity (\$) that Enbridge would earn for each year from 2024 to 2028 as between (i) the current equity ratio and (ii) the proposed equity ratio. Please make and state simplifying assumptions as required to provide an answer (e.g. that other aspects of its application are approved in full, holding the other cost of capital parameters constant, etc.). Please provide calculations and an explanation of the calculations.
- b) Please describe in simple terms how increasing the equity ratio helps Enbridge to (i) mitigate risks or (ii) be compensated for assuming higher risks?

Response:

- a) Please see response at Exhibit I.5.3-LPMA-41 part a-b), Attachment 1, Table 4 for the incremental return on equity (\$) that Enbridge Gas would earn for each year from 2024 to 2028, resulting from its phased equity thickness proposal from 36% to 42%.
- b)
 - i. Credit rating agencies and debt investors evaluate the riskiness of investing capital in Enbridge Gas. The higher the equity ratio, the lower the risk to debt holders. With increasing business risks to Enbridge Gas as a result of factors such as Energy Transition, the riskiness of investing in Enbridge Gas's debt, all else being equal, increases. Higher equity thickness would offset the increased business risks. Therefore, increased equity thickness would support Enbridge Gas's continued access to capital at reasonable costs.
 - ii. Increasing the equity thickness does not compensate Enbridge Gas for assuming higher risks. The return on equity compensates equity investors for assuming risk and Enbridge Gas is not proposing to change the OEB's prescribed Return on Equity formula.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1 (Concentric Cost of Capital Report)

Question(s):

- a) Concentric states: “Additionally, restrictions on gas use in buildings have advanced at the state or local level in at least six U.S. states that collectively represent approximately one quarter of gas use in the U.S. These restrictions threaten natural gas customer growth because they generally apply to new buildings, but in some cases, such as Washington and New York, state policymakers have also proposed plans that would phase gas use out of existing buildings.” Please provide a table listing these, including (i) the location, (ii) whether the restriction applies to new or existing buildings¹, (iii) whether the restriction is proposed or passed, and (iv) the gas consumption in the location [or population, if the gas consumption is difficult to locate].
- b) Concentric states: “Within the last two years, multiple regulators have determined that it is necessary to examine the future of gas utilities.”² Please provide a table listing these proceedings, including: (i) the jurisdiction, (ii) the current status of the proceeding, (iii) a link to the relevant regulatory website, and (iv) a list of the measures that are proposed or under consideration to mitigate decarbonization-related financial risks.

Response:

The following responses was prepared by Concentric Energy Advisors, Inc.:

- a) Please see Attachment 1 for a sample of U.S. cities that have passed or proposed bans on the use of natural gas in new and/or existing buildings.
- b) Please see Attachment 2 for the requested information.

¹ See page 22 of the evidence, which is page 18 of the report.

² See page 31 of the evidence, which is page 27 of the report.

City	New/Existing Building	Legislation Proposed /Passed	Population	Source
New York City, New York	New	Passed	8,804,190	New York City Bans Gas Hookups in New Buildings; is the State Next?: Hodgson Russ LLP
Ithaca, New York	New and Existing	Passed	32,108	Natural-Gas-Ban-Report_Updated.pdf (instituteeforenergyresearch.org)
Berkeley, California	New	Passed	124,321	Gas stove ban: Cities and states have already banned gas in new buildi (fastcompany.com)
San Francisco, California	New	Passed	873,965	Natural gas bans: 20 states have laws that prohibit cities from banning natural gas hookups CNN Politics
Seattle, Washington	New	Passed	737,015	Natural-Gas-Ban-Report_Updated.pdf (instituteeforenergyresearch.org)
Burlington, Vermont	New	Proposed	44,743	Natural-Gas-Ban-Report_Updated.pdf (instituteeforenergyresearch.org)
Portland, Oregon	New	Passed	647,176	Natural-Gas-Ban-Report_Updated.pdf (instituteeforenergyresearch.org)
Eugene, Oregon	New	Proposed	176,654	Cities & States Are Moving to All-Electric Buildings (climatenexus.org)
Brookline, Massachusetts	New	Passed	63,191	Cities & States Are Moving to All-Electric Buildings (climatenexus.org)
Shoreline, Washington	New	Passed	58,608	Cities & States Are Moving to All-Electric Buildings (climatenexus.org)
Bellingham, Washington	New	Passed	91,482	Cities & States Are Moving to All-Electric Buildings (climatenexus.org)
Sacramento, California	New	Passed	524,943	Cities & States Are Moving to All-Electric Buildings (climatenexus.org)
Oakland, California	New	Passed	440,646	Cities & States Are Moving to All-Electric Buildings (climatenexus.org)
Montgomery County, Maryland	New	Proposed	1,100,000	https://www.eenews.net/articles/east-coasts-first-countywide-gas-ban-passed-in-md/

Jurisdiction	Docket Number	Status of the Proceeding	Summary	Link to Proceeding
California	R2001007	Decisions reached for Track 1 and Track 2 in July and December 2022 respectively	Proceeding to establish policies and rules to ensure safe and reliable gas systems in California and perform long-term gas system planning. This docket was opened in response to local governments passing laws that limit the expansion of gas and the anticipation of how this would affect gas demand in future.	Proceeding Details (ca.gov)
Colorado	21R-0449G	Final decision reached in December 2022	Docket opened in response to SB 21-264 which requires gas utilities in Colorado to submit plans to reduce their GHG emissions by 4% in 2025 and 22% in 2030. SB 21-264 also re-evaluates the cost-effectiveness of gas distribution by taking into account the social cost for carbon and methane.	Decision Detail (state.co.us)
Massachusetts	D.P.U 20-80	Docket still open	Investigation by the Department of Public Utilities into the role of local distribution gas companies as the Commonwealth achieves its 2050 climate goals.	Investigation Assessing the Future of Natural Gas in Massachusetts Mass.gov
Nevada	21-05002	Docket still open	Investigation regarding long term planning for natural gas utility service in Nevada.	12764.pdf (state.nv.us)
New York	20-G-0131	Order issued in May 2022	Proceeding on motion of the Commission in regards to gas planning procedures to develop moratoria protocols to align gas system planning with the Climate Leadership and Community Protection Act (CLCPA).	NYS DPS-DMM: Matter Master
Oregon	UM 2178	Draft report issued in April 2022	Natural gas fact finding mission.	State of Oregon: Public Utility Commission of Oregon
Rhode Island	22-01-NG	Active	Docket opened by the PUC to examine the extent to which the Act on Climate (R.I. Gen. Laws Chapter 42-6.2) will impact the future of gas supply and distribution in Rhode Island.	Docket No. 22-01-NG - Investigation Into the Future of the Regulated Gas Distribution Business in Rhode Island in Light of the Act on Climate (6/9/22) RIPUC
Washington	U-210553	Case is pending	Examination of energy decarbonization impacts and pathways for electric and gas utilities to meet state emissions targets.	UTC Case Docket Detail Page UTC (wa.gov)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1 (Concentric Cost of Capital Report)

Question(s):

- a) Concentric states: “it is premature to draw conclusions regarding the viability of hydrogen in the Company’s system on a broader scale.”¹ Is this referring to technical viability (e.g. safety, CSA approval, etc.) or economic viability, or both? Please elaborate on why this may not be viable.
- b) Concentric cites a S&P report stating as follows: “[S]witching to hydrogen-based boilers requires a major overhaul of the gas network infrastructure. Upgrading grids to allow for hydrogen distribution would require a concurrent rollout of hydrogen boilers (or fuel cells) to all consumers affected by the switch from gas. A prerequisite is a new hydrogen transmission network to which to connect, since many applications would still rely on gas for decades to come.”² Please elaborate on the challenges of this kind of concurrent rollout. Does Concentric agree with S&P’s statement?
- c) Concentric states that “academics have noted a variety of financial, technical, and other barriers to widespread adoption of RNG.”³ Please provide copies of or links to any such reports or papers that make reference to the Ontario context.
- d) Please quantify the risk that hydrogen and RNG do not provide a pathway for Enbridge through the Energy Transition. Please provide as quantitative an answer as possible. Please use ranges of probabilities if necessary.
- e) If the risk described in (d) is so uncertain or remote that it cannot be quantified, please explain how it could justify the proposed change in equity thickness.

¹ See page 34-35 of the evidence, which are pages 30-31 of the report.

² See page 35 of the evidence, which is page 31 of the report.

³ See page 36 of the evidence, which is page 32 of the report.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) There are both economic and technical challenges associated with broad scale injection of hydrogen into the Company's system, although Concentric's analysis is focused on the economic challenges. Those include the lower heating value of hydrogen compared to natural gas, the costs associated with hydrogen-related facilities (e.g., electrolyzers, storage, transportation, and end-use equipment), and differentials in commodity pricing.
- b) The cited passage was intended to demonstrate the expression of caution by ratings agencies related to the near-term prospects for hydrogen. Concentric has not independently analyzed the costs associated with switching to hydrogen-based boilers or upgrading grids for hydrogen transmission.
- c) The academic studies cited by Concentric were not focused specifically on the "Ontario context." However, the technical challenges and financial barriers to RNG use are relevant to North American adoption, including in Ontario.
- d) Concentric has not quantified the risk that RNG does not provide an Energy Transition pathway. As stated in the Concentric report, at 36 of 164, "Concentric is unable to draw conclusions regarding the long-term viability of RNG at this time." Rather, Concentric concludes that Energy Transition is a significant risk for Enbridge Gas, and, while RNG provides a potential pathway, at this stage there is risk from an investors' perspective as to its viability.
- e) Concentric does not base its conclusion that Enbridge Gas's risk profile has changed solely on the viability of hydrogen and RNG as alternative fuels. In fact, hydrogen and RNG provide pathways for Enbridge Gas in navigating the energy transition. Please see the response to part d) for further discussion of risks related to these pathways.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1 (Concentric Cost of Capital Report)

Question(s):

- a) Concentric cites: The Brattle Group, “The Future of Gas Utilities Series: Transition Gas Utilities To A Decarbonized Future” in footnote 94. Please provide a copy or link.
- b) Concentric cites the Brattle Group as stating: “In the past decade, gas utility capital expenditures have grown by around double the rate of water and electric utilities’ spending, largely driven by safety and reliability. Utilities will need to recover their costs from a changing – and possibly shrinking – customer base. With energy and environmental policy targets rapidly approaching, gas utilities need to decide today how best to invest capital in long-lived assets and avoid stranded asset risks.” Does Concentric agree?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see Attachment 1 for a copy of the referenced report.
- b) Yes, Concentric agrees. It is important for gas distributors, such as Enbridge Gas, to consider the impacts of environmental mandates and public policy on their customers and system requirements. Please also see response at Exhibit I.5.3-IGUA 34 for a description of how Enbridge Gas incorporates Energy Transition in its planning process.

The Future of Gas Utilities Series

TRANSITIONING GAS UTILITIES
TO A DECARBONIZED FUTURE

Part 1 of 3

AUGUST 2021



Agenda

- A. Risk and opportunities for transition
- B. Regulatory and financial expectations
- C. Heating electrification
- D. Investor reactions
- E. Equity and energy justice



SERIES INTRODUCTION

Energy Sector's Changing Landscape Threatens Natural Gas Utilities



Impact Will Differ for Pure-Play, Combination, and Electric Utilities

The natural gas transition will impact all three types of utilities:

- **Combination utilities** may be better positioned to transition business from gas to electricity investment and sales. Gas sale declines presents downside risk, but electrification can present upside potential.
- Electrification serves as a boon to **electric utilities**, which can increase electricity investments and sales.
- **Pure-play gas utilities** face the most downside risk, and will need to be innovative and proactive to grow business.

Regulation will fundamentally answer the question of “who pays” for the transition, highlighting the need for well-designed regulatory strategy.

Who pays?

- Gas, electric, or combination utilities
- Shareholders or utility customers
- Gas or electric customers
- Current or future customers
- Advantaged vs. vulnerable populations

This series provides commentary on these issues and aims to help gas and combination utilities navigate the transition in a fiscally and socially responsible way.

Waiting Passively Is Not a Sustainable Option for Utilities or Customers

If gas utilities defer building a long-term strategy, they risk not having a voice in the policy, planning, and regulation process.

Gas demand reduction and bill increases for remaining customers will come with or without utility involvement.

However, the needed change is likely to be delayed or inefficient without utility involvement.

The scale of the transition is massive: displacing natural gas in the US would involve replacing nearly 150 million heating and cooking appliances, in addition to the gas distribution system infrastructure.

Proactive implementation of suitable solutions affords utilities the following benefits:

- Allows utilities to build a diversified and tailored strategy ahead of regulatory mandates
- Finding substitute capital deployments makes gas utilities part of the solution, not an obstacle
- Satisfy customers, reduce costs, and head off or offset probable customer defection
- Address investor concerns

The transition process will play out over many years, **but the planning must start now.**

The Transition Presents Significant Growth Opportunities

Natural gas utilities can create new business opportunities as an enabler of the energy transition, through proactive and innovative approaches.

- Utilities' access to capital, capabilities in large-scale planning and execution, and experience in working with regulatory authorities make them uniquely positioned to help plan and implement large infrastructure transitions.
- Clean fuels, such as renewable natural gas (RNG) and hydrogen, can provide growth opportunities while re-utilizing gas utilities' existing infrastructure or right-of-ways.

Gas utilities have options to create and capture value and reduce customer costs.

- Utilities' pathways will depend on their characteristics (pure-play versus combination), location, customer base, and regulatory environment.

Natural gas utilities will need to work closely with legislators, regulators, and stakeholders to **design and pursue enabling regulatory mechanisms and policies** to navigate this transition.



Building Blocks for a Successful Energy Transition



1

Is it a real risk? How big is it, and how immediate?

2

What strategies will enable solutions?

- Regulatory framework for transition
- New technologies and infrastructure
- Securing life of existing assets

3

What steps can be taken to get there?

- Performance-based regulation
- Multi-year rate plan
- New programs

The Brattle Group's Future of Gas Utilities Presentation Series

The Brattle Group's Future of Gas Utilities building blocks will be presented in a series of three presentations to be released in the summer and fall of 2021.

The Brattle Group's Future of Gas Utilities Series will culminate in a **Symposium**, where industry and Brattle experts will convene to debate key challenges and opportunities facing the gas industry.

The remainder of this slide deck will cover the first building block: **Assessing Risk**.



Part 1: Assessing Risk

The Future of Gas Utilities Series



ASSESSING RISK

Risks and Opportunities of the Transition

- Even though certain states are moving against this trend and enacting prohibitions on bans on new gas connections, cost declines related to technology innovation and federal, state, and municipal policy support will increase the deployment of lower-carbon alternatives to natural gas, as happened with renewables in the electricity sector.
- The transition is already underway: at the current rate, the number of homes with electric space heating could exceed the number of homes with gas space heating by 2032.
- In the past decade, gas utility capital expenditures have grown by around double the rate of water and electric utilities' spending, largely driven by safety and reliability.
- Utilities will need to recover their costs from a changing – and possibly shrinking – customer base.
- With energy and environmental policy targets rapidly approaching, gas utilities need to decide today how best to invest capital in long-lived assets and avoid stranded asset risks.
- Heightened perceptions of business risk are increasing financing costs for gas utilities. In early 2021, gas utilities traded at a ~20% discount relative to electric utilities.

Any strategic plan (including electrification and alternative gas technologies) must address equity and energy justice by considering financial, health, and economic impacts to vulnerable communities.

The Debate on the Future of Natural Gas Is Widespread

The **landscape for natural gas has shifted dramatically**, as states and cities across the country have passed natural gas bans and electrification mandates.

States are also launching proceedings on the role gas utilities will play in meeting the state’s greenhouse gas (GHG) emissions and clean energy goals.

Proposed approaches include “electrify everything” or leveraging alternative gas technologies such as RNG, hydrogen, etc.

The outcomes being debated vary widely: while some states have banned the use of gas in new buildings, **others have prohibited the enactment of such bans.**

STATES ENACTING GAS BANS | AS OF JULY 21, 2021

	STATE-WIDE	CITY			
	Proceeding on Future Role of Natural Gas	Proposed Gas Bans	Enacted Gas Bans	Implemented Moratoriums	Electrification “Reach” Codes
California	✓		✓		✓
Oregon	✓	✓			
Washington	✓	✓	✓		
New York	✓	✓		✓ PARTIALLY LIFTED	✓
Massachusetts	✓	✓	✓		
Colorado	✓	✓			✓
Washington, DC	✓				
Vermont					✓

Proposed Prohibition on Gas Bans	CO, MI, MN, NC, PA
Enacted Prohibition on Gas Bans	AL, AR, AZ, FL, GA, IA, IN, KS, KY, LA, MO, MS, OH, OK, TN, TX, UT, WV, WY

Gas Utilities Can Participate in a Decarbonized Future to Mitigate a Potential Death Spiral and Control Customer Costs

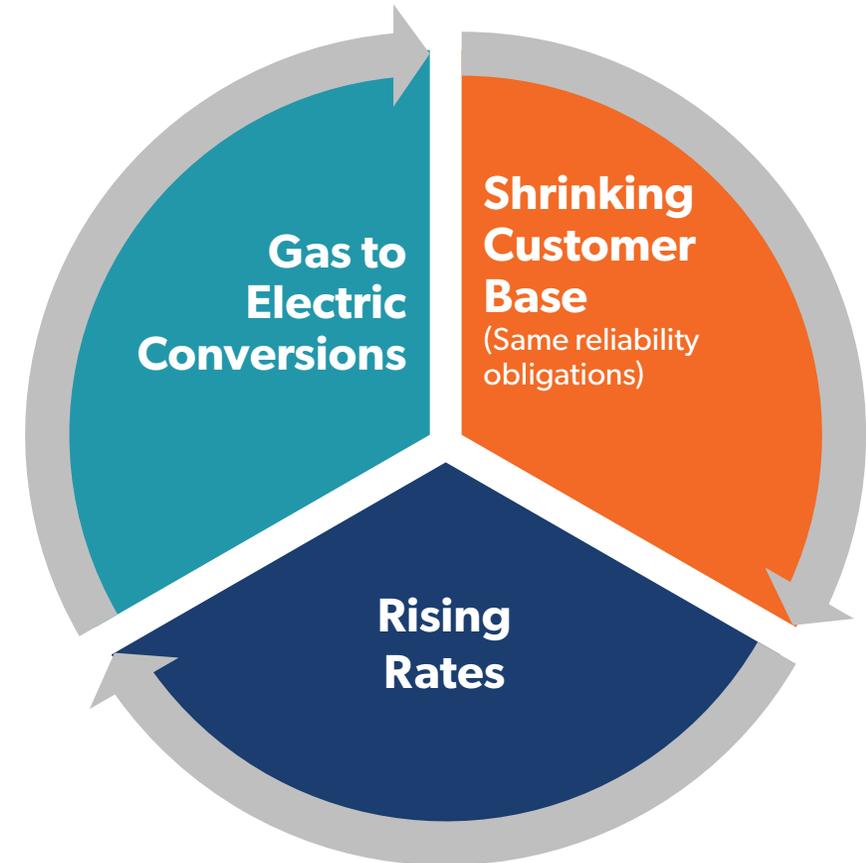
As states pursue degasification policies and homes convert to electric heating, **utilities risk losing customers and load.**

- Nationally, electric heating is outpacing gas heating adoption.
- Technology mandates and policy further accelerate the problem.

Utilities will likely **continue investing in their existing system for safety and reliability but need to recover those costs from a shrinking customer base.**

- This puts remaining customers at risk, a “death spiral” trend pushing more customers to electrification.
- Up to \$150–180 billion of gas distribution assets could be under-recovered as a result of the transition.

This spiral will increase customer costs and increase energy burdens, especially for low-income and vulnerable populations.



Gas utilities may reverse this problem if they quickly become part of the solution to a decarbonized future.

Gas Utilities' Risks and Opportunities with Decarbonization

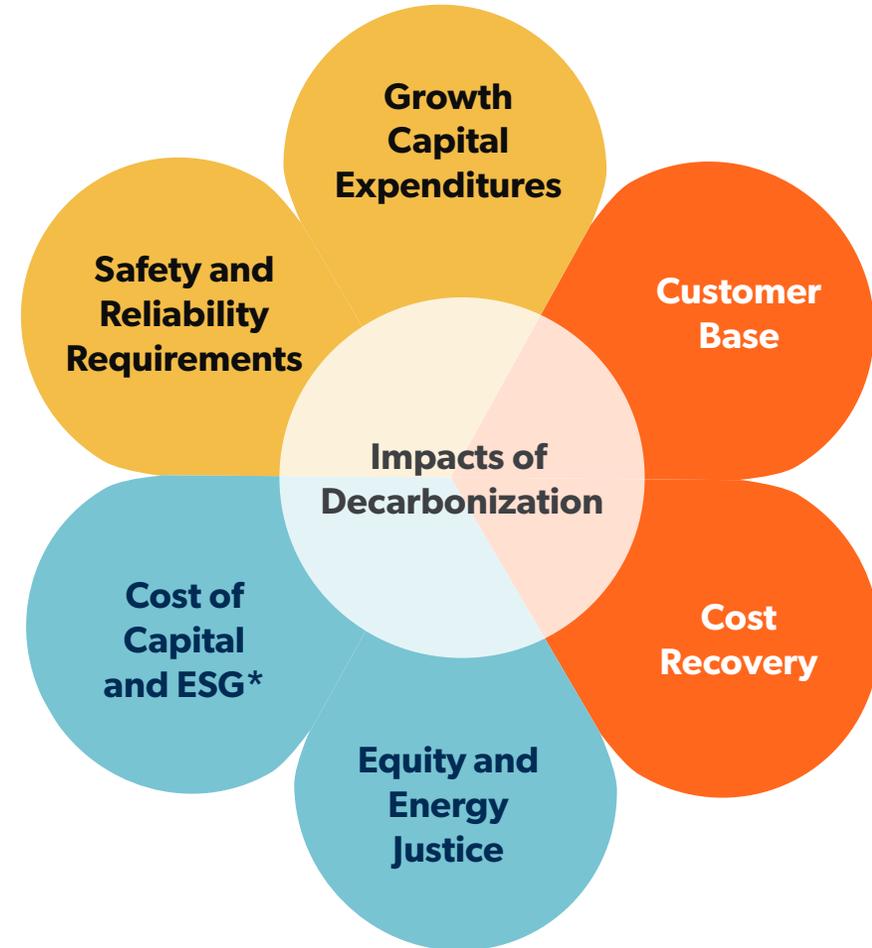
Proposed decarbonization pathways generally emphasize electrification, challenging the traditional business model of natural gas utilities.

Without proactive adjustments, utilities face increasing **cost recovery risks from capital investments** to grow the gas system or to maintain safety and reliability requirements.

There are **offsetting opportunities**, such as:

- Alternative fuels (RNG, hydrogen) are a viable alternative for end-uses that lack cost-effective electrification options.
- Long-run deep degasification may be expensive to achieve, requiring utilities to invest in clean performance of existing assets.
- Utilities could own and rate base gas replacement infrastructure, earning a return on these decarbonization assets.

The transition will take time and depends on factors such as costs, regulatory and legislative mandates, and customer adoption.



*ESG stands for Environmental, Social, Governance investing

Traditional Planning Faces Conflicting Regulatory and Financial Expectations

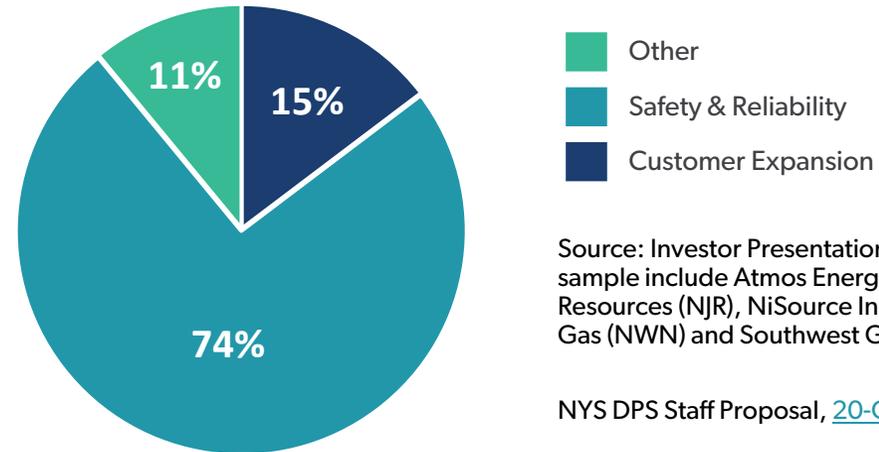
New gas assets placed into service today have a useful life of ~40 years – well beyond target dates for many decarbonization goals, creating cost-recovery risk.

- Gas utility capital expenditures have grown by around double the rate of water and electric utilities' capital expenditures.

Regulators are requiring gas utilities to develop gas long-range capital investment plans that conform to state climate and energy policy goals. Gas utilities and regulators need to decide today how best to deploy capital and avoid cost recovery risks due to the transition.

- Alternative depreciation schedules** may be required to fully recover traditional gas investments before policy target dates.
- Diversifying into gas decarbonization technologies** can limit exposure to lost growth opportunities and reduce stranded asset risk.

FORECASTED CAPITAL EXPENDITURES



Source: Investor Presentations, 2020. Utilities in the sample include Atmos Energy (ATO), New Jersey Resources (NJR), NiSource Inc. (NI), Northwest Natural Gas (NWN) and Southwest Gas (SWX).

NYS DPS Staff Proposal, [20-G-0131](#), February 12, 2021.

NY GAS PLANNING PROCEEDING | STAFF PROPOSAL

Utilities must incorporate demand-side solutions into their long-term planning to **reduce gas demand and the need for gas infrastructure investments.**

LDCs must **identify opportunities to avoid replacing leak prone pipe** and instead deploy “Non-Pipeline Alternative” investments.

Safety and Reliability Investments Will Remain a Priority

Utilities are under increasing pressure and are making **significant investments to meet new and existing safety and reliability requirements.**

- PHMSA's Mega Rule went into effect in 2020, mandating confirmation of Maximum Allowed Operating Pressures (MAOP), more frequent and regular pipeline integrity assessments, and new repair and leak detection requirements, amongst other requirements.
- This will require material investments, but increases the risk of obsolescence before the end of normal asset life (~40 years).

Utilities are also focused on replacing **leak-prone pipe**, which reduces methane emissions and helps meet state and corporate GHG emission targets.

- 32 natural gas utilities have pledged to reduce methane intensity to 1% by 2025.
- New York is asking utilities to identify opportunities to retire leak prone pipe and instead deploy non-pipeline alternatives, such as electrification of heating.
- Methane is a more potent GHG than CO₂ even though it is short-lived. Its 20-year warming potential is 80x – and its 100-year warming power is 25x – that of CO₂, per ton emitted.

Enabling regulatory mechanisms will need to be designed and implemented to recover safety and reliability costs from a changing and/or declining customer base.

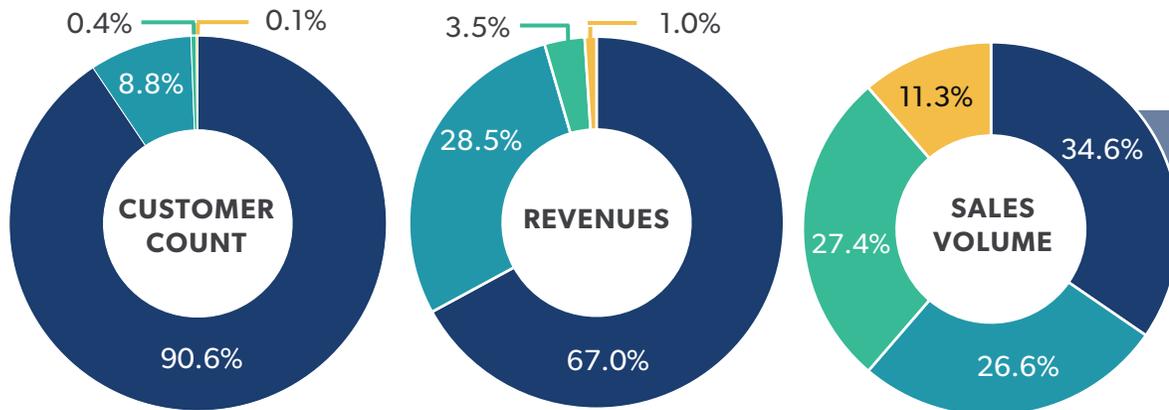
Shifts in Customer Base Increase Cost Recovery Risks

The transition **will not occur at the same pace or magnitude across customer classes**, which compounds cost recovery risks (cost allocation, appropriate tariff designs, equity and energy justice).

- Residential customers, who are more likely to convert to electric alternatives, comprise 90% of total natural gas utility customers and 67% of revenues, but they account for only one-third of total system volumes.
- Harder to electrify industrial customers are a small portion of total customers but about 27% of total sales volumes.
- Differences in customer transition trends will impact the pace and feasibility of achieving state GHG emission targets.

Gas utilities can mitigate this risk by focusing on degasification solutions for commercial and industrial customers, which could most effectively help meet state and corporate decarbonization goals.

Declines in customer base, starting with easy-to-electrify customers, will raise costs for remaining customers, such as for low-income and other vulnerable customer populations.



Gas Utility Customer Base



68M
total customers

\$67B
total revenues

29.7B
MMBtu*

Source: S&P Market Intelligence, data as of year-end 2019.

Note: Other revenues and sales volumes reflect electric power revenues and sales.

*American Gas Association summary statistics

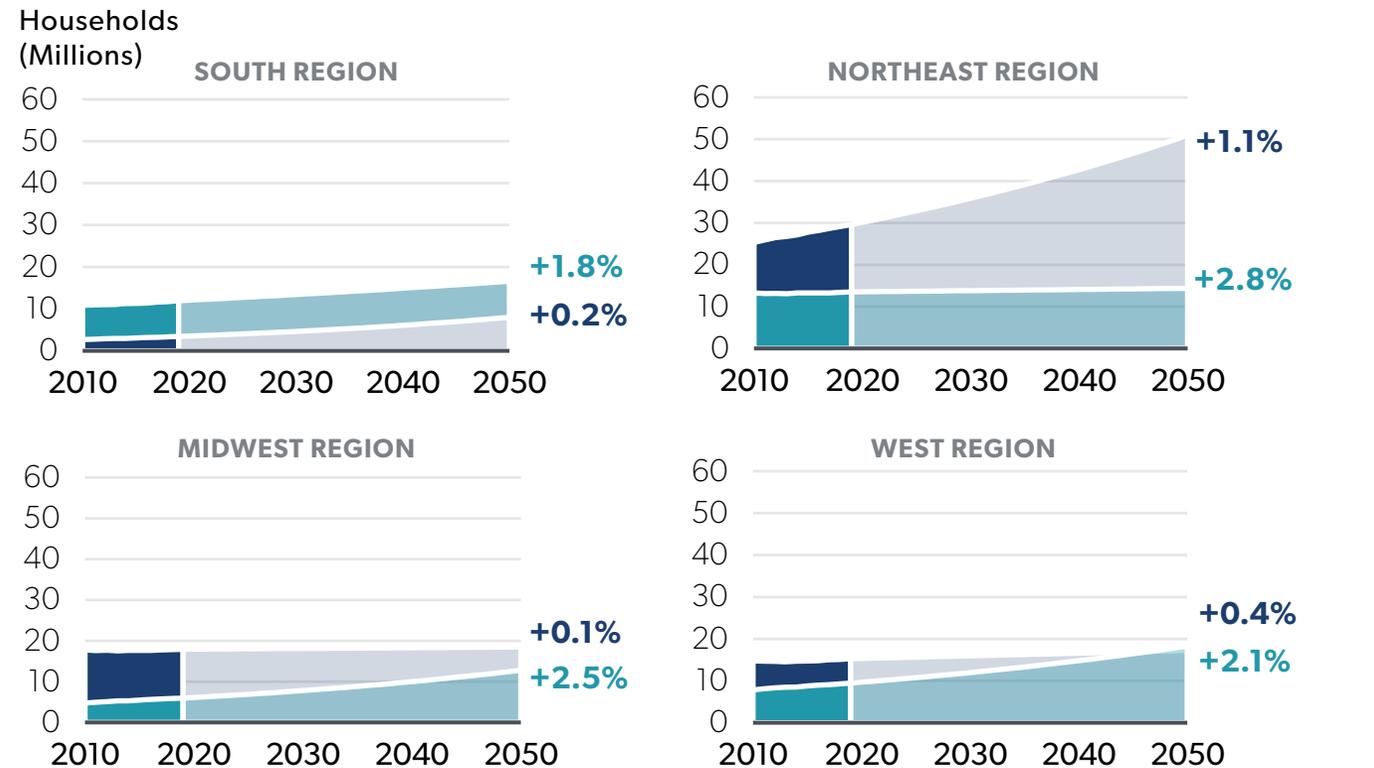
Heating Electrification Will Accelerate Declines in Gas Customer Base

Heating electrification is outpacing gas growth in some parts of the country. At the current pace, the number of homes with electric space heating could surpass homes with gas space heating by 2032.

- Heat pumps remain more expensive than gas furnaces, but could become more competitive with technological improvements and financial incentives.
- Economics of heat pump water heaters (HPWH) can be more appealing because of lower upfront costs relative to heat pumps. HPWH also has a higher efficiency than its gas counterpart.

Electric utilities are promoting rebates for heat pumps and HPWHs to accelerate adoption. As heat pumps and other decarbonization technologies become more popular, **gas utilities need to think strategically about how to participate in this transition in order to remain viable.**

US HOUSEHOLDS BY SPACE HEATING FUEL



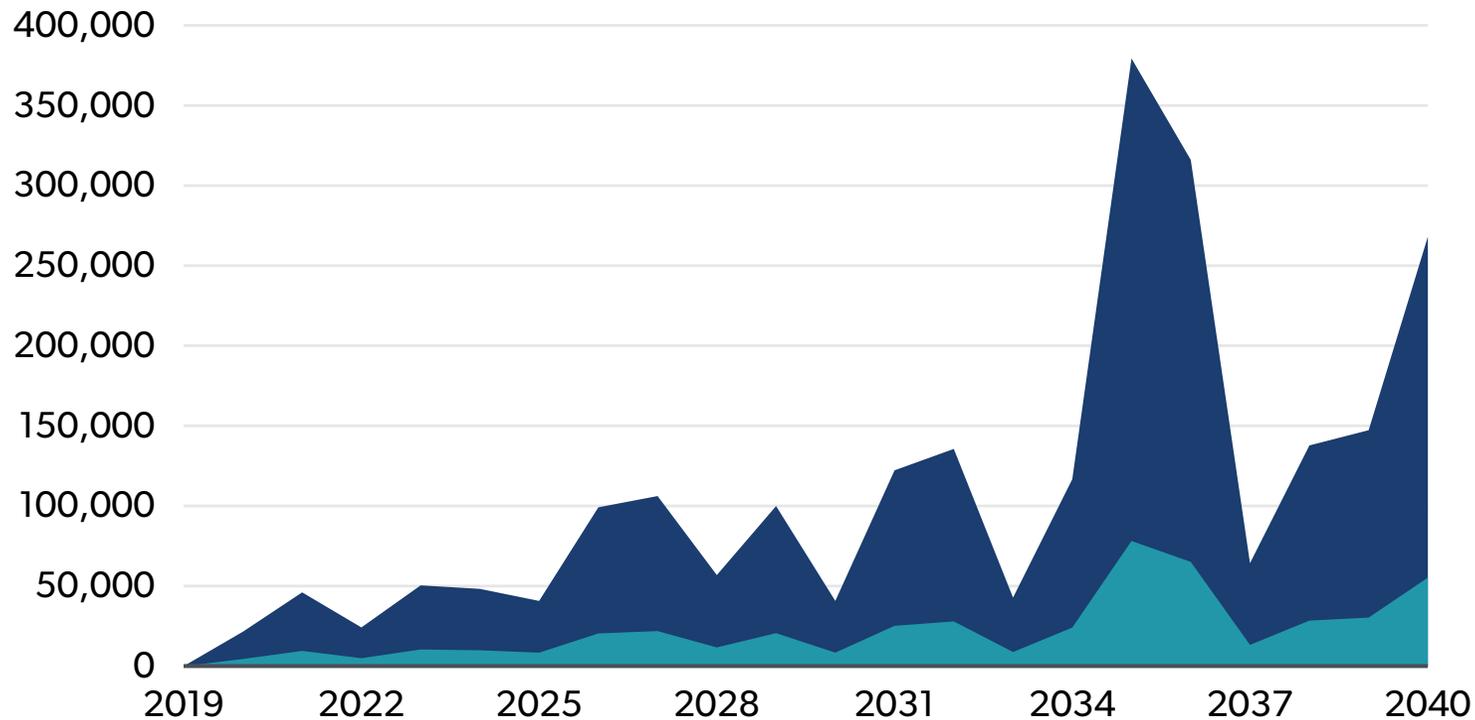
Source: US Census Data, 2019. | Note: Electricity includes both heat pumps and electric resistance heating.

At current rates, homes with electric heating could surpass homes with gas heating by 2032 nationally.

Death Spiral for Gas Utilities: An Illustrative Example

ELECTRIFICATION OF HEATING SECTOR CASE STUDY: NEW YORK GENERIC UTILITY

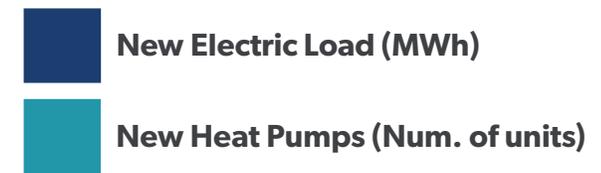
Forecasted Newly Electrified Load



The impact of increasing electrification will vary based on state and local regulations and decarbonization goals.

For example, up to **60% of New York’s gas heating sector may be electrified by 2040.**

- This requires around **4 million additional heat pumps**, costing about **\$80 billion.***
- Adds about 20% to residential electric consumption.



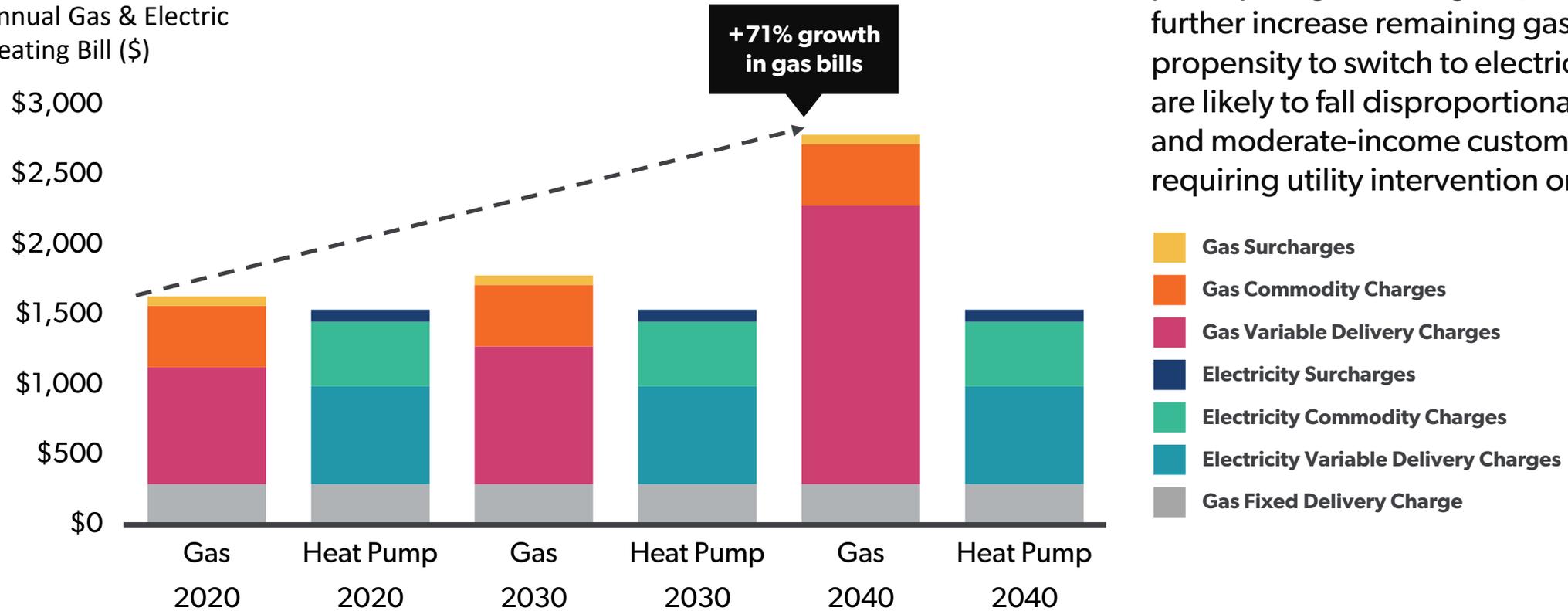
Source: CCIS NYISO forecast.

*Assumed forecast of new heat pumps from CCIS forecast, calculated new load and related costs. We assume AHSP at \$12,800 and GHSP at \$35,700 in real dollars. Capital cost assumptions come from New Efficiency NY Analysis of Residential Heat Pumps.

Death Spiral for Gas Utilities: An Illustrative Example

RATES IMPACT FOR GAS AND ELECTRIC CUSTOMERS – GAS UTILITY NO-ACTION “DEATH SPIRAL” SCENARIO

Annual Gas & Electric Heating Bill (\$)



There is a large potential for non-participant gas bill to grow, which will further increase remaining gas customer’s propensity to switch to electric. Impacts are likely to fall disproportionately on low- and moderate-income customers, requiring utility intervention or offsets.

- Gas Surcharges
- Gas Commodity Charges
- Gas Variable Delivery Charges
- Electricity Surcharges
- Electricity Commodity Charges
- Electricity Variable Delivery Charges
- Gas Fixed Delivery Charge

Source: CCIS NYISO forecast and The Brattle Group analysis. | Note: Rate impacts for a gas furnace and air source heat pump customer.

Adverse Investor Reactions to Risks Are Emerging

Investors' **risk perceptions are shifting** as states and locales transition away from natural gas and reduce GHG emissions.

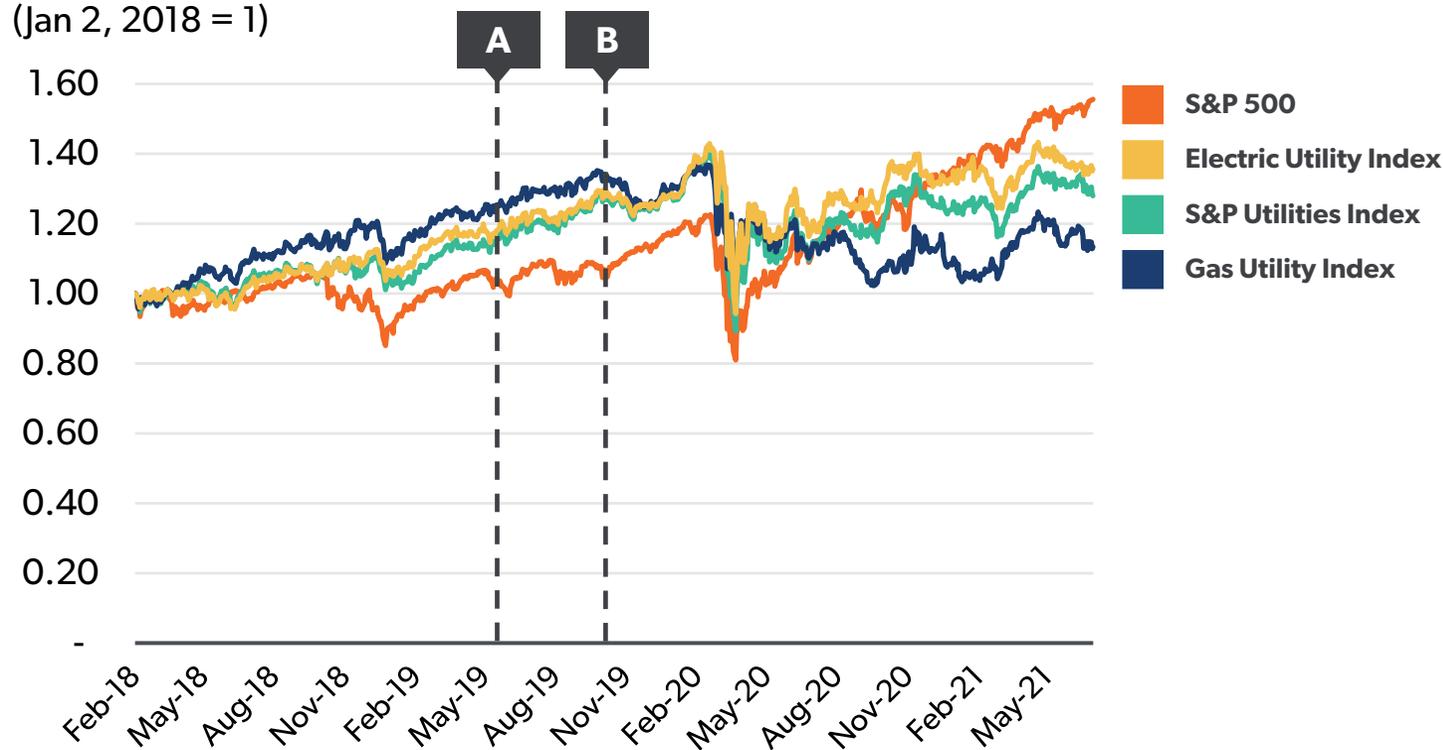
- A** Berkeley, CA passes the nation's first gas ban (July 2019)
- B** Brookline, MA passes first East Coast gas ban (Nov 2019)
Five additional CA municipalities have enacted gas bans

All else equal, gas utilities have to **issue more shares to raise the same amount of equity capital**, relative to other utilities.

- Gas utilities currently trade at a ~20% discount relative to electric.
- However, P/E ratios for gas utilities remain elevated at approximately 18 (vs. 19 for electric utilities and 18.5 for S&P util.)

UTILITY STOCK PERFORMANCE

(Jan 2, 2018 = 1)



Notes: **Gas Utility Index includes:** Atmos Energy, Chesapeake Utilities, New Jersey Resources, NiSource, NW Natural, ONE Gas, South Jersey Industries, Southwest Gas, Spire. **Electric Utility Index includes:** AEP, Southern, FirstEnergy, Exelon, Duke, Progress Energy, Evergy, NextEra, Edison International, Dominion. Electric Utility Index is currently trading 3% above S&P Utility Index and 20% above the Gas Utility Index. Data through June 30, 2021.

1: United Nations Environment Programme, [Net Zero Banking Alliance](#).

Investors Are Becoming Actively Involved in the Debate

Environment, Social, and Governance (ESG) investors are pressuring gas utilities to reduce GHG emissions and eliminate usage of fossil fuels.

43 banks across 23 countries announced a pledge to achieve “net-zero banking,” meaning their lending and investment portfolios are on track to reach net zero emissions by 2050.¹

Utilities are increasingly highlighting RNG, hydrogen, and emission reduction efforts in their investor materials.

70 gas utilities across 31 states have set corporate carbon emission reduction targets.

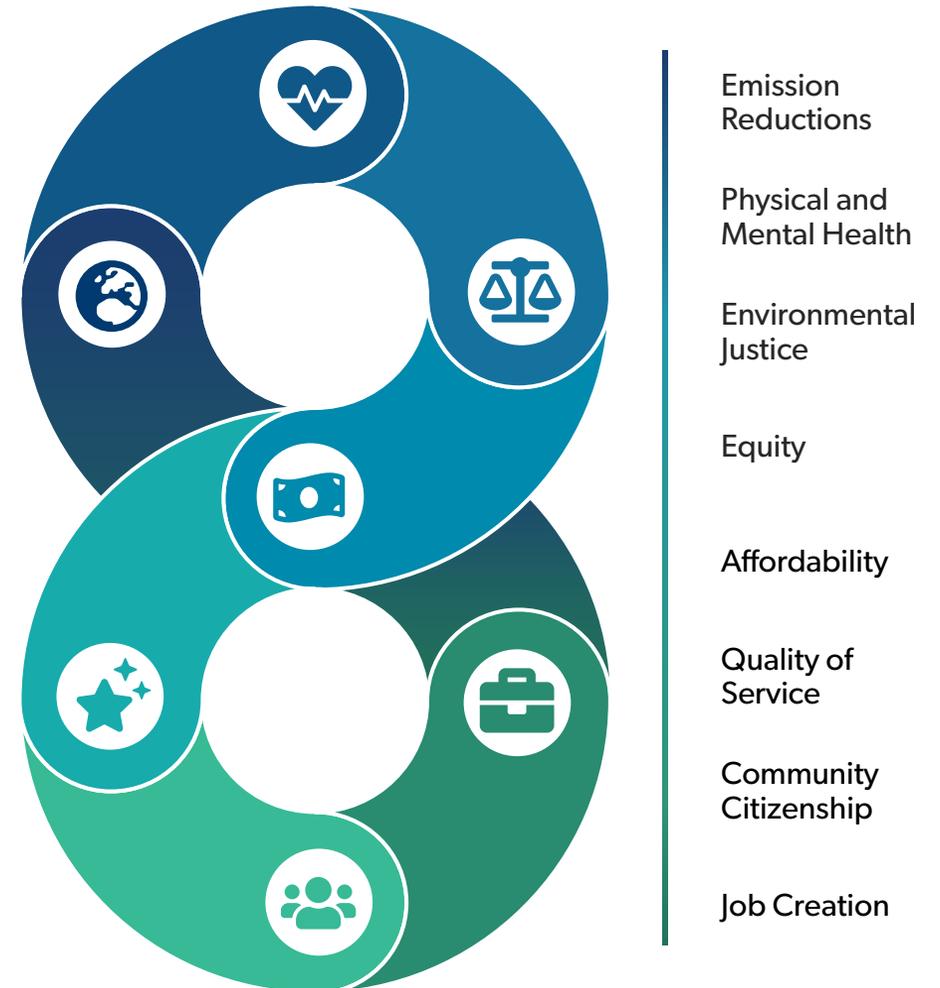
¹: United Nations Environment Programme, [Net Zero Banking Alliance](#).



Equity and Energy Justice Concerns Must Be Considered

Gas utilities and regulators will also need to **consider the risks and impact of the transition on low-income and less advantaged communities**, who may experience rising bills and longer exposure to emissions.

- Public policy is increasingly focused on fairness of service and equitable access to decarbonization technology.
- As more affluent customers adopt electric heating, low-income gas customers could disproportionately experience rate increases and/or be neglected by developers for obtaining new decarbonization technologies.
- For example, adverse effects from electrification on low-income communities can be observed in rooftop adoption, in which low-income communities subsidize delivery costs for homes with rooftop solar receiving net energy metering (NEM).



Turning Increasing Risk into Opportunity

Gas utilities need to **create an adaptive, long-term business plan that anticipates** the pathways, drivers, accelerators, and decelerators of the transition and identify the type and timing of impacts.

Long-term modeling tools can help

Economy Decarbonization Model: How different might the pace and means of decarbonization be? There are many enabling technologies and policy “knobs” yet to be turned or applied. What are these pathways, and how can they be realized or adjusted? When and how will gas utilities be affected under these different pathways?

Distribution System Planning Model: How can gas distribution investments, operations, pricing, and financing be altered so that utilities not only survive but grow in the face of the transition’s long-term effects?

By understanding the possible pathways, utilities can identify their comparative advantages, target market niches, and needed operational and regulatory adjustments.

- A “base case” would look at sales and profits with a passive response to trends in electrification.
- Responsive strategies are then developed for how to influence the path(s) that are likely to occur and how to prepare for their contingencies by selectively avoiding some risks and embracing others.

In Part 2 of this series, we will examine the solution elements available to gas utilities.

How Brattle Can Help

Brattle's Unique Interdisciplinary Experience
Provides a Holistic Skillset to Guide Transition





1
Assess Risk
—

Assess Transition Risks

Analyze how natural gas bans, electrification mandates, and ESG investment trends will impact business risk and cost of capital.

Estimate revenue loss to electrification under different future scenarios.

Use system dynamics to identify rate risks and customer feedback effects.

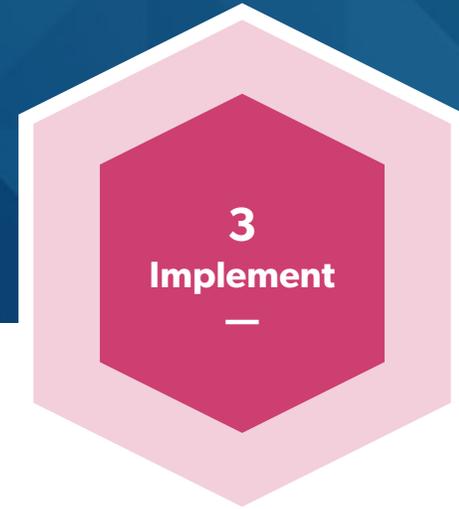


2
Evaluate
Strategies
—

Evaluate Strategy and Solutions

Facilitate strategy workshops to establish transition principles, identify potential business strategies, and determine near- and long-term action items.

Identify revenue potential from owning and rate-basing electrification infrastructure and evaluate rate impacts using system dynamics.



3
Implement
—

Implement Regulatory Changes

Design and calculate tariffs to incentivize transition and protect customer costs.

DEEP Can Help Utilities Understand Risks and Evaluate Solutions

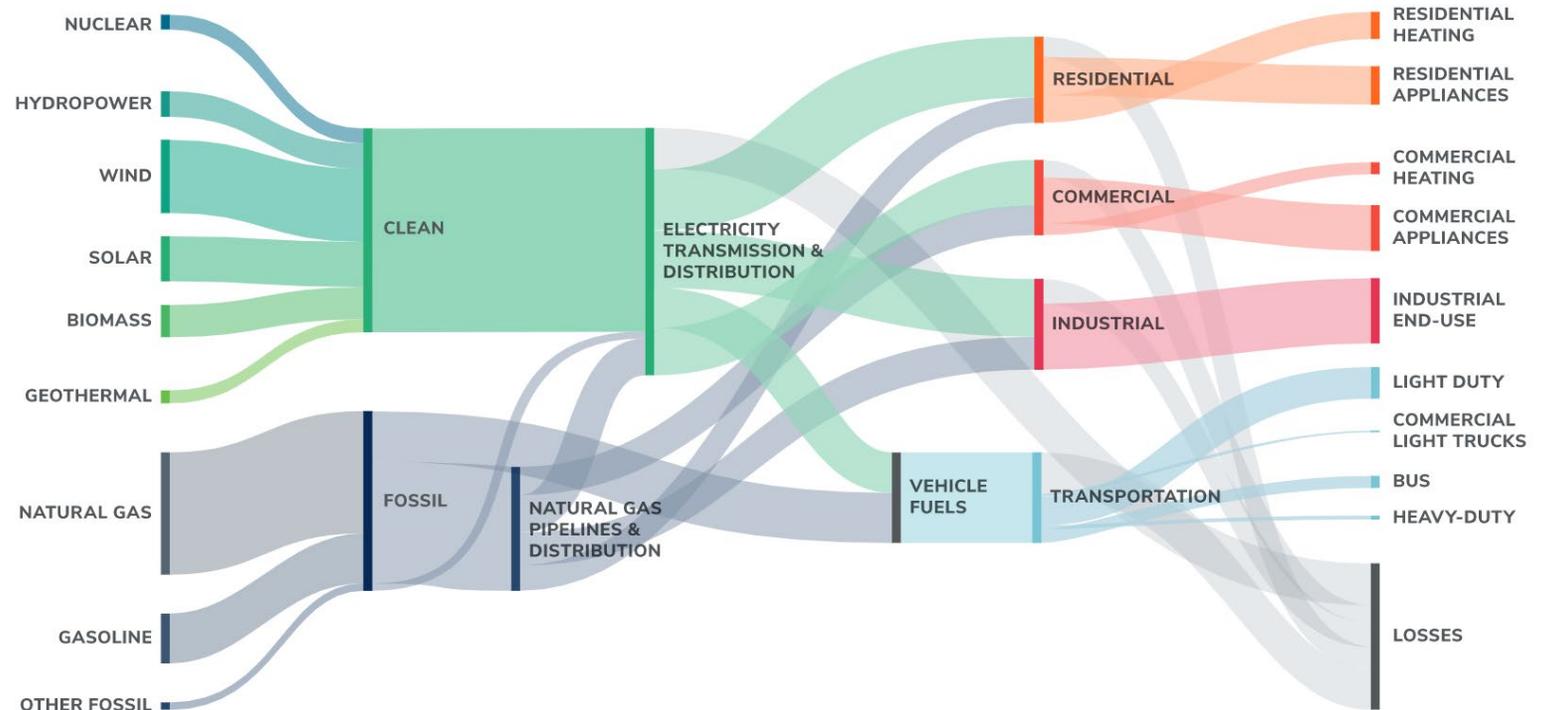
Brattle’s Decarbonization, Electrification & Economic Planning (DEEP) Model

is an energy economy modeling tool that can evaluate:

- The uptake of technologies and impact on gas consumption
- The roles of efficiency, electrification, and fuel-switching
- The utility and customer costs of specific technology pathways

DEEP can evaluate long-term planning impacts and the interactions of:

- Technology adoption
- Decarbonization policies
- Macroeconomic conditions
- Supply and demand



The model can be run in (1) **planning mode** and (2) **optimization mode** to meet client-specific needs.

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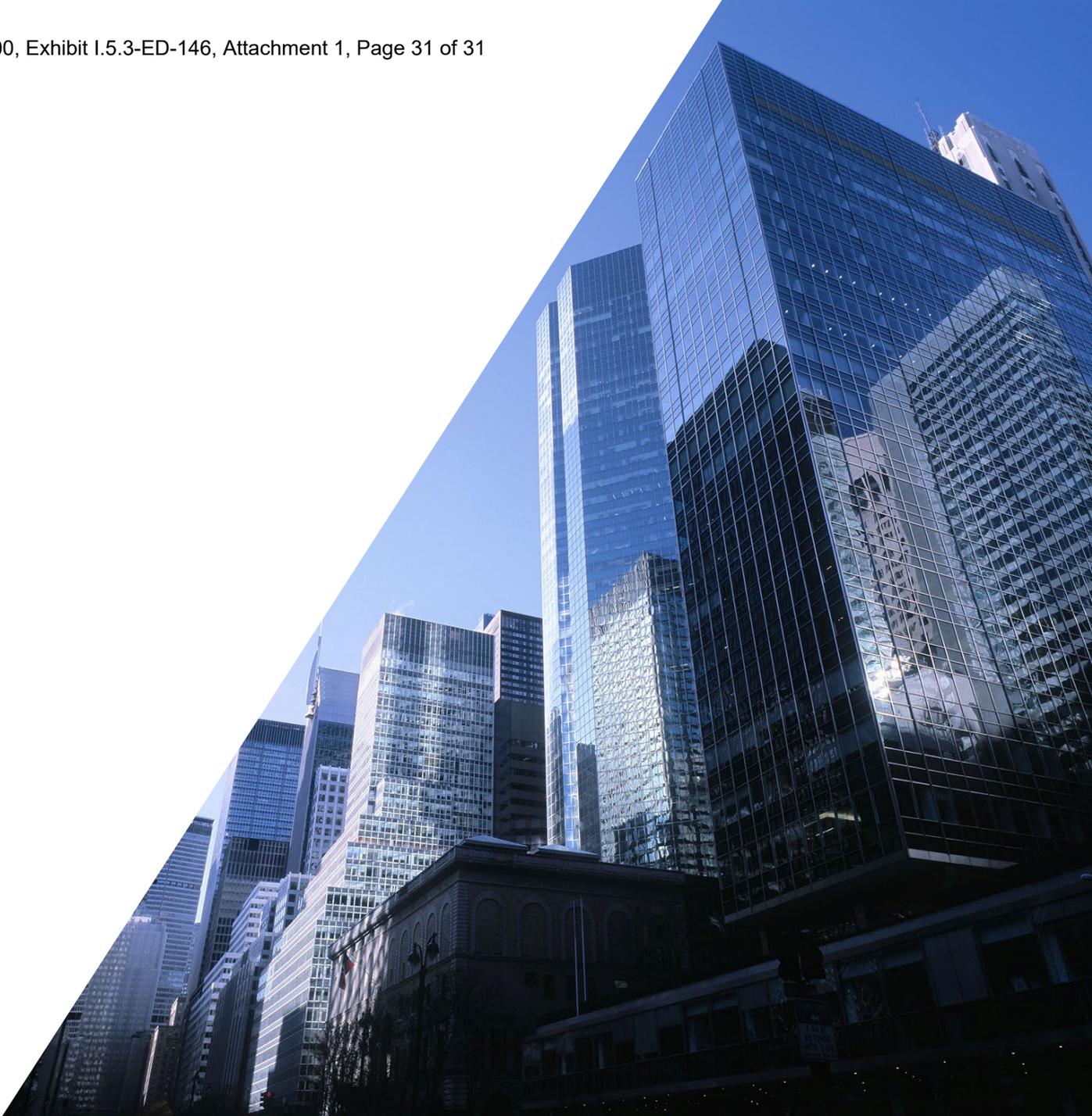


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Clarity in the face of complexity



ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1 (Concentric Cost of Capital Report)

Question(s):

- a) Concentric states: “Another risk of the Energy Transition is that a significant portion of the Company’s gas plant investments could become stranded. Generally, the term “stranded asset” refers to an investment that becomes no longer used or useful in the provision of service to customers before the end of its depreciable life. At that point in time, the undepreciated value of the asset (i.e., its net book value) is “stranded” with costs to be borne by either investors or customers. Gas distribution utilities such as the Company generally depreciate capital invested in their systems over the expected useful life of the underlying physical property, which is often many decades. Therefore, the Energy Transition creates stranded asset risk for the Company by introducing the possibility that significant portions of the Company’s property will cease being used or useful before it is fully depreciated.”

Please quantify the risk that significant portions of the Company’s property will cease being used or useful before it is fully depreciated. Please provide as quantitative an answer as possible. Please use ranges of probabilities if necessary. If the risk described is so uncertain or remote that it cannot be quantified, please explain how it could justify the proposed change in equity thickness.

- b) Concentric makes reference to risks under the heading “Going Concern.” Is there a risk that the company could go bankrupt and no longer be a going concern by, say, 2050, due to decarbonization? If yes, is that risk material?
- c) Concentric states that “accelerating depreciation rates and approving SFV rate design may reduce the Company’s stranded asset risk and volumetric risk.” Please describe how accelerating depreciation would reduce stranded asset risk. Please describe the range of options for accelerating depreciation.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric has not quantified the risk that significant portions of the Company's property will cease being used or useful. Rather, Concentric has identified that this is a significant risk that has materialized since the prior evaluation of Enbridge Gas's equity thickness, and, based on a conclusion that Enbridge Gas's risk profile has increased significantly, developed a fair return standard analysis to determine a recommended equity thickness. As provided in Concentric's report, Concentric's conclusion that Enbridge Gas faces stranded asset risk is consistent with findings by the OEB in EB-2020-0091, and by S&P, which expressed concerns that stranded asset risk for gas local distribution companies have spiked recently.
- b) Concentric has not evaluated the risk of Enbridge Gas going bankrupt. Rather, Concentric's analysis points to evolving and increasing concerns expressed by the investment community and other stakeholders regarding the viability of natural gas businesses in the Energy Transition, and the difficulty, if not impossibility, of regulation fully mitigating that risk for gas distributors such as Enbridge Gas.
- c) The inclusion of depreciation expense into the revenue is meant to match the recovery of the capital investment and anticipated future net salvage requirements to the annual consumption of the service value of the assets providing utility service. In order to achieve this goal it is key to understand the long-term risks to the usefulness of the various asset groups due to factors such as energy transition, decarbonization legislation, changes in technology and other non-physical factors that could limit the long-term usefulness of the assets being depreciated. The review of appropriate depreciation concepts, such as determining depreciation rates consistent with economic planning horizon (EPH) concepts, and the review of the use of depreciation procedures such as the Equal Life Group (ELG) procedure and ensuring that the timely recovery of future net salvage requirements are pro-actively implemented will reduce stranded asset risk by improving the near-term recoverability of plant investments and timely recovery of future removal costs. Please see the following responses to information requests for further discussion on this topic:
- Exhibit I.4.5-ED-139 for a discussion of various depreciation methods that may alleviate future stranded cost risk;
 - Exhibit I.4.5-ED-140 for a discussion of the impact of the implementation of an EPH concept on the revenue requirement assuming various implementation dates;
 - Exhibit I.4.5-STAFF-173 for a discussion of the benefits of the use of the ELG procedure and its potential to mitigate stranded cost risk;
 - Exhibit I.4.5-GEC-65 for a discussion on climate change policies on the selection of appropriate depreciation methods and procedures;
 - Exhibit I.4.5-GEC-66- for a discussion of the use of alternative depreciation procedures to deal with intergenerational issues related to energy transition.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1 (Concentric Cost of Capital Report)

Question(s):

- a) Concentric states: “A future “death spiral” is far from certain, and we anticipate that the Company will work proactively to avoid such an outcome. However, it is possible.” Is this a material possibility? Please make best efforts to quantify the possibility.
- b) Concentric states: “In 2020, residential customers accounted for approximately 57% of the Company’s revenues but just 32% of its sales volumes. If a meaningful portion of these customers switch to non-gas heating sources, whether due to technological advancements, environmental concerns, or policy mandates, costs will increase for the Company’s remaining customers. Such a scenario could potentially spark a so-called ‘death spiral.’”
 - i. Please discuss how likely this is to occur.
 - ii. Please elaborate on the reference to “technical advancements.”
 - iii. Why does Concentric single out residential customers as being at a particular risk of exiting the gas system?
- c) Concentric states that “the Company’s assets are, on average, much less depreciated than the assets of any of the proxy groups.” Why is that?

Response:

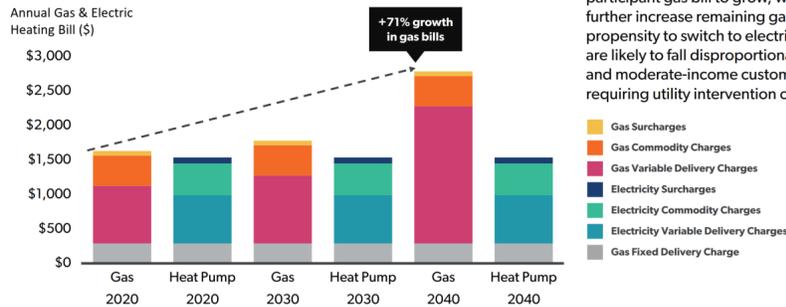
The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric believes there is material risk related to a “death spiral” scenario, but we are unable to quantify the probability as there are many factors that impact the future of the gas industry, and each of these factors carries its own range of potential outcomes. Among these factors are international, national and local public policies, technological innovation, customer preferences and behavior, and the costs of competing energy sources. In the Brattle report cited in Concentric’s report provided at Exhibit 5, Tab 3, Schedule 1, Attachment 1, p. 37, footnote 94, Brattle illustrates one example:

ASSESSING RISK

Death Spiral for Gas Utilities: An Illustrative Example

RATES IMPACT FOR GAS AND ELECTRIC CUSTOMERS
– GAS UTILITY NO-ACTION “DEATH SPIRAL” SCENARIO



There is a large potential for non-participant gas bill to grow, which will further increase remaining gas customer's propensity to switch to electric. Impacts are likely to fall disproportionately on low- and moderate-income customers, requiring utility intervention or offsets.

Source: CCIS NYISO forecast and The Brattle Group analysis. | Note: Rate impacts for a gas furnace and air source heat pump customer.

brattle.com | 18

In this specific case study for New York, a residential heating customer would see a flat profile for future electric costs against a 71% increase in gas costs by 2040. Under such circumstances one would expect a steady decline in gas customers exacerbating the cost increases for remaining customers. These are the types of circumstances that would lead to a “death spiral”. Please also see the response at Exhibit I.5.3-STAFF-208 part b) for an additional example.

b)

- i. Please see response at Exhibit 1.5.3-ED-148 part a).
- ii. Technical advancements that promote residential switching to non-gas alternatives (or reduced gas use) would include: ultra efficient electric heat pumps, dual-fuel heat pumps, geothermal heat pumps, district heating/cooling, induction cooktops, heat pump cycle clothes dryers, on demand water heaters, and advanced home energy sensors (“smart” homes).
- iii. Commercial and Industrial customers have always been price sensitive loads for gas utilities, although depending on the nature of their load (e.g., HVAC or cooking vs. industrial process), some of these loads are more resilient than others. Residential load has typically been the most stable and reliable, with the exception of variations due to weather. The focus on residential customers leaving the system is due to greater risk from new end-use technologies for heating and cooking, in combination with improved economics of electric alternatives, environmental policies and customer preferences that are all posed to undermine the predictable stability of residential load.

c) Please see response at Exhibit I.5.3-STAFF-230 part a).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1 (Concentric Cost of Capital Report)

Question(s):

- a) Please provide details on the GHG emissions reductions laws passed in Vermont and Massachusetts, including the legislated reduction targets. Please discuss the impacts of these on Enbridge's business risks.
- b) Please comment on the conclusions of the decarbonization pathways studies commissioner in Vermont, Massachusetts, and New York, including the percentage reductions in annual and peak gas demand envisioned in the report. Please discuss the impacts of these on Enbridge's business risks.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Summaries of the GHG emissions reduction legislation in Vermont and Massachusetts are provided below.

Vermont:

In 2020, the Vermont Legislature passed the Global Warming Solutions Act (Act 153 as Enacted), which created legally binding emission reduction targets.

The Act was created in response to concerns around Vermont's changing climate and the magnitude of what must be done to reduce GHG emissions and prepare for the impacts of climate change on Vermont's landscape.

The Act requires Vermont to reduce greenhouse gas pollution to 26% below 2005 levels by 2025. Emissions would need to be 40% below 1990 levels by 2030 and 80% below by 2050.

In addition to the emission reductions required by the statute, the law also directs the Vermont Climate Council to consider opportunities for conservation through long-

term carbon sequestration and identify actions Vermont communities can take to better prepare for more extreme weather.

Massachusetts:

Senate Bill 9 - *An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy* – was signed into law by the Governor in March 2021.

The legislation updates the GHG emissions limits related to the *2008 Global Warming Solutions Act*, commits Massachusetts to achieve Net Zero emissions in 2050, and authorizes the Secretary of Energy and Environmental Affairs (EEA) to establish an emissions limit of no less than 50% for 2030, and no less than 75% for 2040. The legislation also authorizes EEA to establish emissions limits every five years and sublimits for at least six sectors of the Massachusetts economy - electric power; transportation; commercial and industrial heating and cooling; residential heating and cooling; industrial processes; and natural gas distribution and service.

These examples from Vermont and Massachusetts show that the legislative framework for addressing GHG emissions is evolving one jurisdiction at a time. As new environmental legislation is implemented in the U.S. and Canada, it serves to inform other jurisdictions that have not yet taken legislative action. Investors and rating agencies consistently monitor the carbon reduction targets that are being implemented across North America with an understanding that similar requirements are likely to affect Ontario's utilities at the provincial and federal government level.

- b) With regard to decarbonization pathways studies in Vermont, Massachusetts, and New York, Concentric has not specifically analyzed the “percentage reductions in annual and peak gas demand envisioned in the report.” However, decarbonization roadmap studies performed in Vermont, Massachusetts, and New York generally reflect a decline in natural gas use across pathways. For instance, the following are excerpts from the December 2020 study titled “Massachusetts 2050 Decarbonization Roadmap”:

- “To successfully decarbonize and do so affordably, the Commonwealth must: ***almost completely transition energy “end-uses” away from fossil fuels***; deploy higher levels of energy efficiency and flexibility; rapidly decarbonize the energy supply to become predominantly reliant on renewable electricity generation; and remove carbon from the atmosphere by preserving and enhancing natural and other sequestration resources.” (page 22, ***emphasis added***)
- “A limited amount of decarbonized fuels may be available and appropriate strategy for some buildings, but in order to achieve Net Zero, the use of gas for building heat must start to decline in the near term.” (page 44)

- “In addition to fuel costs, a strategy reliant on the continued use of pipeline gas for building heat carries asymmetric risks compared to electrification. A future increase in the price of pipeline gas together with increasing reductions in costs associated with heat pumps could result in a significant cost-driven market advantage for heat pumps that, regardless of policy, leads to a large, uncontrolled customer exit for the gas system.” (page 51)

Please see Exhibit I.5.3-STAFF-208 and Exhibit I.5.3-ED-148 for studies conducted illustrating the degree of gas demand loss for New York state to meet the state’s emissions reduction targets.

These are examples of other states investigating pathways to meet net zero commitments, which include the Energy Transition. As discussed in Concentric’s report, as investors and rating agencies widely recognize, the Energy Transition substantially affects the risk profile of North American gas distribution utilities, including Enbridge Gas.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe Research Foundation (EP)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, *Concentric Report*, page 43

Preamble:

“Energy Probe Research Foundation, Environmental Defence Canada Inc., Federation of Rental Housing Providers of Ontario, Industrial Gas Users Association, Pollution Probe, School Energy Coalition, and the City of Ottawa were granted intervenor status. Many of these intervenors recommended that the OEB reject EGI’s application.”

Question(s):

Please confirm that Energy Probe Research Foundation recommended that the OEB approve EGI’s application.

Response:

Confirmed. Energy Probe Research Foundation recommended that the OEB approve Enbridge Gas’s St. Laurent Ottawa North Replacement Project as filed.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe Research Foundation (EP)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 55, Figure 11 *Concentric Report*

Preamble:

“Enbridge is participating in OEB Community Expansion. This adds communities and customers at an accelerated pace. Although EGI is required to compete with other service providers e.g., EPCOR, it is successfully expanding its infrastructure and customer base. This offsets declining average use (which it is compensated for by an AU deferral account) and reduced customer additions in existing service areas.”

Question(s):

- a) Does figure 11 include community expansion customers?
- b) Does Concentric agree the CE program mitigates volumetric risk, to a small degree, or to a large degree? Please comment in detail and support your response with numerical analysis.

Response:

- a) Yes, Figure 11 includes community expansion customers.
- b) The following response was provided by Concentric Energy Advisors, Inc.:

The Community Expansion program does offset declining average use per customer to some degree but does not mitigate volumetric risk. As noted in the response to part a), community expansion customers are included in Figure 11, which shows a decline in the rate of customer additions, including customer expansion customers. Concentric’s report, provided at Exhibit 5, Tab 3, Schedule 1, Attachment 1, page 56, also notes that EB-2016-0004 *increases* exposure to forecast risk and weakens the Company’s growth prospects because it now faces increased competition from other utilities.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe Research Foundation (EP)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, *Concentric Report*, page 57

Preamble:

“We note that the Company is proposing a SFV rate design in this case. If approved, this proposal would further decrease the Company’s exposure to volumetric risk. We note that the Company continues to benefit from regulatory mechanisms such as deferral and variance accounts that mitigate the potential financial impact of declining sales volumes (although these accounts may be discontinued if the Company’s SFV proposal is approved). For these reasons, we conclude that the Company has regulatory mechanisms that mitigate the Company’s volumetric risk in the near-term. However, as discussed in more detail in the following section, we conclude that the Company’s long-term volumetric risk has increased.”

Question(s):

- a) In respect of Volume risk what is “short-term” and “long-term” (years)?
- b) Reconcile to Table 21 “Modest Increase in volumetric risk”.
- c) In Exhibit 4, Tab 2, Schedule 1, Attachment 6, Page 20 of 71 ICI shows natural gas demand increasing from ~2.5 to 2.9 billion cubic feet per day from 2022-2030 mostly for power generation. Does Concentric disagree with this forecast?
- d) Given the forecast of increased demand forecast from ICF should not the Concentric assessment on volumetric risk be rejected by the OEB? Please discuss.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Short-term volume risk refers to the period of the proposed multi-year rate plan (i.e., 2024-2028), while long-term volume risk refers to periods beyond 2028.

- b) Table 21 refers to an increase in volumetric risk over the intermediate to longer term, as the Energy Transition evolves and the implications for gas distribution utilities come into sharper focus.
- c) Concentric does not disagree with the referenced ICF forecast, but as the question notes the increase in demand for natural gas through 2030 is mostly for power generation. Over the longer term, demand for natural gas distribution service is expected to peak and start to decline for companies that operate in jurisdictions with more stringent environmental policies and decarbonization goals, such as Enbridge Gas, as electrification provides a viable alternative for customers.
- d) No, Concentric's assessment of volumetric risk should not be rejected by the OEB, because the assessment relates specifically to the effect of the energy transition on the demand forecast for Enbridge Gas. As noted in the response to Exhibit I.5.3-EP-89 c), the ICF forecast indicates that demand for natural gas will increase through 2030 due to higher demand for natural gas as a fuel source for electric power generation. This increased demand reflects both the move away from coal-fired generation and the electrification movement. The demand for gas distribution service has been declining, as indicated by the decreasing average use per residential customer for Enbridge Gas shown in Figure 9 of Concentric's report, and that trend is expected to continue.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe Research Foundation (EP)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, *Concentric Report*, pages 77 to 79, EGI's Regulatory Framework

Question(s):

- a) Has Concentric considered the impact of the ICM on EGI's capital expenditures?
- b) Does the proposed use of ICM by EGI increase or decrease risk? Please discuss.
- c) Does SFV rate proposal by EGI increase or decrease risk? Please discuss.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Yes. The Incremental Capital Module (ICM) is a mechanism that allows the Company to seek approval for recovery of costs associated with qualifying incremental capital investments beyond what can be funded through approved rates. Qualifying capital investments are discrete projects that satisfy the eligibility criteria of materiality, need and prudence as set out in the OEB's ICM policy. The OEB has approved some but not all ICM applications filed by Enbridge Gas.
- b) Concentric does not consider the ICM to be a significant source of risk mitigation as it is subject to thresholds and limitations, and Enbridge Gas's applications for ICM treatment have been subject to denial by the OEB. Further, a majority of companies in Concentric's proxy groups have capital cost trackers, so the ICM does not present a source of relatively lower risk. As discussed in Concentric's report, at page 79, Concentric considers Enbridge Gas's regulatory risk to have decreased modestly, assuming the Company's ratemaking proposals are approved by the OEB. This includes the continued availability of the ICM.
- c) As discussed in the Concentric report at page 79, SFV rate design reduces cost recovery risk for Enbridge Gas. In SFV rate design, all costs that are classified as fixed are assigned to the fixed, or demand charge. All costs that are classified as

variable are assigned to the variable, or commodity charge. In EB-2011-0354 (at page 10), the OEB found “[i]f more of the costs are recovered through fixed charges, there is less revenue volatility related to volume changes, and less uncertainty that the fixed costs will be recovered. This mitigation is greater now than it was in 2007, since Enbridge Gas’s forecast for 2013 shows 51% of revenues collected through fixed charges, a significant increase over 33% in 2007.” This said, as discussed in the Concentric report at page 57, this impact to volumetric risk is in the near-term. Concentric concluded that the Company’s long-term volumetric risk has increased.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe Research Foundation (EP)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Concentric Report, Page 105, Figures 23 and 24

Question(s):

Please provide the working papers supporting Figures 23 and 24.

Response:

The following response was provided by Concentric Energy Advisors:

Please see response at Exhibit I.5.3-STAFF-225 for the work papers supporting Figures 23 and 24.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe Research Foundation (EP)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Concentric Report; Regie d'Énergie-D-2022-119, R-4156-2022 Phase 2

Question(s):

- a) Please confirm that in its Decision R-4156-2022 the Regie found the existing Common Equity ratios of 38-42 % were appropriate for Quebec Gas distributors.
- b) Please confirm that the Regie determined that the impact of the Energy Transition was expected to be longer term.
- c) Please confirm that Brattle, appearing for the utilities, used a US and Canadian Comparator Group and recommended a range of 43-45 % for equity thickness.

Response:

The following response was provided by Concentric Energy Advisors:

- a) The Regie's Decision maintained the existing common equity ratios for Energir, Gazifère, and Intragaz. These are respectively:
 - a deemed capital structure of Énergir consisting of 38.5% equity plus 7.5% preferred shares;
 - a deemed capital structure of Gazifère consisting of 40% equity;
 - a deemed capital structure of Intragaz consisting of 46% equity.
- b) In its Decision R-4156-2022, the Regie reached several conclusions regarding business risk, including energy transition:

[125] From the outset, the Régie notes that the Plaintiffs presented several elements of a qualitative rather than quantitative nature in support of the assessment of the factors having an impact on business risks. Among these elements, there

is the ongoing energy transition and decarbonization efforts by 2030 that could affect the demand for fossil natural gas. In this regard, the Régie notes that pressure from society is prompting the Plaintiffs to accelerate the implementation of initiatives aimed at positioning the natural gas networks as part of the energy transition solution in order to secure their future⁹⁰.

[126] The Régie notes that these measures are put in place by the Plaintiffs in order to mitigate the risks they face and it understands that these initiatives have not yet been commercially demonstrated on a large scale.

[127] Based on these elements, the Régie cannot exclude from its considerations that the Plaintiffs' business context has evolved since the last review and that new elements are present.

[128] The Régie recognizes that the competitive position of natural gas, compared to electricity in Quebec, constitutes an inescapable element of the Plaintiffs' business risk and that the contemporary context of energy transition adds uncertainty to their business environment.

[129] However, despite this increased uncertainty which could ultimately lead to losses in the Plaintiffs' sales volume due to the energy transition, the Régie retains from the evidence that their competitive position has not deteriorated in the immediate term and believes that there is no indication of this in the foreseeable future either.

While the Regie did not increase the allowed equity ratios, it did increase the business risk adjustment in ROE for all three utilities from 10 to 15 basis points in recognition “of increased level of uncertainty in the business environment”.

In addition, the Nova Scotia Utilities and Review Board recently approved a settlement agreement that increased the deemed equity ratio for Nova Scotia Power to 40% from 37.5%. Nova Scotia Power presented evidence in that case that its business risk had increased due to the Energy Transition and in particular the need to retire coal-fired generation assets no later than 2030.

c) Confirmed, plus 7.5% preferred equity for Energir.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 35 of 164

Question(s):

Concentric cites S&P's observation that "...switching to hydrogen-based boilers requires a major overhaul of the gas network infrastructure. Upgrading grids to allow for hydrogen distribution would require a concurrent rollout of hydrogen boilers (or fuel cells) to all consumers affected by the switch from gas. A prerequisite is a new hydrogen transmission network to which to connect, since many applications would still rely on gas for decades to come. Affordability is a key consideration because both hydrogen and fuel cells are 1.5x-2.5x more expensive than conventional gas-based household heating, at least in Northern Europe according to a Hydrogen Council report (January 2020)."

- A. Does Guidehouse agree with these observations? If not, please elaborate.
- B. To what extent are they consistent with the diversified scenario and its costing that Posterity and Guidehouse have utilized?

Response:

The following response was provided by Guidehouse Canada Ltd.:

- a) The S&P quote provided in this question presumes that entire gas networks or branches of gas networks will convert at once to full hydrogen service, and that the ability to supply hydrogen to one building is predicated on the ability of all buildings to accept hydrogen service. This S&P observation is not aligned with the assumptions of the *Pathways to Net Zero Emissions for Ontario* study. For this study, Guidehouse assumes that hydrogen networks will develop in a hub-style network to serve pure hydrogen to customers that are prepared to receive it. With this approach, the conversion of select sets of customers to 100% hydrogen service will not require a concurrent rollout of hydrogen boilers to all gas customers.

- b) Guidehouse declines to answer this question because the P2NZ study analyzed costs on an economy-wide basis and did not forecast utility energy rates or customer energy costs.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 36 of 164

Question(s):

Concentric notes a 2020 California Energy Commission study that found “relatively inexpensive RNG (for example, biomethane from landfills and wastes) is limited and cannot alone reduce the GHG intensity of pipeline gas enough.” The study went on to conclude that, after factoring in the more expensive forms of gas, “the commodity cost of blended pipeline gas is more than four to seven times that of natural gas today.” Concentric also notes: “A study conducted by Washington State University’s Energy Program indicated that “adequate opportunities exist for RNG production equivalent to 3 percent to 5 percent of current natural gas consumption.”

Please compare those findings to the assumptions in the P2NZ report.

Response:

The following response was provided by Guidehouse Canada Ltd.:

Without citations and links to the source studies, it is difficult to evaluate the assumptions and claims presented in this statement.

The objective of the P2NZ study was to compare overall economy-wide costs for two net-zero scenarios. Guidehouse declines to compare the proportional cost of RNG and conventional natural gas, because the P2NZ study did not forecast or model the commodity costs of RNG into the future. Guidehouse notes that, while the cost of RNG exceeds the cost of conventional natural gas today, Guidehouse expects that the cost of using conventional natural gas will increase in the future due to carbon taxes.

Guidehouse cannot evaluate the Washington State University claim comparing RNG supplies to current natural gas demand because it is unclear what is meant by “adequate opportunities for RNG production.” As shown in Figure 7 of the P2NZ report, Guidehouse forecasts that annual methane demand in Ontario will greatly decline between now and 2050, and that a portion of future methane demand will be met by

conventional natural gas with carbon capture. Guidehouse forecasted that the projected RNG demand in 2050 for the Electrification and Diversified scenarios will be less than the total technical RNG potential reported by Torchlight Bioresources.¹

¹ Torchlight Bioresources (2020). "Renewable Natural Gas (Biomethane) Feedstock Potential in Canada." Available at: [https://www.enbridge.com/~media/Enb/Documents/Media%20Center/RNG-Canadian-Feedstock-Potential-2020%20\(1\).pdf](https://www.enbridge.com/~media/Enb/Documents/Media%20Center/RNG-Canadian-Feedstock-Potential-2020%20(1).pdf)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Page 2, Paragraph 5

Preamble:

The cited evidence states:

Based on the increased risk profile of Enbridge Gas, Concentric recommends that the OEB approve an increase to the deemed equity ratio for Enbridge Gas from 36% to 42% to maintain financial strength and continued access to capital at a reasonable cost, and to manage the Energy Transition under a variety of economic and capital market conditions. As Concentric notes in the Study: “Our recommended equity ratio for Enbridge Gas in the upcoming rate setting period is consistent with the results of our analysis, which indicate that an increase in equity thickness is warranted. This is particularly important as the Company will need to maintain financial strength to continue accessing the debt and equity capital it needs to manage the Energy Transition under a variety of economic and capital market conditions, while providing safe and reliable service to its customers.”

Question(s):

What in particular are the “variety of economic and capital market conditions” referred to in the cited passage?

- a) Has Concentric or EGI (and in the case of EGI either directly, through a consultant or as part of any industry association) or any affiliate of EGI (either directly, through a consultant or as part of any industry association) quantified 1) “the debt and equity capital [EGI] needs to manage the Energy Transition” and/or 2) the parameters measuring the requisite “financial strength” that EGI will need to maintain?
- b) Please provide the results of the analyses referred to in response to part (a). Please provide copies of any spreadsheets (with working formulas and links) used to conduct the analysis.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) The phrase “a variety of economic and capital market conditions” refers to the full range of economic and capital market conditions that can be experienced over time. This includes both expansion and recession, periods of high and low inflation, periods of high and low interest rates, changing central bank policy conditions from monetary stimulus to monetary tightening, periods of low and high GDP growth, and periods of market stability and market distress/volatility. Regardless of the economic and capital market environment, regulated utilities such as Enbridge Gas require access to capital on reasonable terms.
- b) Concentric has provided the historical and forecast credit metrics for Enbridge Gas and its predecessor companies in Figures 17, 18, and 20 (pages 60-62) of its report, as well as a comparison of Enbridge Gas’s credit metrics to those of the proxy group companies in Figure 19 (page 62). Enbridge Gas’s deemed capital structure should be set at a level that reflects the Company’s business risk profile, and that enables the Company to maintain its credit rating. Figure 1, which is Figure 15 in Concentric’s report, shows the S&P credit metrics that are necessary for a company to achieve a certain Financial Risk ranking.

Figure 1

Cash Flow/Leverage Analysis Ratios--Low Volatility							
	--Core ratios--		--Supplementary coverage ratios--		--Supplementary payback ratios--		
	FFO/debt (%)	Debt/EBITDA (x)	FFO/cash interest (x)	EBITDA/interest (x)	CFO/debt (%)	FOCF/debt (%)	DCF/debt (%)
Minimal	35+	Less than 2	More than 8	More than 13	More than 30	20+	11+
Modest	23-35	2-3	5-8	7-13	20-30	10-20	7-11
Intermediate	13-23	3-4	3-5	4-7	12-20	4-10	3-7
Significant	9-13	4-5	2-3	2.5-4	8-12	0-4	0-3
Aggressive	6-9	5-6	1.5-2	1.5-2.5	5-8	(10)-0	(20)-0
Highly leveraged	Less than 6	Greater than 6	Less than 1.5	Less than 1.5	Less than 5	Less than (10)	Less than (20)

- c) Please see the response to subpart b) above.

The following response was provided by Enbridge Gas:

- b) Enbridge Gas has not quantified the capital or operating costs required to manage the Energy Transition. These costs are subject to the uncertainties surrounding Ontario’s path to reduce emissions, supply and demand-side alternatives and their

costs, and customer behavior. Without this quantification, it is not possible to quantify the debt and equity needed to fund this transition. Please see Exhibit I.1.10-CCC-28 for a discussion of the revenue requirement impacts related to Enbridge Gas's Energy Transition proposals in this application over the 2024 to 2028 timeframe. Capital requirements over the aforementioned timeframe for Enbridge Gas's Energy Transition proposals are expected to be minimal.

Enbridge Gas measures "financial strength" through its public credit rating and its ability to access capital. The Credit Rating Agencies use metrics such as Debt to EBITDA and Funds from Operations to Debt (S&P Global) or Cash Flow to Debt (DBRS) as key financial indicators contributing to EGI's credit rating. The key metrics S&P utilizes in its assessment of Financial Risk, and Enbridge Gas monitors, are included in Figure 1, as part of Concentric Energy Advisors, Inc's response to part b). The OEB approved Debt to Equity ratio impacts key financial metrics. Enbridge Gas monitors these metrics as part of ongoing financial planning activities. As provided in the credit rating reports, at Exhibit I.1.8-STAFF-14, the rating agencies also assess credit risk using other factors.

- c) Please see response at Exhibit I.1.8-STAFF-14 for credit rating reports. Please also see response at Exhibit I.5.3-VECC-58.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1

Question(s):

Please provide copies of, or a working web link to, each of the documents cited in the footnotes contained in the Concentric report, other than (1) documents produced and published by the Ontario Energy Board and (2) documents for which an accurate and up to date web link is provided in the subject footnote.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Please see response at Exhibit I.5.3-CME-41.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, page 1, paragraph 3
Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 17 of 164, 2nd paragraph

Preamble:

Enbridge Gas believes that significant changes in the environment in which it operates have occurred since the time of the 2013 Rates proceedings.

Concentric's analysis begins with an assessment of how the Company's business and financial risk profile has changed since the Company's previous equity thickness proceedings (i.e., 2012).

Question(s):

Please provide any plans, reports, presentations, studies, or other materials created between 2012 and 2023 which address strategic business planning and/or assessments for the future of Enbridge Gas Inc.'s business (and for periods before the merger Enbridge Gas Distribution's and Union Gas' business). In this question "strategic business plans or assessments" means documents which address risks or material changes with respect to any of the following; projected and actual financial earnings and regulatory earnings (including ROR and ROE); projected and actual customer and meter counts by customer class; material operational risks or changes; material risks to attraction or retention of capital investment; marketing considerations; provincial or federal regulation; payment of dividends; any other material forward looking financial/operational risks. Please include any underlying analysis or quantification of business or financial risks identified, such as but not limited to cash flow, earnings, and historical credit spreads of EGI and US and Canadian proxies.

Response:

Over the period 2012 to 2023, particularly in recent years, Enbridge Gas recognized the headwinds posed by rising carbon charges and GHG reduction regulations and also the tailwinds posed by the competitiveness of natural gas relative to electricity in Ontario,

and the continued strong customer additions of 40,000 or more customers each year. Enbridge Gas regularly monitors and manages these and other changes in its operating environment, how these changes are affecting its business and how to address and mitigate perceived adverse impacts. Enbridge Gas does this in its normal course of business through different mechanisms, such as market research, risk assessments, strategic planning, financial budgeting and analysis, and stakeholder relations. The request for any “strategic business plans or assessments”, as defined, is overly broad and far-reaching, seeking a plethora of information not relevant to this proceeding, and it is unreasonable to expect Enbridge Gas to review and produce such a broad collection of information in the limited time provided to respond to interrogatories. As requested, the task would require the input of possibly hundreds of current and former employees of both the legacy utilities and their parent companies in Canada and the United States for the periods both before and after the merger.

In addition to the difficulty of attempting to circumscribe the information requested in some reasonable manner, much of the information in the requested categories is of a confidential, privileged and commercially sensitive nature as it relates to operational and other risks that, if disclosed, may prejudice the competitive and negotiating positions of Enbridge Gas and its affiliates and may jeopardize security in various areas of the business, amongst other things. Enbridge Gas would have to expend tremendous effort to compile and sift through items that may fall into the categories of the requested information for questionable benefit to the OEB adjudicating the matters before it in this proceeding.

For the purposes of this Application, recognizing that it is continuing to face increasing business risks, Enbridge Gas engaged Concentric to conduct a quantitative assessment to determine if Enbridge Gas’s risk profile has changed significantly since 2012 and to assess the reasonableness of its current capital structure in the context of the OEB’s guidelines for gas utilities cost of capital. Enbridge Gas is relying upon Concentric’s assessment, rather than on any internal risk assessments or analyses, to support its request for increased equity thickness in this proceeding. Any internal assessments and analyses have tended to be more high level and qualitative in nature than Concentric’s assessment and are not required to determine business risk in the manner required by the OEB’s guidelines. Please also see response at Exhibit I.5.3-VECC-58 for further discussion on evidence that Enbridge Gas relies on, other than Concentric’s study, that supports an increase in its business and financial risks.

Another example of information already provided on the record in this proceeding and upon which Enbridge Gas relies for the purposes of assessing longer-term business risk

projections are the Pathways to Net-Zero for Ontario (P2NZ) Study (at Exhibit 1, Tab 10, Schedule 5, Appendix 2) and the Energy Transition Scenario Analysis (ETSA) Report (at Exhibit 1, Tab 10, Schedule 5, Appendix 1). The ETSA provides modeled estimates of Enbridge Gas's gas demand and related GHGs under four scenarios. The cost implications to Enbridge Gas, its customers or from a societal perspective were out of scope for the ETSA Report. The P2NZ Study, which builds on the Diversified and Electrification scenarios developed in the ETSA Report, provides an economy-wide approach (thus including emissions from other energy systems) to estimating costs associated with each scenario. The P2NZ Study does not specifically provide the cost impacts to Enbridge Gas or its customers but does provide an economy-wide assessment of the Diversified and Electrified scenarios/pathways.

To illustrate the type of high-level risk and planning presentations Enbridge Gas makes to its board of directors from time to time, Enbridge Gas is providing in Attachment 1 and Attachment 2, the Strategic Plan for the Gas Distribution & Storage business unit (GDS) for 2021 and 2022 respectively, parts of which have been redacted for reasons set out in the Company's accompanying request for confidential treatment of certain information filed in this proceeding. The risk of negative growth without a change in course is explained on page 5 of Attachment 1. A similar type of strategic plan summary specific to 2023 and prepared for public consumption is provided as Attachment 1 to response at Exhibit I.1.2-SEC-81 and it identifies the changing business environment in which Enbridge Gas operates and how Enbridge Gas is addressing these changes. In contrast, as noted, the Concentric report addresses matters of business and financial risk in the specific detail required for the purposes of Enbridge Gas's equity thickness proposal in this proceeding.

GDS Strategic Plan

Our 2021 strategic plan builds on our leading position

We have a strong foundation and set of competitive advantages...

- ✓ Extensive regulatory expertise and a longstanding working relationship with the OEB
- ✓ Expert developers and operators of complex distribution, transmission & storage infrastructure
- ✓ Broad base of relationships in the public and private sector, including successful partnerships
- ✓ Trusted brand serving 3.8 Million customers in a region experiencing economic/population growth
- ✓ Qualified in-house team with expertise in executing new energy projects (RNG,CNG,H2)
- ✓ Strategically positioned storage & transmission assets connected to large demand centers

... that will help us sustain & build a thriving business in the years ahead (2021 plan highlights)



Pursue **regulatory strategies** that preserve our ability to grow and earn a fair financial return on our \$14+ Billion Rate Base



Differentiate our energy offerings within our regulatory framework to provide low-carbon energy (e.g., RNG blending) to customers



Expand **new energy business platforms**, both in and outside of regulatory structures, that drive growth and compliment our existing system

We are leveraging our strong foundation to build a thriving and sustainable business for decades ahead

Our near-term strategic priorities are progressing well

	Achievements last 12 months	Remaining LRP priorities through 2023	
Safety & Reliability	<ul style="list-style-type: none"> ✓ 58% reduction in employee TRIF; 44% reduction in contractor TRIF ✓ Uninterrupted service during pandemic 	<ul style="list-style-type: none"> > Focus remains on jobsite safety, best-in-class damage prevention strategy, comprehensive integrity programs, and reducing vulnerability to cyber attacks 	
Protect the Core & Drive Productivity	<ul style="list-style-type: none"> ✓ Exceeded regulated ROE in 2020 ✓ Successful implementation of three major integration projects; AWS, CIS and Connect 	<ul style="list-style-type: none"> > Continue to deliver on synergies identified as part of the 2019 amalgamation > Prudently manage capital program and operating budgets 	
Execute & Extend Growth	<ul style="list-style-type: none"> ✓ Sanctioned \$0.4B of new growth & added 40,000 customers ✓ [REDACTED] ✓ Put 3 PJ of storage in service in 2020 and re-contracted Dawn-Parkway system 	<ul style="list-style-type: none"> > Progress 5 new community expansions projects > [REDACTED] > Advance transmission & Dawn storage expansion plans 	
Adapt to energy transition	<ul style="list-style-type: none"> ✓ 15 RNG projects in contracting phase ✓ Received approval for H2 blending pilot ✓ Approval and launch of Voluntary RNG program through new billing options 	<ul style="list-style-type: none"> > Develop RNG services at the Dawn Hub and bring into service \$100M of RNG projects throughout franchise > Leverage regulatory mechanisms to include Energy Transition investments in rate base > Lead commercialization of gas-powered heat pumps > Expand mobile CNG offerings ; Develop H2 blending in QC 	

Trending  On track  Slight delay  Significant delay

LRP priorities remain achievable; targeted annual growth of 2-3% through 2023¹ is on track

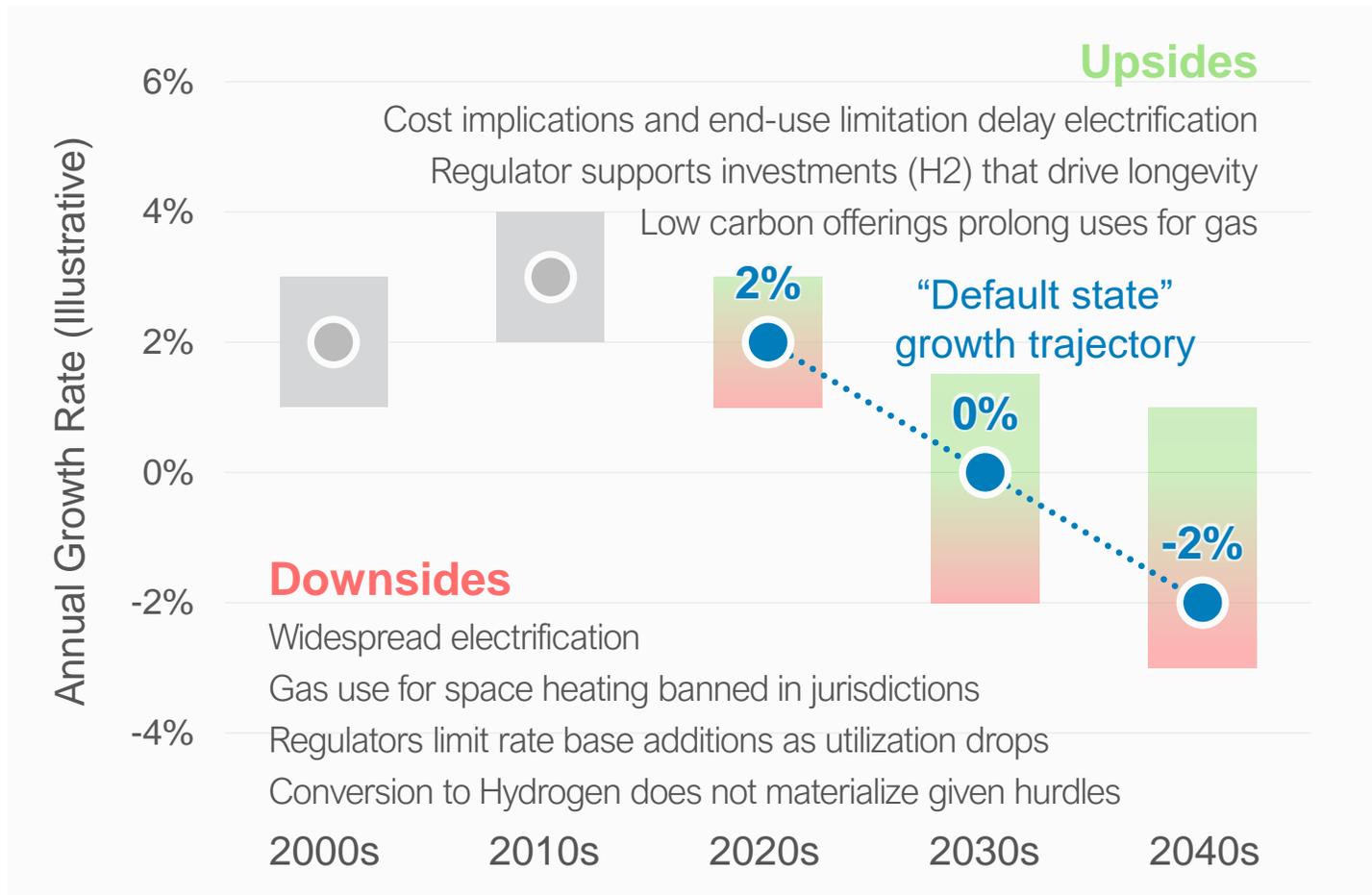
However, as we look ahead, a changing environment will impact our longer-term growth levers

Priority / Lever	Annual growth				Forces influencing long-term outlook (through 2040)
	2020-23	2023-30	2030s	2040s	
TRADITIONAL ↑ Revenue escalators	Green	Green	Yellow	Yellow	<ul style="list-style-type: none"> Fed. Fuel Charge, escalating to \$170/tCO₂e, limits bill headroom to increase rates Regulator expects rate reductions after multi-year incentive regulation frameworks
	Green	Yellow	Red	Red	
EMERGING ↓ Customer Growth & Com. Expansion	Green	Green	Yellow	Red	<ul style="list-style-type: none"> Growing trend for moratoriums on gas hookups in N.A., threatening future growth Govt. support for community expansion through medium-term; gas consumption gradually declines long-term as fuel switching proliferates & efficiencies improve
	Green	Green	Yellow	Red	
Low carbon & modernization	Yellow	Green	Green	Green	<ul style="list-style-type: none"> Growing industrial load anchors strong growth outlook near-to-medium term Longer-term declines in demand limits need for additional S&T infrastructure
	Yellow	Green	Green	Green	

Legend: ■ Strong/moderate growth outlook ■ Limited growth outlook ■ Weak growth outlook

GDS has historically seen strong rate base growth – moving forward traditional growth levers will be challenged

Without a change in course, at risk of negative growth



Our future **default state** entails:

2020s Modest expansion through 2030 followed by gradual demand decline (due to government policies/code changes) shifts focus away from growth to system maintenance

2030s Regulators receptive to modernization and emissions reduction plans; associated investment partially mitigates rate base declines beginning mid-2030s

2040s Longer-term declines in system utilization stresses traditional cost of service model

Regulatory frameworks do not evolve to allow broad inclusion of low-carbon investments within regulated utility, limiting growth potential

We believe that GDS will face a gradual downward trajectory without new investment channels

Strategic plan blends offense / defense to drive long-term growth

Drive cash flow and resiliency of our core

Grow into new areas

Maximize value

Differentiate energy offerings

Expand reach

Decarbonization platforms

-  Pursue regulatory levers to preserve financial returns
- Continuation of replacement & enhancement capital programs with full Rate Base recovery
- Deploy technology-based solutions to enhance returns and maintain cost advantage vs. alternative fuel sources

- Focus on energy transition leadership as a key differentiator
 - > Aggressively pursue low carbon offerings/solutions (e.g., RNG blends & energy conservation) to our residential, commercial and industrial customer base
 - > Lower our carbon footprint through modernizations & efficiencies across our system
- Repurposing assets to be compatible with low-carbon gases (e.g., RNG/H2 storage at Dawn Hub)

-  [REDACTED]
- Enhance/establish CNG and Hydrogen fueling stations

-  Develop new energy business platforms, rate base where possible:
 - > [REDACTED]
 - > Leverage Dawn Hub to offer RNG
 - > Prove out market for H2 then invest in compatibility / blending

 Spotlights on following pages

 [REDACTED]

We are progressing from a leading gas distribution utility to an innovative provider of low carbon energy solutions

Spotlight | Defending our regulated & contracted assets



Given long-term headwinds facing GDS such as slowing customer attachments and gradually declining consumption, we are developing strategies to de-risk our ability to earn a fair return of-and-on capital for our \$14+ Billion Rate Base

Regulatory mechanisms

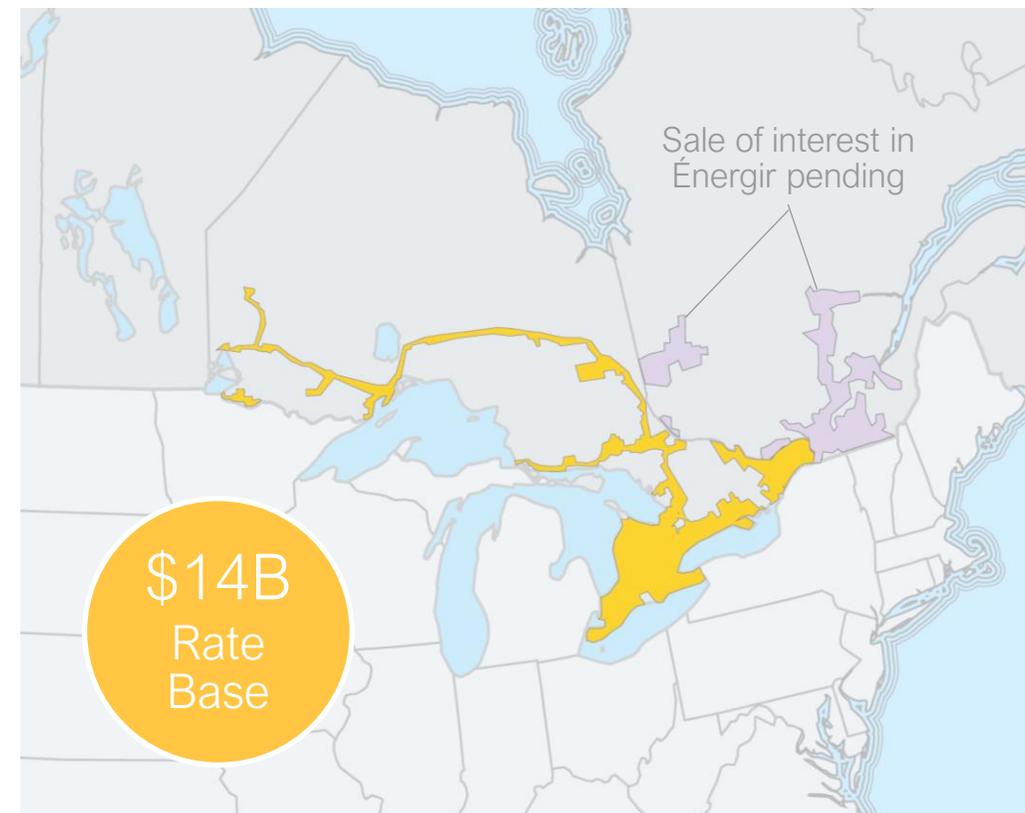
Gas Distribution

- Pursue higher depreciation rates and higher equity thickness to address energy transition risk to core business with rebasing filing
- Recover costs by raising fixed component of rates
- Propose an *Integrated Resource Plan*¹ that supports ability to add customers while optimizing investment
- Modernization of assets with a focus on delivering low carbon fuels (RNG, CCUS, H2)

Commercial Terms

S&T

- Consider offering innovative services for reliability and greater market segmentation
- Facilitate low carbon gas trading at Dawn



Our gradual transition relies on a strong, stable Core – we will use levers that protect our businesses long-term

1. IRP is a process in which utilities work with parties to identify and prepare energy options including non pipe solutions that serve the highest possible public good while considering costs, risks, etc.

Spotlight | New energy investment strategy

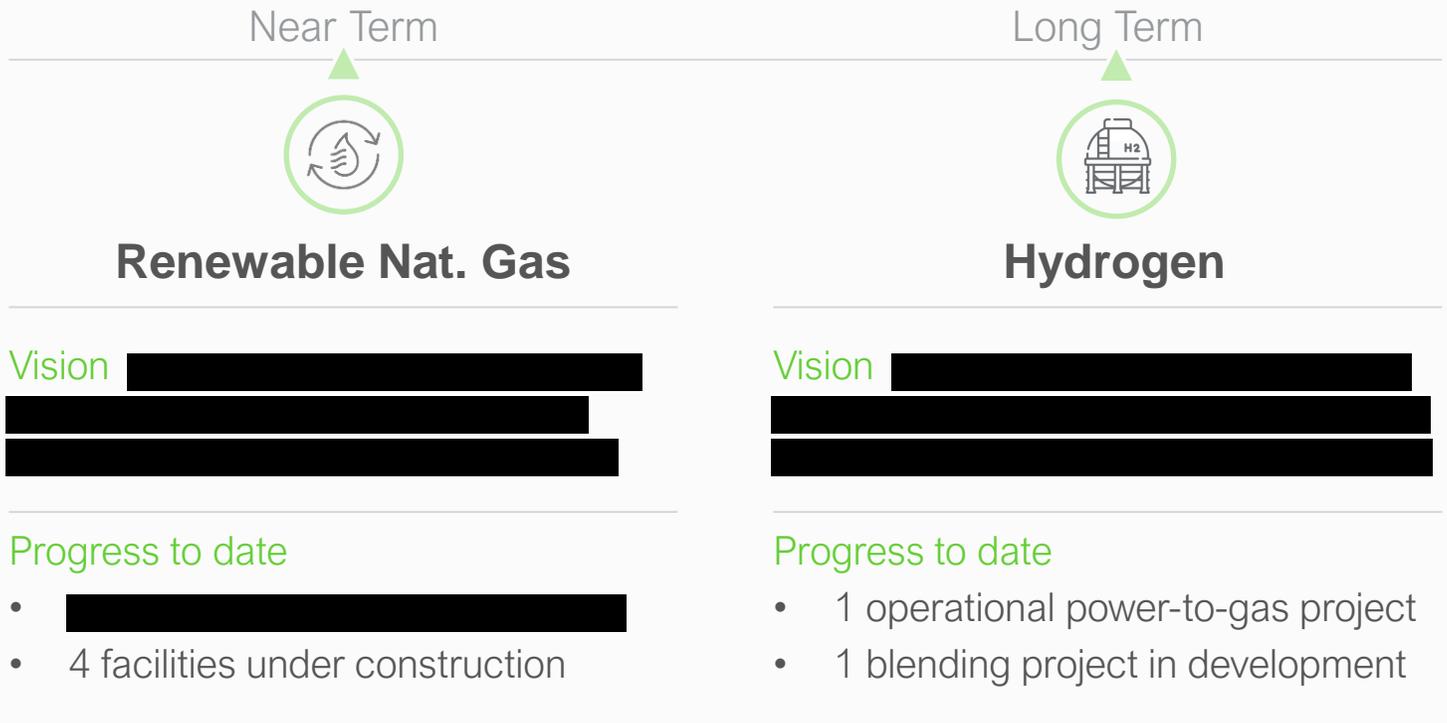


Many of our 3.8 million customers are seeking ways to decarbonize their footprint. Our strategy is to make this possible through a selection of low-carbon energy offerings

As we build this business, We are taking a **disciplined approach**:

- ✓ Prove out technology... then expand
- ✓ Limit capital at risk
- ✓ Rate Base or comparable commercial model
- ✓ Compete for allocation of capital

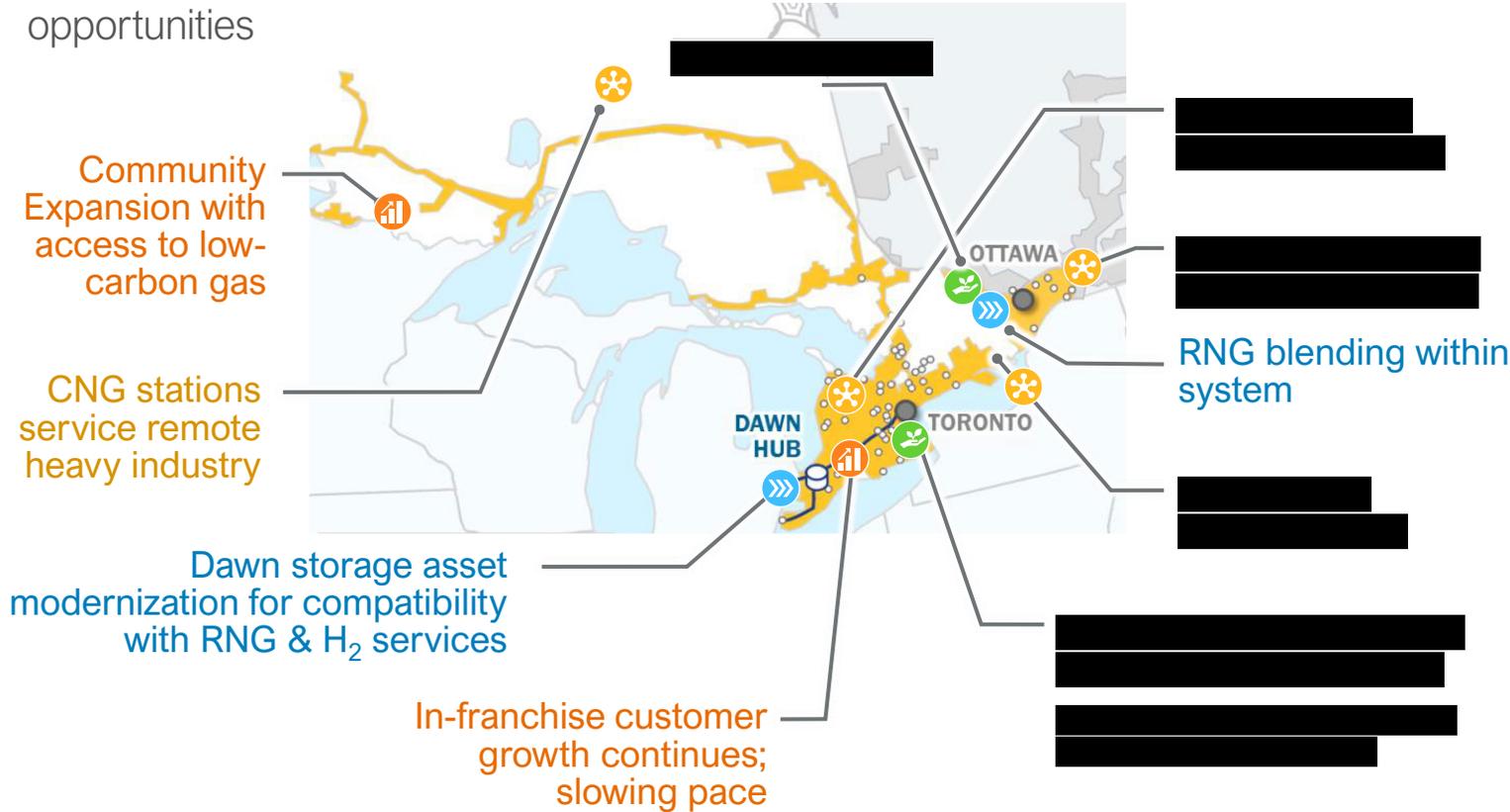
GDS is pursuing RNG & H2 investments given their low-carbon characteristics and compatibility with existing gas infrastructure



We are advancing renewable natural gas and hydrogen investments, with low-risk commercial models

New growth initiatives will gradually diversify our footprint

Illustrative map intended to reflect range of future opportunities



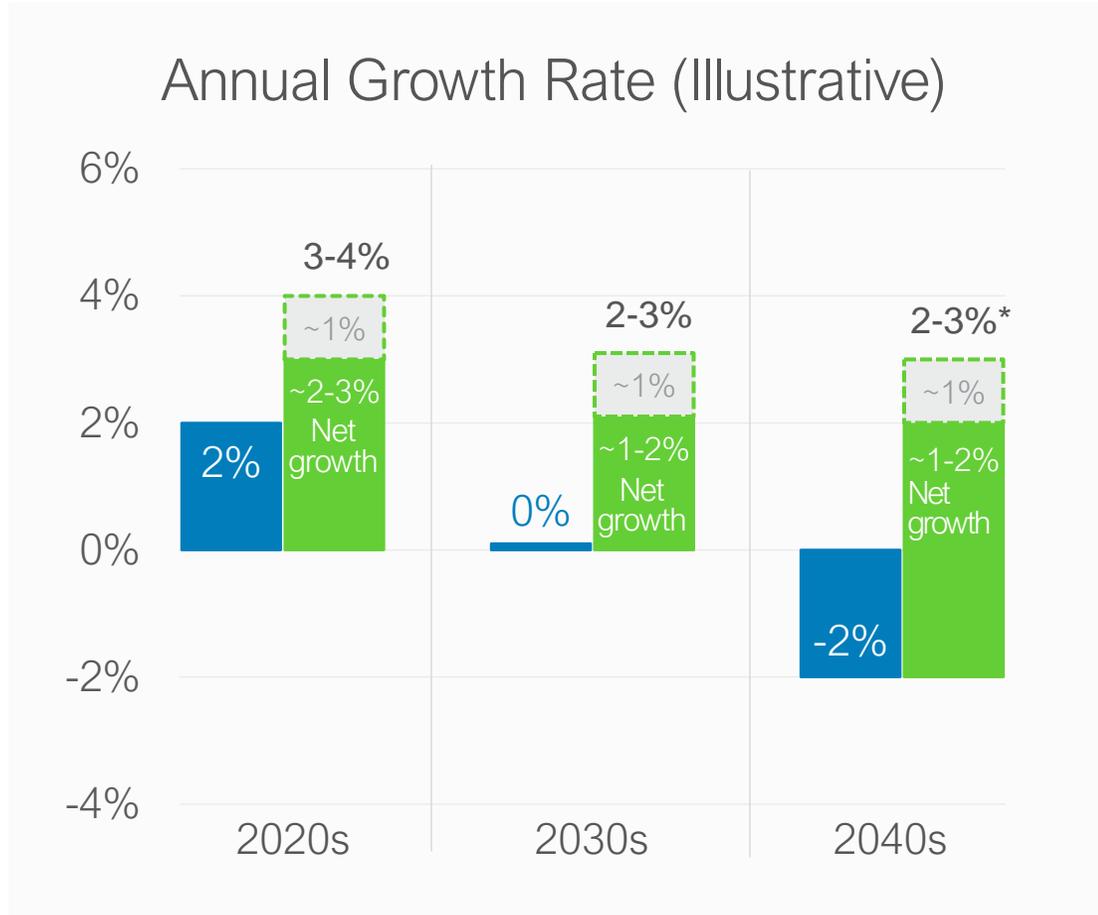
Mix of investments will change in line with **energy transition**

- Mix of regulated and unregulated investments
- Modernization and low-carbon gas infrastructure/asset repurposing unlock significant prospects
- [REDACTED]
- Increased collaboration with customers on new projects

Core value maximization Differentiated energy offering Expansions & new reach Decarbonization investment

An evolved footprint and changes to our operating model will drive competitiveness as energy transition unfolds

Our strategic plan resets the long-term growth outlook



■ Recall, our **Default state growth** trajectory slows and is eventually negative as traditional gas use declines

■ GDS's updated **Base Case growth** outlook benefits from activities that mitigate this downside risk to further protect and progress our business as energy transition unfolds

■ **Supplemental growth** [REDACTED]

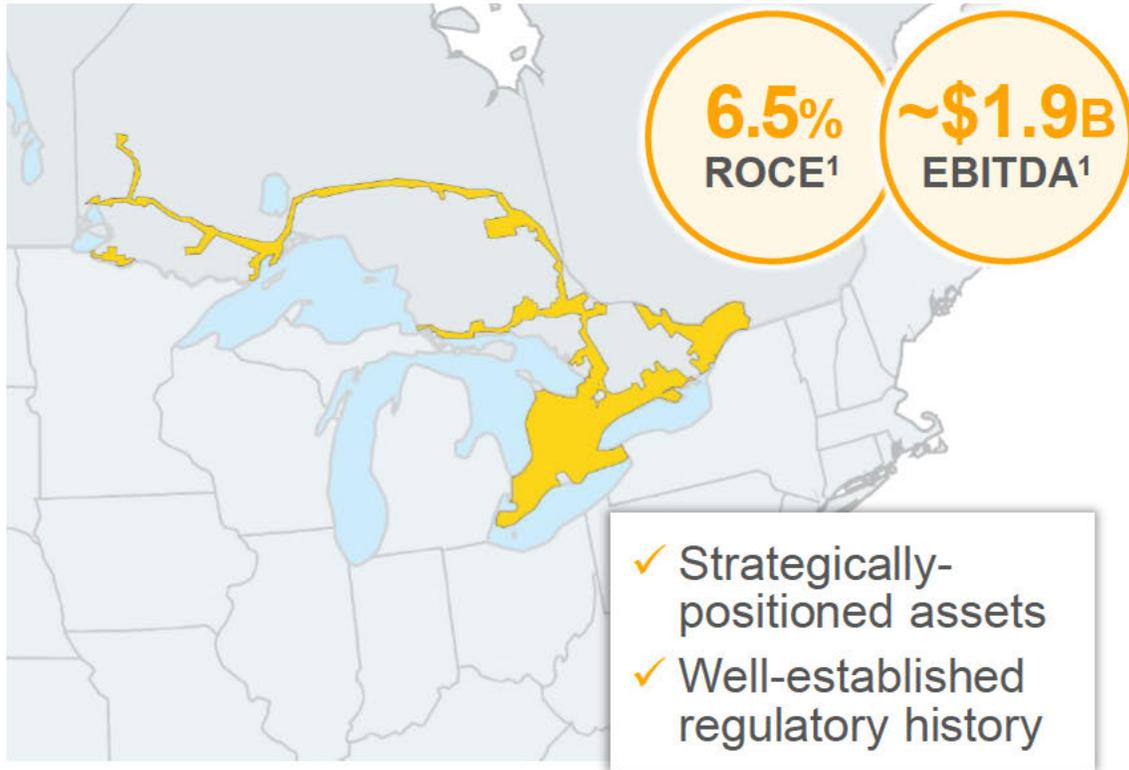
Our Strategic Plan positions GDS to realize a 1-2% organic growth rate over the long-term;

* Additional upside dependent on scale and pace of new energies including RNG & Hydrogen

GDS – 2022 Strategic Plan

GDS Strategy Summary

Providing low-risk EBITDA, scale, and access to large, growing customer base...



... driving a core set of strategic actions during our planning period

 **Maintain and extend core regulated natural gas business** through upcoming rate proceeding; modernization of assets; & opportunities supporting industrial growth

 **Meaningfully expand regulated and unregulated lower-carbon energy solutions** for industrial, commercial, and residential customers, including leveraging Storage & Transmission (S&T) assets



[Redacted text]

Positioning the GDS business to capitalize on conventional growth while adapting proactively to Energy Transition

GDS's business environment is evolving ...

We have some tailwinds that create opportunities...

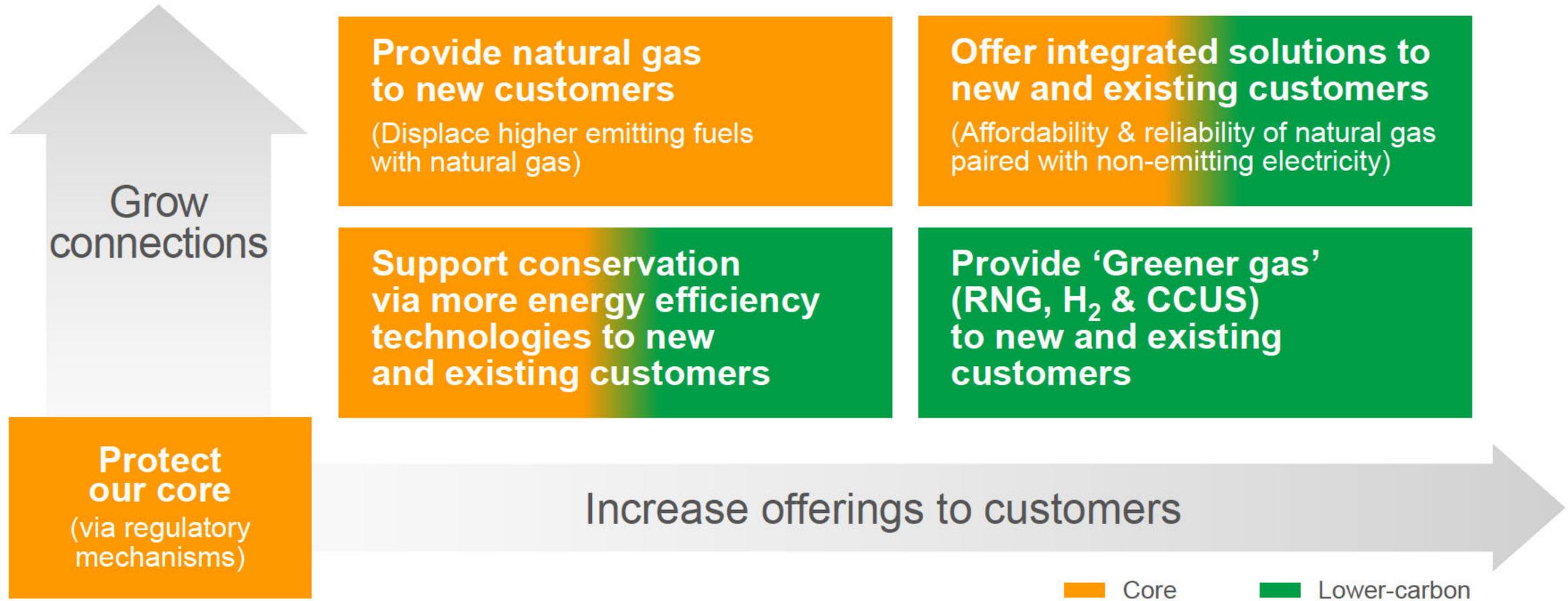
- ▲ Increasing energy needs as population grows
- ▲ More positive outlook for conventional energies, including natural gas, than last year
- ▲ Strong market penetration and customer base
- ▲ Industrial sector needs natural gas to grow and as part of lower-carbon solutions
- ▲ Growing recognition of the need for an orderly and diversified solution to net zero aspirations
- ▲ Growing suite of low-carbon solutions; technology advancements underway

...we must address & work through challenges

- ▼ Aggressive GHG reduction targets at all levels of government
 - City of Toronto, home to ~20% of GDS' customers, stated goal: "Accelerate a rapid & significant reduction in natural gas use" to meet its 2030 targets"
- ▼ Decreasing competitiveness of gas with carbon tax and electricity cost subsidization
- ▼ Increasing pressure from Ontario Energy Board
- ▼ Increasingly competitive alternatives for heating
- ▼ Building code & emission reduction mandates influencing residential and commercial builders

GDS is well situated to grow and diversify in this evolving business environment

... driving our proactive 2-pronged growth strategy



While conventional energy will be needed for the foreseeable future, we need to invest in and 'be seen' as proactively adapting to energy transition



Core Spotlight | Natural gas distribution and storage

Our Levers	Core Business Actions 	Transition Actions 
Regulatory Mechanisms (2024 – 2028)	<ul style="list-style-type: none"> ✓ 2024 rates that allow enhanced customer service, growth and a regulated return ✓ Incentive mechanism (2025–2028) that addresses inflation and enables ability to earn above allowed return ✓ Ability to invest capital to modernize and grow gas infrastructure 	<ul style="list-style-type: none"> ✓ Higher equity thickness to address transition risk ✓ Higher fixed component of rates to reduce volumetric exposure ✓ IRP¹ to propose opportunities in non-traditionally regulated areas; protect annual rate base
Commercial Terms	<ul style="list-style-type: none"> ✓ Provide access for industrial customers seeking lower-carbon gas alternatives ✓ [REDACTED] ✓ Leverage Storage & Transmission business to meet regional energy security needs 	<ul style="list-style-type: none"> ✓ Position to deliver Federal and Provincial GHG reduction programs ✓ Include more offerings in the Voluntary RNG Program and expand eligibility ✓ Execute a “H₂ Readiness Study” ✓ Seek Energy Transition Technology Fund to partner with low-carbon innovators

Rebasing proposals provide opportunity to grow core business

1. IRP (Integrated Resource Plan) – OEB approved Framework that considers non-traditional natural gas infrastructure alternatives to address system needs



Core & Low-Carbon Spotlight | Low-carbon energy solutions

Our advantages

Our approach

Strong brand and reputation

- Leverage customer relationships and knowledge to design and deliver low and lower-carbon services and projects
- Partner with industrial groups to co-develop integrated clean-energy hubs (H₂, CCUS), that drive valuable synergies and economies of scale

Credibility with stakeholders

- Utilize 'Pathways to Net Zero'¹ study to advocate for a diversified and orderly approach to meet Ontario's emissions targets
- Collaborate with key stakeholders such as the IESO and OEB, to ensure appropriate policy changes that keep customer needs, reliability and affordability in mind

Illustrative map reflects range of priority opportunities across Ontario



»» In regulatory framework

»» Potential to be in or out of regulatory framework

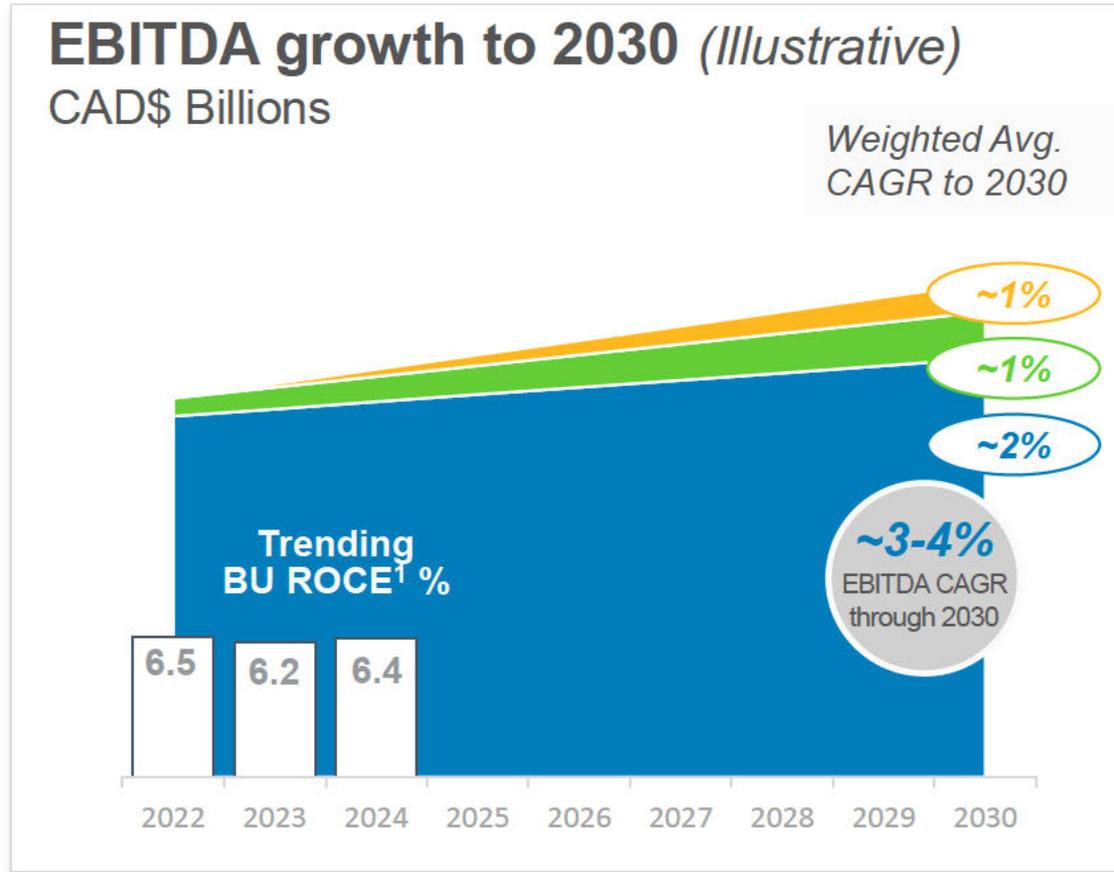
Proactively pursuing regulated and unregulated opportunities to meet customer needs and GHG reduction targets

1. Enbridge commissioned 'Net Zero Pathways' study for Ontario that demonstrates a diversified pathway is the lowest cost, most reliable, and most resilient



[REDACTED]

Driven by our base business, our plan delivers 3-4% growth



■ **Natural Gas Distribution and Storage:** Opportunities to grow and modernize the system continue to be leveraged; post 2030, traditional growth declines due to Energy Transition policies

■ **Low-carbon Energy Solutions² (regulated and unregulated):** RNG starts small but accelerates in mix as economics improve for blended options. H₂ and CCUS solutions grow in later half of the decade and are necessary to meet existing net zero aspirations



Growth in our existing business slows within the next decade, but proactively leveraging new pathways allows for ongoing attractive returns

1. Derived from 2022 LRF; 2. Additional upside dependent on scale and pace of new energies including hydrogen & CCUS

Path forward

Continued themes from 2021

New focus areas / actions for 2022+



Growing our core

- ▶ Pursue regulatory strategies to optimize rate base; continue to leverage assets

- ▶ Focus rate rebasing filing in 2022 on twin themes: core business and energy transition
- ▶ Drive rate base growth, customer service enhancements and asset modernization plans through core business
- ▶ Highlight the importance of natural gas, and preserve optionality on pace if transition accelerated



Diversifying through low-carbon

- ▶ Provide low-carbon energy to customers that drive growth and complement existing system

- ▶ Enable clean-energy hubs (H₂, CCUS) for heavy industry
- ▶ Expand CNG stations to service remote heavy industry
- ▶ Ensure market expansion relevant and replicable for H₂

- ▶ Explore and enter new lines of business

- ▶ [REDACTED]
- ▶ [REDACTED]
- ▶ [REDACTED]

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 17 of 164

Preamble:

Concentric's report states:

There are two fundamental sources of risk for any company, including regulated utilities: business risk and financial risk. Business risk for a regulated utility results from variability in cash flows and earnings that impact the ability of the utility to recover its costs including a fair return on, and of, its capital in a timely manner. These risks include operating risk and regulatory risk. Financial risk relates to a company's debt leverage and liquidity and is measured by its credit profile. Both business and financial risk have a direct bearing on a utility's cost of capital.

Question(s):

- a) Please provide a table of EGI's (and for periods before the merger Enbridge Gas Distribution and Union Gas) allowed rate of return and return on equity and the actual rate of return and return on equity, for each year since 1990.
- b) Please provide a table, as well as the accompanying worksheets, that reports the allowed return on equity and the actual return on equity for each of the companies included in the four proxy groups, for each year since (and including) 2012.

Response:

- a) Please see Attachment 1. For the years prior to amalgamation, information is broken down between Enbridge Gas Distribution and Union. For years prior to 2007 the schedule notes a number of data points that Enbridge Gas was not able to find and provide in this response despite making reasonable efforts.

The following response was provided by Concentric Energy Advisors, Inc.:

- b) Concentric has not compiled the allowed and actual ROEs for each of the operating companies in the four proxy groups. Not all regulated utilities report earned ROEs on an annual basis, and calculating earned ROEs from accounting data is complicated by the many common adjustments made for regulatory accounting purposes.

EGD Rate of Return and Return on Equity

<u>Year</u>	<u>Actual Return on Common Equity (\$ millions)</u>	<u>Allowed Return on Common Equity (\$ millions)</u>	<u>Actual ROE % (1)</u>	<u>Allowed ROE %</u>	<u>Net Earnings (Deficiency)/ Sufficiency (\$ millions)</u>
1990	73.4	71.4	13.60%	13.25%	2.0
1991	77.5	76.5	13.29%	13.13%	1.0
1992	83.2	84.6	13.40%	13.13%	(1.4)
1993	89.8	89.1	14.43%	12.30%	0.7
1994	91.6	91.1	12.49%	11.60%	0.5
1995	98.8	99.1	12.66%	11.65%	(0.3)
1996	107.1	108.2	13.14%	11.88%	(1.1)
1997	111.7	114.0	13.00%	11.50%	(2.3)
1998	109.9	110.3	11.97%	10.30%	(0.4)
1999	106.4	109.3	10.77%	9.51%	(2.9)
2000	N/A	95.6	10.83%	9.73%	N/A
2001	N/A	104.1	10.03%	9.54%	N/A
2002	N/A	102.1	11.81%	9.66%	N/A
2003	109.4	107.0	9.94%	9.69%	2.4
2004	122.4	109.5	10.83%	9.69%	12.9
2005	N/A	114.6	10.34%	9.57%	N/A
2006	N/A	111.2	10.34%	8.74%	N/A
2007	127.7	113.1	9.78%	8.39%	14.6
2008	138.9	131.4	10.21%	9.66%	7.5
2009	153.0	127.2	11.20%	9.31%	25.8
2010	153.0	129.5	11.08%	9.37%	23.5
2011	147.8	127.4	10.38%	8.94%	20.4
2012	138.2	123.0	9.57%	8.52%	15.2
2013	161.0	138.1	10.41%	8.93%	22.9
2014	177.0	158.4	10.46%	9.36%	18.6
2015	179.6	170.1	9.82%	9.30%	9.5
2016	200.5	195.5	9.42%	9.19%	5.0
2017	238.9	204.3	10.27%	8.78%	34.6
2018	260.7	218.0	10.76%	9.00%	42.7

(1) based on normalized weather

N/A - Enbridge Gas was not able to find and provide in this response despite making reasonable effort

Union Rate of Return and Return on Equity

<u>Year</u>	<u>Actual Return on Common Equity (\$ millions)</u>	<u>Allowed Return on Common Equity (\$ millions)</u>	<u>Actual ROE %</u>	<u>Allowed ROE %</u>	<u>Net Earnings (Deficiency)/ Sufficiency (\$ millions)</u>
1990	N/A	45.6	13.30%	13.75%	N/A
1991	49.85	50.3	10.70%	13.50%	(0.4)
1992	54.38	58.8	11.50%	13.50%	(4.5)
1993	64.92	61.8	14.00%	13.00%	3.2
1994	74.46	65.0	15.30%	12.50%	9.4
1995	N/A	69.3	12.17%	11.75%	N/A
1996	N/A	N/A	13.47%	11.75%	N/A
1997	N/A	83.9	12.19%	11.00%	N/A
1998	N/A	116.9	8.03%	10.44%	N/A
1999	N/A	N/A	8.76%	9.61%	N/A
2000	N/A	N/A	10.62%	9.95%	N/A
2001	N/A	N/A	9.30%	9.95%	N/A
2002	N/A	N/A	10.75%	9.95%	N/A
2003	N/A	N/A	12.75%	9.95%	N/A
2004	N/A	N/A	11.37%	9.62%	N/A
2005	117.46	N/A	11.50%	9.62%	N/A
2006	117.94	N/A	9.24%	9.62%	N/A
2007	98.46	103.8	9.99%	8.54%	(5.4)
2008	160.9	102.9	13.35%	8.54%	58.0
2009	140.7	107.1	11.22%	8.54%	33.6
2010	140.2	109.8	10.91%	8.54%	30.4
2011	133.9	110.2	10.38%	8.54%	23.7
2012	149.4	115.3	11.07%	8.54%	34.1
2013	145.3	121.6	10.67%	8.93%	23.7
2014	153.5	127.9	10.72%	8.93%	25.6
2015	150.6	136	9.89%	8.93%	14.6
2016	158.3	152.9	9.24%	8.93%	5.4
2017	180.4	175.9	9.15%	8.93%	4.5
2018	208.9	193.5	9.64%	8.93%	15.4

N/A - Enbridge Gas was not able to find and provide in this response despite making reasonable effort

EGI Rate of Return and Return on Equity

<u>Year</u>	<u>Net Income Applicable To Common Equity</u>	<u>Common Equity</u>	<u>Achieved ROE %</u>	<u>ROE % Embedded In Rates (Union/EGD)</u>	<u>Allowed ROE % Excluding Deadband</u>	<u>Allowed ROE % Including Deadband</u>	<u>Net Earnings (Deficiency)/ Sufficiency Excl Deadband</u>	<u>Gross Earnings (Deficiency)/ Sufficiency Excl Deadband</u>	<u>Net Earnings (Deficiency)/ Sufficiency Incl Deadband</u>	<u>Gross Earnings (Deficiency)/ Sufficiency Incl Deadband</u>
2019	495.5	4730.0	10.47%	8.93%/9.00%	8.98%	10.48%	70.7	96.2	(0.4)	(0.4)
2020	425.6	4882.3	8.72%	8.93%/9.00%	8.52%	10.02%	9.6	13.1	(63.6)	(86.5)
2021	469.4	5119.8	9.17%	8.93%/9.00%	8.34%	9.84%	42.4	57.7	(34.4)	(46.8)
2022	518.3	5537.3	9.36%	8.93%/9.00%	8.66%	10.16%	38.8	52.8	(44.3)	(60.2)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 26 of 164

Preamble:

Concentric's report states:

Investor ESG concerns are already affecting capital markets, as illustrated by S&P's analysis of the financing costs of North American oil and gas companies relative to their environmental impact. Specifically, S&P grouped North American energy companies into quartiles based on the carbon intensity of their revenue as measured by the annual metric tons of carbon emissions per million dollars of annual revenue. S&P concluded that it saw "evidence that issuers with lower carbon intensity were able to issue longer-dated debt at lower financing costs than their more carbon-intense peers." Figure 6 provides the yield curves that S&P developed for new debt issuances from the companies in the highest and lowest quartiles of carbon intensity. As shown, issuers in the highest carbon intensity quartile tend to have materially more expensive debt than issuers in the lowest carbon intensity quartile. S&P estimated that differences in debt yields between the highest and lowest carbon intensity issuers exceeded 150 basis points for 10+ year issuances over the period studied. [footnote removed]

Question(s):

- a) What is EGI's carbon intensity of its revenue as measured by the annual metric tons of carbon emissions per million dollars of annual revenue?
- b) Which quartile of North American energy companies based on the carbon intensity of their revenue as measured by the annual metric tons of carbon emissions per million dollars of annual revenue would EGI fall into?

Response:

- a) The carbon intensity metric, as referenced in the Concentric's report, is a measure of the annual metric tons of carbon emissions per million dollars of annual revenue, with the carbon emissions being composed of both operational and upstream

emissions¹. Enbridge Gas does not calculate upstream carbon emissions and therefore does not have the requested data.

b) Please see response to part a) above.

¹ S&P Global, Frequently Asked Questions: Trucost, February 24, 2023, <https://www.spglobal.com/spdji/en/documents/additional-material/faq-trucost.pdf#:~:text=Carbon%20intensities%20are%20useful%20in%20comparing%20companies%20within,index%20constituents%20per%20USD%201%20million%20in%20revenue%E2%80%9D.>

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 27 of 164, Figure 7

Question(s):

- a) Please identify which of the utilities in this figure have made emissions commitments regarding their natural gas distribution utilities.
- b) For those natural gas distribution utilities with commitments, please identify those which have made commitments regarding emissions from release of methane or other gas utility operational emissions.
- c) For those natural gas distribution utilities with commitments, please identify those which have made commitments regarding emissions from the consumption/combustion of the gas they distribute.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric has not done the requested research in preparing its report. Figure 7 demonstrates that dozens of North American electric and gas utilities have established “net-zero” targets of 2050 or sooner, with many interim emission reduction targets announced as well. Figure 7 includes companies that own large gas operating utilities, such as Duke Energy (Piedmont Gas), Southern Co. (Atlanta Gas Light), National Grid (Boston Gas), Xcel Energy (Public Service Company of Colorado), Consolidated Edison, Inc. (Consolidated Edison of New York), Eversource Energy (NSTAR Gas, Yankee Gas, Connecticut Gas), DTE Energy (DTE Gas), Sempra Energy (Southern California Gas), CMS Energy (Consumers Energy), Emera, Inc. (Peoples Gas Florida and New Mexico Gas), AltaGas, Spire, South Jersey Industries, and Northwest Natural Gas.
- b-c) Concentric has not done the requested research in preparing its report.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 33 of 164

Preamble:

The Concentric report states:

However, the OEB also identified three specific risks that accompany the first-generation IRP framework it approved:

- *Plan Accuracy: The OEB noted that the IRP assessment process “should result in more prudent and effective integrated resource system planning,” which should reduce the risk that it does not accurately identify superior alternatives to facility projects. However, the OEB also noted that it “retains the authority to deny recovery of costs if it determines that Enbridge Gas was not prudent in considering alternatives, and Enbridge Gas acknowledged this possibility.”*

- *Success of IRP Plan Implementation: The OEB indicated that Enbridge Gas “may be at risk for recovery of some portion of IRP investments that are deemed imprudent,” and that “there may be a greater degree of performance and cost risk associated with IRPAs [IRP alternatives] and IRP Plans in comparison with facility projects” because the Company has “less experience in addressing system constraints using IRPAs like geotargeted DSM or demand response, and these IRPAs depend on consumer behaviour for success.”*

- *Stranded Assets: The OEB found that the “risk of stranded assets is a concern for both infrastructure builds and for IRPAs. The OEB has limited experience with the treatment of stranded assets. The examination of the treatment of stranding of assets in other jurisdictions and the findings of the Technical Working Group on this topic might help provide a better understanding of stranded assets and options to allocate the costs between Enbridge Gas and its customers.”*

Absent the Energy Transition, EGI would not be subject to these same risks, which are only partly mitigated by the OEB’s approval of the Company’s plans. [footnotes removed]

Question(s):

- a) Regarding “Plan Accuracy”: Does Concentric believe that EGI would not be subject to integrated resource planning and the obligation to prudently consider alternatives to facility projects, absent the Energy Transition? If so, why?
- b) Regarding “Success of IRP Plan Implementation”: Does Concentric believe that EGI would not be at risk for recovery of some portion of its investments that are deemed imprudent, absent the Energy Transition? If so, why?
- c) Regarding “Success of IRP Plan Implementation”: Does Concentric believe that IRPAs would not be considered or planned, absent the Energy Transition? If so, why?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) No, Enbridge Gas would still be subject to the IRP process and would have the obligation to prudently consider alternatives to facility projects, absent the Energy Transition. However, the Energy Transition significantly complicates integrated resource planning for Enbridge Gas. The Company must plan with uncertainty around how emissions reductions targets will be met in Ontario, potential restrictions on gas use, and uncertain design day and design hour load profiles on the demand side. On the supply side, the Company must plan beyond pipeline and gas commodity contracting to consider non-pipe alternatives and roles for hydrogen and RNG. This adds an extra layer of uncertainty for gas distributors that would not be necessary without the Energy Transition and the GHG reduction goals that Enbridge Gas is targeting.
- b) No, Enbridge Gas was always at risk for recovery of investments that were deemed imprudent. However, as the OEB indicated in the passage cited in the question, “there may be a greater degree of performance and cost risk associated with IRPAs (IRP alternatives] and IRP Plans in comparison with facility projects” because the Company has “less experience in addressing system constraints using IRPAs like geotargeted DSM or demand response, and some IRPAs depend on consumer behaviour for success.”
- c) No, but as recognized by the OEB, “there may be a greater degree of performance and cost risk associated with IRPAs [IRP alternatives] and IRP Plans in comparison with facility projects” because the Company has “less experience in addressing system constraints using IRPAs like geotargeted DSM or demand response, and these IRPAs depend on consumer behaviour for success.”

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 33-34 of 164

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 36 of 164

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 37 of 164

Preamble:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 33-34 of 164

Concentric states:

Achieving net zero GHG emissions by any date is a tremendous challenge for any natural gas distribution utility, Enbridge Gas included. There are two commonly identified fuel alternatives for gas distribution utilities to comply with net zero targets: hydrogen and renewable natural gas (“RNG”). However, pursuing those pathways carries risk from an investor’s perspective. This section discusses the various operational, technical, and financial concerns that investors have noted with large-scale moves towards hydrogen and RNG.

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 36 of 164

Concentric states:

Therefore, we conclude that while hydrogen may offer a potential pathway for the Company through the Energy Transition, investors perceive significant risk to that pathway because of its operational, technical, and financial challenges.

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 37 of 164

Concentric states:

These preliminary studies regarding the viability of RNG do not necessarily mean that RNG is not a viable long-term solution. However, from an investor’s perspective, pursuing such an uncertain pathway intrinsically carries risk. Further, as with the hydrogen discussion above, it is a risk that was not as meaningful at the time of the Company’s previous equity thickness proceedings (i.e., 2012).

Question(s):

- a) Did Concentric consider energy efficiency as an alternative for EGI to comply with net zero targets?

- i. If so, please provide that analysis, including any conclusion regarding investor perception of risk. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.
 - ii. If not, why not?
- b) Did Concentric consider hybrid heating (that is, the use of heat pumps or other electric technologies alongside gas combustion for heating) as an alternative for EGI to comply with net zero targets?
 - i. If so, please provide that analysis, including any conclusion regarding investor perception of risk. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.
 - ii. If not, why not?
- c) Did Concentric consider electrification as an alternative for EGI to comply with net zero targets?
 - i. If so, please provide that analysis, including any conclusion regarding investor perception of risk. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.
 - ii. If not, why not?

Response:

The following response was provided by Concentric Energy Advisors.

- a - c) Concentric's comments, cited in the preamble, were focused on the supply-side "fuels" solutions to reaching net-zero targets. Demand-side solutions, such as energy efficiency, hybrid heating, electrification and IRP are considered in Enbridge Gas's forecasting and planning process, including its Energy Transition Plan (as provided at Exhibit. 1, Tab 10, Schedule 6). All of the demand-side solutions cited in the question will be important tools for meeting Canada's net zero targets, while simultaneously representing risks to Enbridge Gas's customer growth and volumes. These risks are outlined in the Volumetric Risk section of Concentric's report (page 51 to 59). On this issue, we concluded: "Even with the uncertainty associated with how the Energy Transition will evolve and how consumers will respond, from an equity investor's perspective, the hydrocarbon intense gas distribution business is a less attractive industry."

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 45 of 164

Preamble:

Concentric states:

Further, all else equal, accelerating depreciation rates will increase rate pressure for customers, rendering natural gas less competitive against alternative energy sources, mainly electricity.

Question(s):

- a) Did EGI or Concentric conduct analysis to quantify the anticipated rate impact and competitive impact of accelerating depreciation rates?
 - i. If so, please provide that analysis, including any spreadsheets or models used (with working formulas and links).
 - ii. If no analysis was conducted, why not?
- b) Would increasing EGI's equity thickness increase rate pressure for customers, rendering natural gas less competitive against alternative energy sources?
 - i. If not, why not?
 - ii. Provide any analysis EGI or Concentric has conducted that considers the competitive impact of EGI's proposal to increase its equity thickness including any spreadsheets or models used (with working formulas and links).

Response:

- a) Enbridge Gas did investigate the impact on depreciation expense as a result of implementing a 2050 Economic Planning Horizon (EPH) as described at pages 16 to 18 at Exhibit 1, Tab 10, Schedule 4, updated March 8, 2023. The comparison was only done at the level of depreciation expense and was not modelled from a rate or competitive impact due to the significance of the estimated \$290 million increase to depreciation.

- b)
- i-ii. Please see the response to a) above.
- c) An increase in Enbridge Gas's equity thickness would have a small impact on customer rates and natural gas' competitive position vs. alternative energy sources. Based on estimates produced using January 2023 QRAM rates, the impact to savings would range from 0.04% to 0.11% depending on the rate class. The estimated bill impact of increasing Enbridge Gas's equity thickness for a typical residential customer is approximately \$2.42 for Rate 1, \$2.02 for Rate 01, and \$2.00 for Rate M1 for each year of the IR term (2025 to 2028).
- i. Please see the response to b) above.
 - ii. Enbridge Gas did not conduct any analysis that considered the competitive impact of Enbridge Gas's proposal to increase its equity thickness.

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric has not conducted any analysis on this issue.
- b) Concentric has not studied the rate impacts of increasing the equity thickness. The cost of common equity is calculated by Enbridge Gas in Exhibit 5, Tab 1, Schedule 1, page 4 of 5 for the years 2019 – 2024 test year. In order to determine the ultimate rate impacts of the proposed increase in common equity, one would also need to consider the cost of debt with and without the increase in equity. Such an assessment was beyond the scope of Concentric's analysis.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 44-45 of 164

Preamble:

Concentric's report states:

Another risk of the Energy Transition is that a significant portion of the Company's gas plant investments could become stranded. Generally, the term "stranded asset" refers to an investment that becomes no longer used or useful in the provision of service to customers before the end of its depreciable life. At that point in time, the undepreciated value of the asset (i.e., its net book value) is "stranded" with costs to be borne by either investors or customers. Gas distribution utilities such as the Company generally depreciate capital invested in their systems over the expected useful life of the underlying physical property, which is often many decades. Therefore, the Energy Transition creates stranded asset risk for the Company by introducing the possibility that significant portions of the Company's property will cease being used or useful before it is fully depreciated. In fact, the OEB recently acknowledged the risk of stranded assets when evaluating the Company's IRP proposal.

...

Like Moody's, Concentric expects that the OEB will approve measures to mitigate the Company's stranded asset risk, up to and potentially including the acceleration of depreciation rates as appropriate. However, we note that this is a "downside-only" area for the Company. In other words, while regulatory changes (e.g., the acceleration of depreciation rates) may improve the Company's prospects of recovering its investment, there remains a chance that investors are not able to earn a full "return of" their invested capital.

Question(s):

- a) Has Concentric or EGI (and in the case of EGI either directly, through a consultant or as part of any industry association) or any affiliate of EGI (either directly, through a consultant or as part of any industry association) conducted any financial analysis (that is, analysis of the finances of EGI as a company) for specific pathway(s) or scenarios in which the Company's investors are not able to earn a full "return of" their invested capital?

- b) If so, please identify the pathway(s) or scenarios and provide the analyses. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analyses.
- c) Has EGI identified any specific assets that are at risk of becoming stranded because of the Energy Transition or other cause?
 - i. If so, please identify those assets, the conditions under which they may become stranded, and the date or timeline on which they may become stranded. Please provide copies of the spreadsheets or other models (with working formulas and links) used to conduct this analysis.
- d) Please identify all analyses conducted by EGI or otherwise in EGI's possession which analyze changes in EGI's gas system operations and maintenance costs along different potential decarbonization pathways or Energy Transition scenarios.
 - i. Please provide the identified analyses. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.
- e) Please identify all analyses conducted by EGI or otherwise in EGI's possession which quantify infrastructure investment on EGI's system along different potential decarbonization pathways or Energy Transition scenarios.
 - i. Please provide the identified analyses. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analyses.
- f) Please identify all analyses conducted by EGI or otherwise in EGI's possession which quantify infrastructure retirements on EGI's system along different potential decarbonization pathways or Energy Transition scenarios.
 - i. Please provide the identified analyses. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analyses.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

a-f) Concentric has not done the requested analysis.

The following response was provided by Enbridge Gas:

- a) Neither Enbridge Gas nor any of its affiliates either directly or through a consultant or industry association have conducted any financial analysis for specific pathway(s) or scenarios in which the Company's investors are not able to earn a full "return of" their invested capital. Please also see response at Exhibit I.1.10-STAFF-34.
- b) Please see response to part a) above.

- c) Enbridge Gas has not identified any specific assets that are at risk of becoming stranded because of the Energy Transition or other cause.
- d-f) Enbridge Gas has not completed this analysis.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 45 of 164

Preamble:

Concentric states:

Depending on the specific pathways ultimately taken by the Canadian federal government and the province of Ontario, the Company may no longer be able to engage in the provision of its main business enterprise: the distribution of natural gas.

Question(s):

- a) Has Concentric or EGI (and in the case of EGI either directly, through a consultant or as part of any industry association) or any affiliate of EGI (either directly, through a consultant or as part of any industry association) conducted any financial analyses (that is, analysis of the finances of EGI as a company) for specific pathway(s) in which EGI is no longer able to engage in the distribution of natural gas?
- b) If so, please identify the pathway(s) and provide the analyses. Please provide copies of the spreadsheets or other models (with working formulas and links) used to conduct the analyses.
- c) In the pathway analyses conducted, were shareholders in EGI able to recover all of their invested capital? Did shareholders earn a reasonable return on that capital?

Response:

The following response has been provided by Concentric Energy Advisors, Inc.:

- a) Concentric has not done the requested analysis.
- b) Please see the response to part a).
- c) Please see the response to part a).

The following response has been provided by Enbridge Gas:

- a) Neither Enbridge Gas nor any of its affiliates either directly or through a consultant or industry association have conducted any financial analysis for specific pathways or scenarios in which the Company is no longer able to engage in distribution of natural gas. Exhibit I.1.10-STAFF-34 part a) describes the steps Enbridge Gas is taking to mitigate the risk to ratepayers from future stranded assets
- b) Please see the response to part a).
- c) Please see the response to part a).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 51 of 164

Preamble:

Concentric's report notes:

In EB-2011-0354, the OEB found that there was "no dispute that average use has declined and continues to do so." However, the OEB determined that this development did not increase the Company's risk relative to 2007 (i.e., the period in which the OEB had previously examined the Company's equity thickness) for several reasons, including:

- *Declines in use per customer are mitigated by customer additions.*
- *Shale gas strengthens the competitive position of natural gas relative to alternative fuel sources such as oil and electricity.*
- *Regulatory mechanisms such as rate design and deferral and variance accounts protect the Company's revenues from declines in its sales volumes.*
- *A "death spiral" is unlikely from declines in average use per customer because declining usage also decreases commodity costs. [footnotes removed]*

Question(s):

- a) Please provide an analysis of the relative cost of natural gas versus electricity and fuel oil or other energy sources for a typical customer in the following categories for each year since 2000. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis:
 - i. Residential using natural gas for heating and cooking
 - ii. Commercial using natural gas for heating
 - iii. Large volume industrial users
 - iv. Small volume industrial users

- b) Please provide an analysis of the competitiveness of natural gas for new residential customers in new developments relative to electricity. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis

- c) Please indicate the number of units and percentage of new residential housing that choose natural gas, electricity and other fuels for each year since 2000 in EGI's franchise area.
- d) Please indicate the typical cost of converting a current residential natural gas user to electricity (heat pump or resistance heating).

Response:

- a)
 - i. Please see Attachment 1 for the analysis of the relative cost of natural gas versus fuel oil, electricity, and propane for a typical residential customer (Rate 1) since 2015. Please note that Enbridge Gas does not perform this analysis specifically for heating and cooking. Costs reflect total energy consumption for space heating and water heating.
 - ii.,iii., iv) Enbridge Gas only performs cost comparison analysis for residential customers.
- b) Enbridge Gas does not conduct the analysis requested.
- c) Enbridge Gas does not track the requested information.
- d) The Company notes that the cost of converting a residential home to electric heating involves several factors, such as vintage of home, square footage, current heating equipment installed, and type of system converting to, among other items, which may cause the cost of conversion to vary significantly. In the recent DSM Plan for 2023-2027 proceeding¹, Enbridge Gas provided an interrogatory response at Exhibit I.10h.EGI.STAFF.77 page 5, providing estimated costs for installing an electric air source heat pump with resistance backup heating and an air handling unit in a residential home for 2021, under various scenarios. Assumptions and caveats are listed in that interrogatory response, which is included as Attachment 2 for ease of reference.

Water heating conversion cost can vary widely between an electric resistance water heater and an electric heat pump water heater and the electrical and/or piping work that may be needed to accommodate electric water heating equipment.

¹ EB-2021-0002

Annual Energy Cost Comparison Natural Gas versus Alternative Energy Sources

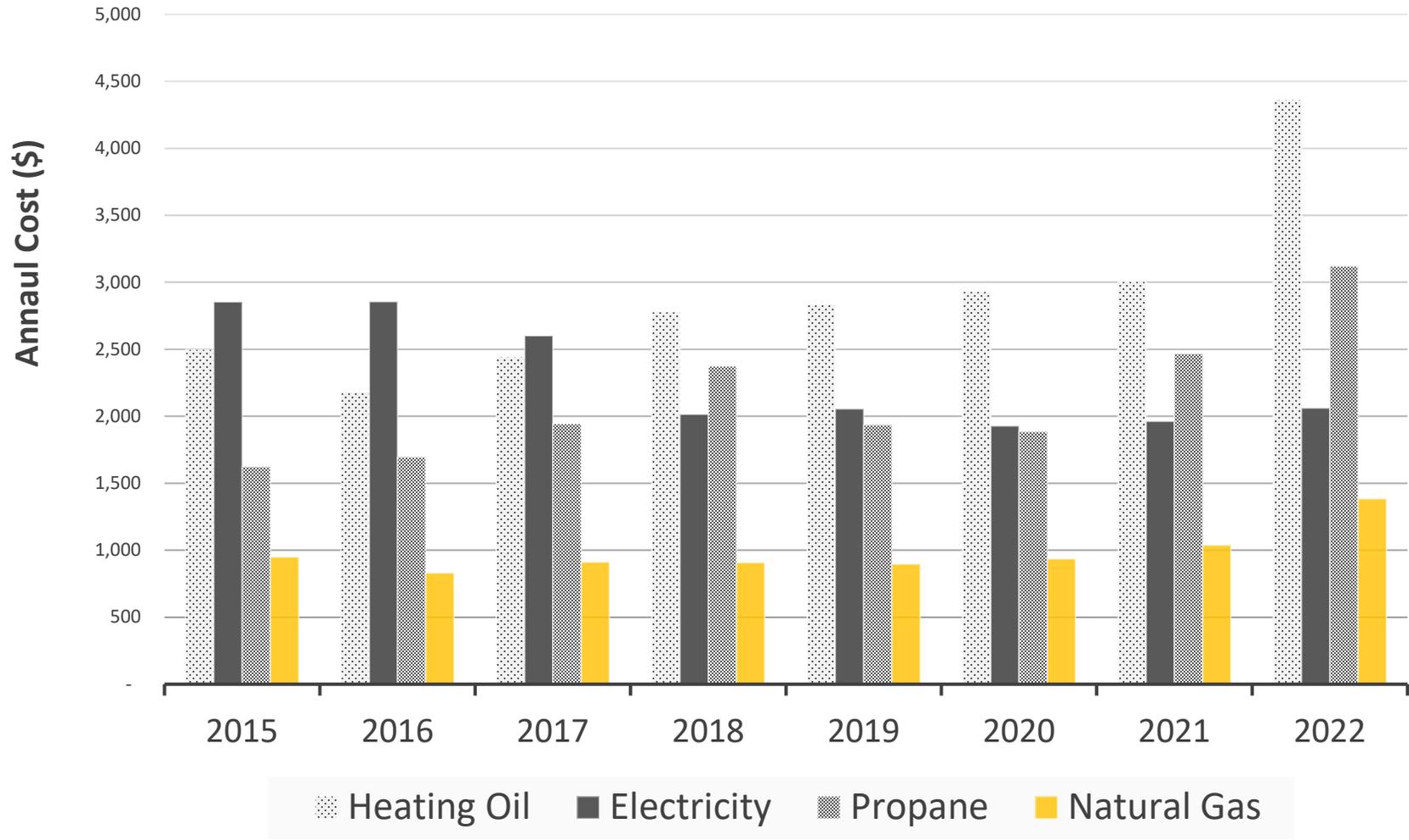


Table 1
Enbridge Gas Typical Residential Rate 1 Customer
Estimated Cost of Natural Gas and Alternative Fuels at Energy equivalent of 2,400m3 per year

<u>Line No</u>	<u>Particulars (\$)</u>	<u>Natural Gas</u> (a)	<u>Heating Oil</u> (b)	<u>Electricity</u> (c)	<u>Propane</u> (d)
	Annual Cost				
1	2015	950	2,498	2,854	1,623
2	2016	831	2,182	2,855	1,696
3	2017	911	2,442	2,601	1,944
4	2018	907	2,780	2,015	2,375
5	2019	898	2,836	2,055	1,937
6	2020	936	2,933	1,929	1,885
7	2021	1,038	3,008	1,962	2,468
8	2022	1,385	4,361	2,061	3,120

Percentage Savings in Natural Gas Cost Relative to Alternative Fuels

1	2015	62%	67%	41%
2	2016	62%	71%	51%
3	2017	63%	65%	53%
4	2018	67%	55%	62%
5	2019	68%	56%	54%
6	2020	68%	51%	50%
7	2021	65%	47%	58%
8	2022	68%	33%	56%

Enbridge Gas Typical Residential Rate 1 Customer
 Estimated Cost of Natural Gas and Alternative Fuels

Year	Date	Rate	Natural Gas-Consumption	Heating Oil-Consumption	Electricity-Consumption	Propane-Consumption	Natural Gas-Price	Heating Oil-Price	Electricity-Price	Propane-Price	Natural Gas-Annual Bill \$	Heating Oil-Annual Bill \$	Electricity-Annual Bill \$	Propane-Annual Bill \$	Heating Oil-Savings (%)	Electricity-Savings (%)	Propane-Savings (%)
2015	Jan-15 EGI Rate 1	2,400	2,467	19,035	3,575	0.431	1.091	0.147	0.517	1,034	2,691	2,799	1,849	62%	63%	44%	
2015	Apr-15 EGI Rate 1	2,400	2,467	19,035	3,575	0.389	0.998	0.147	0.471	934	2,462	2,799	1,685	62%	67%	45%	
2015	Jul-15 EGI Rate 1	2,400	2,467	19,035	3,575	0.386	1.017	0.153	0.417	951	2,508	2,909	1,492	62%	67%	39%	
2015	Oct-15 EGI Rate 1	2,400	2,467	19,035	3,575	0.367	0.944	0.153	0.410	882	2,329	2,909	1,467	62%	70%	40%	
2016	Jan-16 EGI Rate 1	2,400	2,467	19,035	3,575	0.349	0.971	0.149	0.463	838	2,395	2,836	1,654	65%	70%	49%	
2016	Apr-16 EGI Rate 1	2,400	2,467	19,035	3,575	0.359	0.853	0.142	0.494	861	2,104	2,703	1,766	59%	68%	51%	
2016	Jul-16 EGI Rate 1	2,400	2,467	19,035	3,575	0.335	0.861	0.154	0.481	803	2,124	2,941	1,719	62%	73%	53%	
2016	Oct-16 EGI Rate 1	2,400	2,467	19,035	3,575	0.343	0.853	0.154	0.461	823	2,104	2,941	1,646	61%	72%	50%	
2017	Jan-17 EGI Rate 1	2,400	2,467	19,035	3,575	0.375	0.904	0.154	0.521	900	2,229	2,941	1,863	60%	69%	52%	
2017	Apr-17 EGI Rate 1	2,400	2,467	19,035	3,575	0.378	1.045	0.150	0.582	908	2,578	2,861	2,080	65%	68%	56%	
2017	Jul-17 EGI Rate 1	2,400	2,467	19,035	3,575	0.393	1.021	0.121	0.507	944	2,519	2,302	1,811	63%	59%	48%	
2017	Oct-17 EGI Rate 1	2,400	2,467	19,035	3,575	0.372	0.989	0.121	0.565	893	2,440	2,302	1,811	63%	61%	56%	
2018	Jan-18 EGI Rate 1	2,400	2,467	19,035	3,575	0.366	0.999	0.106	0.663	951	2,464	2,014	2,370	61%	53%	60%	
2018	Apr-18 EGI Rate 1	2,400	2,467	19,035	3,575	0.376	1.171	0.106	0.693	902	2,888	2,014	2,479	69%	55%	64%	
2018	Jul-18 EGI Rate 1	2,400	2,467	19,035	3,575	0.376	1.171	0.106	0.693	902	2,888	2,014	2,479	69%	55%	64%	
2018	Oct-18 EGI Rate 1	2,400	2,467	19,035	3,575	0.363	1.167	0.106	0.608	871	2,879	2,019	2,175	70%	57%	60%	
2019	Jan-19 EGI Rate 1	2,400	2,467	19,035	3,575	0.386	1.173	0.107	0.570	926	2,894	2,032	2,038	68%	54%	59%	
2019	Apr-19 EGI Rate 1	2,400	2,522	19,460	3,622	0.362	1.030	0.107	0.561	870	2,597	2,078	2,032	67%	58%	57%	
2019	Jul-19 EGI Rate 1	2,400	2,522	19,460	3,622	0.364	1.204	0.107	0.494	874	3,035	2,085	1,789	71%	58%	51%	
2019	Oct-19 EGI Rate 1	2,400	2,522	19,460	3,622	0.384	1.118	0.104	0.521	922	2,818	2,025	1,887	67%	54%	51%	
2020	Jan-20 EGI Rate 1	2,400	2,623	19,460	3,622	0.387	1.162	0.104	0.581	928	3,048	2,025	2,104	70%	54%	56%	
2020	Apr-20 EGI Rate 1	2,400	2,623	19,460	3,622	0.387	1.163	0.100	0.487	929	3,050	1,899	1,764	70%	51%	47%	
2020	Jul-20 EGI Rate 1	2,400	2,623	19,460	3,622	0.387	1.163	0.100	0.487	929	3,050	1,899	1,764	70%	51%	47%	
2020	Oct-20 EGI Rate 1	2,400	2,623	19,460	3,622	0.399	0.984	0.100	0.527	958	2,581	1,892	1,909	63%	49%	50%	
2021	Jan-21 EGI Rate 1	2,400	2,623	19,460	3,622	0.406	0.950	0.101	0.576	974	2,491	1,972	2,085	61%	51%	53%	
2021	Apr-21 EGI Rate 1	2,400	2,623	19,460	3,622	0.418	1.140	0.101	0.714	1,051	2,990	1,963	2,584	65%	46%	59%	
2021	Jul-21 EGI Rate 1	2,400	2,623	19,460	3,622	0.426	1.239	0.101	0.665	1,022	3,250	1,956	2,408	69%	48%	58%	
2021	Oct-21 EGI Rate 1	2,400	2,623	19,460	3,622	0.461	1.258	0.101	0.771	1,107	3,301	1,956	2,793	66%	43%	60%	
2022	Jan-22 EGI Rate 1	2,400	2,623	19,460	3,622	0.482	1.342	0.103	0.826	1,157	3,519	2,006	2,991	67%	42%	61%	
2022	Apr-22 EGI Rate 1	2,400	2,623	19,460	3,622	0.519	1.588	0.103	0.891	1,270	4,167	2,006	3,226	70%	37%	61%	
2022	Jul-22 EGI Rate 1	2,400	2,623	19,460	3,622	0.634	1.865	0.103	0.877	1,322	4,821	2,014	3,178	69%	24%	59%	
2022	Oct-22 EGI Rate 1	2,400	2,678	21,448	3,788	0.663	1.817	0.103	0.814	1,592	4,865	2,219	3,084	67%	28%	48%	
2023	Jan-23 EGI Rate 1	2,400	2,678	21,448	3,788	0.614	2.083	0.105	0.797	1,473	5,578	2,249	3,020	74%	35%	51%	

Table 1
Cost Comparison Assumptions

Line No.	Assumptions
	(a)
1)	Based on a typical Enbridge Gas Rate 1 Residential Customer Annual Natural Gas Volume: 2,400 m ³ . The cost analysis provided illustrates the potential savings. Consumption levels and savings may vary significantly based on appliance and household characteristic, and lifestyle
2)	Based on 2,400 m ³ annual consumption.
3)	Natural gas price is based on the quarterly OEB-approved rates applicable to Rate 1 residential customers
4)	Oil prices are based on the latest available retail price at the time of comparison. <i>Source: Conference Board of Canada (CANSIM)</i>
5)	Propane prices are based on the latest available retail prices at the time of comparison <i>Source: https://edproenergy.com/residential/</i>
6)	Electricity rates based on Toronto Hydro rates and RPP customers that are on TOU pricing <i>Source: https://www.torontohydro.com/for-home/</i>
7)	Electricity includes the Ontario Electricity Rebate (OER) for applicable periods
8)	Costs have been calculated for the equivalent energy consumed and include all service, delivery and energy charges. Carbon price is included for all energy types as reported for the applicable periods
9)	periods
10)	HST is not included.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board (STAFF)

Interrogatory

Issue 10h

Reference:

Exhibit E, Tab 3, Schedule 1, pp. 3-5

Question(s):

Enbridge Gas outlines the details of its proposed Residential Heat Pump offering. Enbridge Gas notes that residential natural gas heat pumps are currently not available in North America and not expected to enter the Ontario market until 2024.

- a) Please provide any research Enbridge Gas conducted of similar heat pump programs being offered in other jurisdictions to help inform its proposed offering, including whether they include natural gas heat pumps or not.
- b) Please provide any analysis Enbridge Gas conducted in its development of this offering that shows the difference in GHG emissions reductions (both on an average household basis and on a total annual basis using the total projected number of participating households in a year) between installing the proposed natural gas heat pump versus an electric heat pump.
- c) Please provide any analysis Enbridge Gas conducted that show the price difference between natural gas heat pump and electric heat pumps.
- d) Please confirm that contractors, retailers and manufacturers in Ontario have little to no familiarity or experience with natural gas heat pumps.
- e) Please provide greater detail on how Enbridge Gas plans to engage with residential contractors to roll-out this offering.
- f) Please provide greater details on the specific incentives that will initially be available to participants.
- g) Please explain in what circumstances Enbridge Gas will promote an electric heat pump to a customer as part of this program rather than a natural gas heat pump, and vice versa. In your response, please discuss if Enbridge Gas will examine

cost-effectiveness of installing a natural gas heat pump compared to an electric heat pump for prospective customers.

- h) Please discuss how Enbridge Gas will evaluate if a home is a good candidate for a natural gas heat pump?

Response

- a) Please see interrogatory response to Exhibit I.9.EGI.STAFF.26a.
- b) With the Government of Canada raising Minimum Energy Performance Standards (“MEPS”) for heating equipment and introducing market transformation goals for space and water heating, Enbridge Gas has put considerable effort towards advancing heat pump-based solutions so that DSM programming can evolve to meet the future needs of a low carbon economy. In the following, Enbridge Gas will address several interrogatories related to its Residential Low Carbon offering and the rationale for focusing its efforts on hybrid heating and residential gas heat pumps.

To ensure proper comparisons between technologies, it is important to understand the applications for each technology, which informs the appropriate target markets.

Hybrid heating with smart controls replaces the central air conditioner with an electric air source heat pump and upgrades the thermostat. The existing gas heating appliance is intended to stay in place and continue to provide the required peak load heating. The target market is customers with central heating and cooling systems who are replacing air conditioners, and optionally, their heating appliance.

The purpose of smart fuel switching controls is to determine the optimal heating option that can meet the home’s heating demand on an hourly basis. This determination is made by a proprietary algorithm that accounts for equipment performance (such as the capacity and efficiency of the heat pump), building characteristics, utility rates, and indoor and outdoor temperatures.

Residential gas heat pumps replace the existing gas forced air home heating system and hot water heater with a single appliance. The target market is customers with central heating and cooling systems who are replacing their furnaces and water heaters.

Electric cold climate heat pumps can be used as part of a hybrid heating solution replacing the air conditioner while keeping the existing furnace to provide peak heating or it can be installed as a full electric heating system that may require an

electric resistance back-up. It can replace the air conditioner or, as part of an all-electric package, replace both the furnace and air conditioner.

A cold climate air source heat pump, on its own, can provide 100% of a home's heating needs provided the potential issues associated with sizing for full load can be addressed. This includes ensuring, as noted in NRCan's Air-Source Heat Pump Sizing and Selection Guide¹, that the air distribution duct systems can provide adequate air flow for homes designed for traditional furnaces and the breaker rating in the main electrical panel is sized appropriately.

Hybrid Heating

Enbridge Gas conducted a study in 2018 with the MaRS Advanced Energy Centre called "Future of Home Heating"² to better understand the strategy required in Ontario to address GHG reductions while accounting for affordability and the impacts to the electric distribution grid for residential home heating. The study concluded that hybrid heating is a solution available today that provides homeowners, utilities, and the province a low carbon technology that delivers energy affordability. The report highlighted smart controls as one of the barriers to the deployment of hybrid heating, since smart controls could better balance cost and GHG emissions reductions for homeowner's gas and electric heating sources.

In the MaRS report, hybrid heating and all-electric heating (i.e., a CCHP with an electric resistance back-up) were compared in common residential retrofit and new construction scenarios based on cost, savings, and GHG reductions. The study concluded that a hybrid system has a lower lifecycle energy cost compared to a full electric scenario in a retrofit scenario. The study did not specifically seek out the conditions under which one technology is more cost effective than the other, but rather compared them against the most reasonable baseline conditions, which is how new measures are evaluated in DSM.

In addition, Enbridge Gas has supported NRCan's ongoing research into cold climate heat pumps through a jointly funded study of 7 pilot homes in Ontario. The study was not conclusive but does highlight several market readiness challenges including the training gap with contractors.

¹ Natural Resources Canada, CanmetENERGY, Air-Source Heat Pump Sizing and Selection Guide, Version 1.0 (December 21, 2020). [https://www.nrcan.gc.ca/sites/nrcan/files/canmetenergy/pdf/ASHP%20Sizing%20and%20Selection%20Guide%20\(EN\).pdf](https://www.nrcan.gc.ca/sites/nrcan/files/canmetenergy/pdf/ASHP%20Sizing%20and%20Selection%20Guide%20(EN).pdf)

² MaRS Cleantech and Enbridge, Future of Home Heating (April 2018). <https://www.marsdd.com/wp-content/uploads/2019/03/Future-of-Home-Heating.pdf>

Since then, Enbridge Gas gained in-field experience with hybrid heating, most recently through an on-going pilot incentive program in London³. Enbridge Gas has also contracted with NRCAN to develop a home heating calculator that can, among other things, account for the dynamic operation of hybrid heating with smart controls to better model its performance. The tool was developed for Enbridge Gas to estimate operating cost impacts from the installation of a hybrid heating system with smart controls. The tool was developed using NRCAN intellectual property and Enbridge Gas was given permission to use the tool for internal business purposes. Enbridge Gas is not allowed to distribute or make the tool available to any third party without the consent from NRCAN.

Using the calculator, combined with updated costing information obtained through the pilot program, Enbridge Gas has provided updated lifecycle cost comparisons in Tables 1 and 2 of hybrid heating with smart controls to an all-electric solution. Economics are presented from a customer's perspective.

Key assumptions are as follows:

- Calculations based on 2 archetype homes in Toronto build pre- and post-1980; (an archetype home for Ottawa, which was requested in Exhibit I.10j.EGI.SEC.53, is, regrettably, not yet available in the calculator. A Toronto home, however, is more representative of typical weather conditions for most potential customers).
- For simplicity, utility rates for electricity are held constant at today's rates.⁴
- For simplicity, gas rates are held constant at today's rates, except for carbon pricing, which escalates according to government forecasts (\$50 in 2022, escalating \$15/year up to \$170/ton in 2030 and held constant thereafter).⁵
- The baseline scenario is a 95% AFUE furnace and a 13 SEER, 2 ton, single stage air conditioner.
- The hybrid heating with smart controls scenario assumes the baseline air conditioner is upgraded to a 3 ton, HSPF 10 air source heat pump with smart controls. Common specifications for a cold climate heat pump are used in both the hybrid heating and all-electric scenarios since heat pump pricing varies significantly by make and model. Furthermore, it is assumed that the existing ductwork is adequate for a 1 ton capacity upgrade.
- All-electric scenario assumes the baseline air conditioner is upgraded to a 3 ton HSPF 10 air source heat pump and the baseline furnace is upgraded to an air handler with back-up electric resistance heating.
- NRCAN tool calculated and used a -14.3C balance point temperature for the Table 1 scenario and -1.6C balance point temperature for the Table 2 scenario.

³ Sutherland, Marek, Pilot program encouraging switch to hybrid heating, CTV New London (September 16, 2021). <https://london.ctvnews.ca/pilot-program-encouraging-switch-to-hybrid-heating-1.5588436>

⁴Rates used are customer rates and not TRC Plus avoided costs.

⁵ Ibid.

The difference in balance point is due to different house heat loss. The balance point determines the temperature at which the heat pump is no longer able to meet the heating needs of the home, at which point the backup system is turned on.

- All-electric scenario assumes the furnace and air conditioner are at end of life and need replacing, reducing the incremental cost.
- No electric panel or utility service upgrade is needed to accommodate the all-electric solution. Panel upgrades are estimated to cost between \$900 and \$2000.
- The installed costs for all scenarios are before tax and has been provided by a London, ON contactor who is experienced with installing heat pump systems.
- 15-year effective useful life (EUL) and a 4% rate was used in the NPV calculation.⁶

Table 1: Post 80's Toronto archetype home

		Air conditioner - end of life Furnace – not at end of life		Air conditioner - end of life Furnace – end of life
	Gas furnace – 95% AFUE, 13 SEER air conditioner (base case)	Hybrid Heating with Smart Controls	All electric – CCHP with electric resistance backup	All electric – CCHP with electric resistance backup
Year 2022 Natural Gas consumption (m3)	1,797	1,041	0	0
Year 2022 Electricity Consumption (kWh)	723	3,027	7589	7,589
Year 2022 Operating Costs	\$705	\$634	\$798	\$798
Year 2030 Natural Gas consumption (m3)	1,797	221	0	0
Year 2030 Electricity Consumption (kWh)	723	6,532	7,589	7,589
Year 2030 Operating Cost	\$1,119	\$766	\$798	\$798

⁶ NPV is derived from a customer's perspective and is not the TRC Plus

Installed cost	\$8,000	\$11,350	\$11,100	\$11,100
Incremental Cost (compared to base case)	N/A	\$3,350	\$7,850	\$3,100
NPV (compared to base case)	N/A	-\$312	-\$5,613	-\$863

Table 2: Pre 80's Toronto archetype home

		Air conditioner - end of life Furnace – not at end of life	Air conditioner - end of life Furnace – end of life	
	Gas furnace – 95% AFUE, 13 SEER air conditioner (base case)	Hybrid Heating with Smart Controls	All electric – CCHP with electric resistance backup	All electric – CCHP with electric resistance backup
Year 2022 Natural Gas consumption (m3)	2,236	1,528	0	0
Year 2022 Electricity Consumption (kWh)	844	2,967	11,768	11,768
Year 2022 Operating Costs	\$872	\$803	\$1,246	\$1,246
Year 2030 Natural Gas consumption (m3)	2,236	678	0	0
Year 2030 Electricity Consumption (kWh)	844	7,867	11,768	11,768
Year 2030 Operating Cost	\$1,386	\$1,145	\$1,246	\$1,246
Installed cost	\$8,000	\$11,350	\$11,100	\$11,100
Incremental Cost (compared to base case)	N/A	\$3,350	\$7,850	\$3,100
NPV (compared to base case)	N/A	-\$1,272	-\$8,205	-\$3,455

An analysis of the results concludes:

- When compared to a common baseline of a gas furnace and air conditioner, the hybrid system has lower lifecycle costs (i.e., a better NPV) than an all-electric solution.
- The all-electric solution, from a NPV perspective, is cost competitive with a hybrid solution in Table 1 because it assumes a best-case scenario:
 - There is adequate ductwork capacity to accommodate an upsized heat pump to minimize reliance on the back-up electric resistance heater. According to NRCan's sizing guideline⁷, these circumstances are most predominant in new energy efficient homes or existing homes which have undertaken deep energy retrofits.
 - There is adequate electrical panel capacity. This may not be the case.
 - There is adequate utility capacity to supply additional electricity; peak load for all-electric scenario shifts from typical summer air conditioning peak (~4.4 kW) to a larger winter heating peak (~7.9 kW).

There are important implications when scaling these results:

- Infrastructure impacts: The hybrid solution, unlike the all-electric, does not add to Ontario's winter peak electric load, thereby avoiding the need for the costly expansion of electric infrastructure at scale. The Canadian Gas Association released a report in 2019 entitled "Implications of Policy-Driven Electrification in Canada"⁸ that outlines the impacts of different electrification scenarios on power generation requirements, cost and GHG emission reductions in Canada. One of the key assumptions underlying the recommended electrification scenario is the reliance on residential hybrid heating systems instead of all-electric heating systems.
- GHG emissions: The hybrid system would achieve GHG reductions that are comparable to an all-electric solution, based on the appropriate use of marginal emission factors⁹ to account for the time-varying nature of grid emissions. Marginal emission factors are lower during off-peak and shoulder seasons versus peak periods when gas-fired generation would be more greatly relied upon. And the IESO has made it clear that these grid realities will not change anytime soon.¹⁰

⁷ Natural Resources Canada, CanmetENERGY, Air-Source Heat Pump Sizing and Selection Guide, Version 1.0 (December 21, 2020).

[https://www.nrcan.gc.ca/sites/nrcan/files/canmetenergy/pdf/ASHP%20Sizing%20and%20Selection%20Guide%20\(EN\).pdf](https://www.nrcan.gc.ca/sites/nrcan/files/canmetenergy/pdf/ASHP%20Sizing%20and%20Selection%20Guide%20(EN).pdf)

⁸ ICF, A Canadian Gas Association Study, Implications of Policy-Driven Electrification in Canada (October 2019). [Implications-of-Policy-Driven-Electrification-in-Canada-Final-Report-October-2019.pdf \(cga.ca\)](#)

⁹ Marginal Greenhouse Gas Emission Factors for Ontario Electricity Generation and Consumption, Power Advisory LLC, October 2020. [Power Advisory LLC \(questcanada.org\)](#)

¹⁰ IESO, Ontario's Supply Mix, Natural Gas Phase-Out Study, Decarbonization and Ontario's Electricity System (October 7, 2021). [Natural Gas Phase-Out Study \(ieso.ca\)](#)

- Consumer acceptance: Many homes would not satisfy all the conditions for a cost competitive all-electric system because they push up against the boundaries of their existing HVAC and electrical infrastructure. Hybrid heating works within them all. The need for panel upgrades and deep energy retrofits will significantly limit the market potential of the all-electric solution.

Furthermore, home heating with natural gas has approximately 80% penetration in Ontario¹¹. The transition to a hybrid system does not require consumers to compromise the familiar comfort of natural gas heating when they need it most. The “Single Family Natural Gas End Use Study”¹² conducted by Enbridge Gas has shown only 3% of customers would choose an electric heating system for their new home heating. This result shows customers are not ready for a full electric heating system. Hybrid heating with smart controls eases consumer acceptance of heat pumps by providing the reassurance of a gas heating system backup as well as the sophistication (through the smart controls) to mitigate concerns about rising heating costs through a switch to electricity.

Conclusion

Hybrid heating with smart controls is a “**ready now**” solution that is accessible to the majority of homeowners and offers greater benefits and significantly less barriers than an all-electric alternative. To meet government 2030 GHG reduction targets, a significant push has to be immediately placed on solutions that are market ready and have the highest likelihood of adoption, particularly in the retrofit market.

Residential Natural Gas Heat Pumps

The Federal government calls out natural gas heat pumps as a key next-generation technology as part of its market transformation road map, in support of the Pan-Canadian Framework on Climate Change. In British Columbia, CleanBC just released the roadmap to 2030 addressing the province’s goals to mandate the highest efficiency standards for new space and water heating equipment. The roadmap states that “hybrid electric heat pump gas systems and high-efficiency gas heat pumps”¹³ are included in the mix of technologies that will meet the greater than 100% efficiency goal by 2030.

Enbridge Gas has been evaluating residential gas heat pump technology through industry collaboration and through its own pilot projects¹⁴. Enbridge Gas, in working

¹¹ Cadmus Group, Ontario Residential End-Use Survey, Final Report (November 28, 2018).

<https://ieso.ca/-/media/Files/IESO/Document-Library/research/Ontario-Residential-End-Use-Survey.ashx>

¹² Filed at Exhibit I.10.EGI.ED.22 Attachment 1.

¹³ Province of British Columbia, cleanBC our nature, our power, our future, Roadmap to 2030.

https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf

¹⁴For a summary of Enbridge Gas pilot projects, see Exhibit I.10i.EGI.CCC.40 Attachment 1.

with other utilities, has been supportive of the development and commercialization of gas heat pumps through the North American Gas Heat Pump Collaborative. The Collaborative consists of fourteen natural gas utilities and program administrators as listed below. These organizations represent 31% of US and Canadian households that have gas service with a mission to accelerate the adoption of gas heat pump (GHP) technologies in North America. A common plan to accomplish this is to develop utility programs, supporting manufacturers and trade ally networks, and create common messages and specifications.

Members of the North American Gas Heat Pump Collaborative

- ATCO
- Enbridge Gas Inc.
- FortisBC
- Intermountain Gas Company
- APGA Research Foundation
- National Fuel
- New Jersey Natural Gas
- Northwest Energy Efficiency Alliance
 - Northwest Natural Gas
 - Avista
 - Cascade Natural Gas
 - Puget Sound Energy
 - Energy Trust of Oregon
- ONE Gas
- Peoples Gas & North Shore Gas
- Southern California Gas Company
- Southern Company Gas
 - Atlanta Gas Light
 - Chattanooga Gas
 - Nicor Gas
 - Virginia Natural Gas
- South Jersey Industries
 - Elizabethtown Gas
 - South Jersey Gas
- Spire Energy

Gas heat pumps have the potential to achieve efficiencies beyond 100% with a federal performance goal of a coefficient of performance (COP) of 1.2 by 2030¹⁵. As a straight gas-for-gas appliance replacement (or two for one in this case), the lifecycle cost comparison to traditional gas appliances is less complicated than in the case of hybrid heating, and an illustrative example of how it compares to the all-electric heating solution is provided in Table 3.

Key assumptions used are as follows:

- Calculations based on a post-80's archetype home in Toronto.
- For simplicity, utility rates for electricity are held constant at today's rates.¹⁶
- For simplicity, gas rates are held constant at today's rates, except for carbon pricing, which escalates according to government forecasts (\$50 in 2022, escalating \$15/year up to \$170/ton in 2030 and held constant thereafter).¹⁷
- GHG emissions are calculated from an hourly analysis using marginal emission factors for the province of Ontario.¹⁸
- The baseline scenario is a 95% AFUE furnace and a .81 UEF water heater
- The gas heat pump upgrade scenario assumes furnace and water heater are replaced with one gas heat pump appliance with 120% seasonal efficiency. This efficiency was used based on DOE's efficiency results¹⁹ on a pre-commercial absorption residential heat pump. The results show a seasonal efficiency of 140% but Enbridge used a more conservative efficiency of 120% to line up with NRCan's 2030 performance goal.
- All-electric scenario assumes the baseline air conditioner is upgraded to a 3 ton HSPF 10 air source heat pump and the baseline furnace is upgraded to an air handler with back-up electric resistance heating.
 - Additionally, no electric panel or service upgrade were included due to varying costs associated with the upgrade. Estimated panel upgrades could be as high as \$900-\$2000.
 - Existing ductwork was also assumed to be adequate for the upgraded heat pump capacity.
- A heat pump water heater (HPWH) was used in the all-electric scenario. The NRCan tool is unable to calculate the savings from a HPWH so a 50% savings in

¹⁵ Paving the Road to 2030 and Beyond: Market transformation road map for energy efficient equipment in the building sector, p. 32, Figure 4-2.

<https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/emmc/pdf/2018/en/18-00072-nrcan-road-map-eng.pdf>

¹⁶ Rates used are customer rates and not TRC Plus avoided costs.

¹⁷ Ibid.

¹⁸ Marginal Greenhouse Gas Emission Factors for Ontario Electricity Generation and Consumption, Power Advisory LLC, October 2020. [Power Advisory LLC \(questcanada.org\)](https://www.questcanada.org)

¹⁹ Pre-Commercial Scale Up of a Gas Absorption Heat Pump, U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy. <https://www.energy.gov/sites/default/files/2019/05/f62/bto-peer-2019-stone-mountain-pre-comm-scale-up.pdf>

energy was estimate compared to a conventional electric water heater as per Energy Star’s maximum savings potential.²⁰

- Electricity consumption in the Gas Heat Pump scenario is estimated to be equal to the base case.
- Gas heat pump costing estimated is provided through manufacturers estimates and installation costs from Enbridge Gas pilot projects
- 15-year EUL and 4% rate was used in the NPV calculation.²¹

Table 3: Post 80’s Toronto archetype home

	Gas furnace – 95% AFUE, .81 EF water heater, 13 SEER AC (base case)	Gas Heat Pump +13 SEER AC	All electric – CCHP with electric resistance backup and electric HPWH UEF water heater
Natural Gas consumption (m3)	2,127	1563	0
Electricity Consumption (kWh)	779	779	9,120
Year 2022 Operating Costs	\$828	\$630	\$998
Year 2030 Operating Costs	\$1,316	\$990	\$998
Annual GHGs	4.81 tCO2e	3.75 tCO2e	3.9 tCO2e
Installed cost	\$10,500	\$18,250	\$17,250
Incremental Cost (compared to base case)	N/A	\$7,750	\$6,750
NPV (compared to base case)	N/A	\$-4,298	\$-4,836

An analysis of the results shows the following:

- NPV of the two options is comparable; gas heat pumps have lower operating costs in 2022 but are comparable to the all-electric solution by 2030 due to the rising cost of carbon
- As noted in the hybrid heating lifecycle cost comparisons, the all-electric solution depends on key assumptions that limit its market potential: adequate ductwork capacity, adequate electric service, and adequate LDC capacity for increased demand.
- Peak load for all-electric scenario shifts from typical summer air conditioning peak (~4.4 kW) to a larger winter heating peak (~7.9 kW).

²⁰ Heat pump water heaters, Government of Canada.
<https://www.nrcan.gc.ca/energy/products/categories/water-heaters/14556>

²¹ NPV is derived from a customer’s perspective and is not the TRC Plus.

- Gas heat pumps reduce the peak gas load through the efficiency gains at design temperatures and total heating requirements from reducing two appliances to one
- Gas heat pumps achieve comparable GHG emissions reductions as the all-electric solution

When scaling these results, all-electric solutions continue to present the challenges noted in the earlier analysis. Gas heat pumps do not create a requirement for additional infrastructure and, in fact, reduces the load on existing gas infrastructure.

Conclusion

Gas heat pumps are expected to provide significant efficiency improvements over existing natural gas heating equipment, are accessible to a broad range of homes and reduces demand on existing gas infrastructure

- c) See response to b).
- d) Confirmed. Contractors and retailers have no experience with natural gas heat pumps. Manufacturers are familiar with natural gas heat pumps; however, they are currently not available for purchase in North America.
- e) Enbridge Gas is committed to building market capacity and consumer awareness of heat pump technology in Ontario. Although details of this outreach are not fully developed, they will be based on the recent hybrid heat pump pilot launched in London Ontario earlier this year and the learnings from that exercise. An overview of the steps undertaken as part of this unique pilot are listed below to assist the reader in gaining insight into Enbridge's market development activities:

Manufacturers:

- Reached out to 7 major HVAC manufacturers to gauge interest in hybrid heating, and to understand the types of controls available for a hybrid heating solution.
- Educated manufacturers on the NRCAN roadmap to 2035, the need for solutions to exceed 100% efficiencies by 2035, and the barriers to overcome to grow the market. Also shared background research to support Hybrid Heating as a low carbon solution. Most manufacturers were not aware of the future changing market conditions and the prominent role that Hybrid Heating provides.
- Submitted to manufacturers a Request For Interest to collaborate with Enbridge Gas to gauge interest to participate in this large-scale pilot program for hybrid heating with smart controls.

- Five manufacturers (Carrier, Daikin, Goodman, Lennox, and Napoleon) expressed interest and entered a Collaboration Agreement with Enbridge Gas.
- As part of the agreement, manufacturers were responsible to bring forward their most knowledgeable heat pump installation contractor(s) to participate in the pilot.

Contractors:

- Contractors were provided Hybrid Heating sales and smart control installation training as part of the eligibility requirements to participate.
- Sales training was specifically developed by Enbridge Gas to provide the necessary knowledge on the features and benefits, and approach to selling a hybrid heating solution to customers.
- ASHP Contractor installation training was made available from the manufacturers, and NRCan conducted industrywide training specific to ASHP Sizing & Selection.

Stakeholders:

- Collaborated with London Hydro and the City of London to support the pilot. Both have shown great interest to support the project and in particular, heightening awareness to residents on the low carbon Hybrid Heating solution.
- TRCA/TAF are working with Enbridge Gas to incorporate learnings from the pilot and to develop a communications campaign for hybrid heating systems in the Greater Toronto Region.
- Consulted with HRAI, NRCan, IESO, LDC, and Municipalities. Opportunity to re-visit HRAI to explore formal Training & Education to support Contractors, and to further heighten consumer and industry awareness.

Marketing & Awareness:

- Created marketing sell sheets for contractors to promote and sell hybrid heating to replace an aging air conditioner with an ASHP
- Produced a media release with City of London and London Hydro which was further broadcasted by CTV²² and 980 CFPL radio interview.²³

²² Sutherland, Marek, Pilot program encouraging switch to hybrid heating, CTV New London (September 16, 2021). <https://london.ctvnews.ca/pilot-program-encouraging-switch-to-hybrid-heating-1.5588436>

²³ AM980 (CFPL) (September 16, 2021) https://secure-web.cisco.com/1FUFOMx5-Ai260qUjk5R21PIDLWLavukLYB73yOfrwIQbzLnVve84rLXlb_KnKantZ7maK7gbo432Ws9cHujCwzySWtunjWU351KHsuBMBBnJML06qnS9VZ2C5fMZDO8ffpPvLTih-_rHfSNhbz-

- Generated targeted email campaign to London customers with hybrid heating offer to drive up participation

Pilot Outcomes:

- Conduct ongoing customer and contractor surveys to test acceptance of a hybrid heating systems throughout the pilot
 - Perform M&V on subset of homes with London Hydro as well as TRCA/TAF to analyze data to better understand how hybrid heating impacts overall energy consumption.
- f) The following list provides the proposed range of incentive levels for the Low Carbon Transition Program by measure. Incentive levels will be finalized once the program is rolled out. As noted in Exhibit E, Tab 3, Schedule 1, page 4, Enbridge Gas intends to monitor uptake throughout the offering and reevaluate incentive levels as required.
- Residential Hybrid Heating: \$2,000 - \$2,850
Residential Gas Heat Pumps: \$5,000 - \$7,500
Commercial Gas Heat Pumps: \$30,000 - \$39,200
- g) See response to part b. As identified above, electric heat pumps (through hybrid heating) and gas heat pumps each have a target market that considers the equipment being replaced and the barriers to installation. These factors will inform the decision on which technology is best suited to the installation.
- h) Determining if a home is a good candidate for a natural gas heat pump will depend on available outdoor space for the outdoor unit portion of a residential gas heat pump.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

EB-2011-0354, Decision on Equity Ratio and Order, February 7, 2013, at 11
Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 57 of 164

Preamble:

The referenced OEB decision includes the following passage:

Mr. Coyne expressed the view, however, that increasing the proportion of fixed costs “sets the stage for the so-called, quote-unquote death spiral” by decreasing customers’ opportunity to economize by decreasing consumption. In his view, this could cause significant fuel-switching. The Board considers that this does not take account of the fact that if average use declines, the customer’s commodity costs will decline. Given that 49% of distribution revenues are still collected through variable charges, this means that the customer’s overall bill will also decline. The evidence does not indicate that a “death spiral” situation will likely arise in the near term. [footnote removed]

Concentric’s report states:

We note that the Company is proposing a SFV rate design in this case. If approved, this proposal would further decrease the Company’s exposure to volumetric risk. We note that the Company continues to benefit from regulatory mechanisms such as deferral and variance accounts that mitigate the potential financial impact of declining sales volumes (although these accounts may be discontinued if the Company’s SFV proposal is approved). For these reasons, we conclude that the Company has regulatory mechanisms that mitigate the Company’s volumetric risk in the near-term. However, as discussed in more detail in the following section, we conclude that the Company’s long-term volumetric risk has increased.

Question(s):

- a) Does Mr. Coyne/Concentric believe that the SFV rate design proposed in this case increases the risk of a “death spiral” or otherwise increases long-term volumetric risk by decreasing customers’ opportunity to economize by decreasing consumption, which could cause significant fuel-switching?
- b) Does Mr. Coyne/Concentric believe that a “death spiral” situation for EGI will likely arise in the near term?

- i. If so, under what conditions would a “death spiral” situation arise in the near term?
 - ii. Please provide any analysis used to support this conclusion. Please provide copies of the spreadsheets or models (with working formulas and links) used to conduct the analysis.
- c) What definition does Mr. Coyne/Concentric use for “near term” in this context?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) No, Concentric does not believe that adoption of a SFV rate design increases the risk of a death spiral. Adoption of a SFV rate design addresses near-term volumetric risk, but ultimately cannot reduce long-term risk if fewer and fewer customers remain on the system causing steadily increasing fixed costs for remaining customers that ultimately render maintenance of the delivery system designed to serve a much larger customer base uneconomic.
- b) No. Concentric would not expect the occurrence of a death spiral to occur within the next five years, but recognizes that investors have a longer-term investment horizon that would consider the reduced earnings growth, and potential for stranded assets, associated with a hydrocarbon based energy resource.
- c) Even though investors consider both longer term and near-term risks, Concentric considers near term risks as those likely to impact Enbridge Gas over the five-year rate period from 2024 to 2028. Please see response at Exhibit I.5.3-CME-42 for a complete response.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 58 of 164

Preamble:

Concentric states:

A future “death spiral” is far from certain, and we anticipate that the Company will work proactively to avoid such an outcome.

Question(s):

- a) Please identify all actions that Concentric or EGI have evaluated or analyzed that the Company could use to “work proactively to avoid such an outcome.”
- b) Please provide the evaluations or analyses conducted. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analyses or evaluations.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

As a matter of definition, a “death spiral” can take many forms with several alternative end states. The fundamental problem represented by the “death spiral” is a utility (or any company) with a high level of fixed costs losing customers or revenues and needing to recover its costs from a shrinking customer base. In this scenario, the company’s product is increasingly uncompetitive, accelerating its loss of customers. Some of the tools available for response include: changes in rate structures designed to retain the most price sensitive loads; introduction of advanced gas end-use technologies; conservation and energy efficiency programs designed to lower customer costs; accelerated depreciation for vulnerable distribution system assets; blending with RNG and hydrogen fuels. Please see Exhibit 1, Tab 10, Schedule 4 for a description of Enbridge Gas’s planning activities in relation to Energy Transition. As provided in responses at Exhibit I.5.3-STAFF-208, and Exhibit I.5.3-ED-148, a gas utility death

spiral can occur even with proactive steps to avoid such an outcome when public policy mandates exceed the capacity of the gas industry to offer viable alternatives.

The following response was provided by Enbridge Gas:

a-b) Please see response at Exhibit I.1.10-STAFF-34 part a).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 58 of 164

Preamble:

Concentric's report states:

In 2020, residential customers accounted for approximately 57% of the Company's revenues but just 32% of its sales volumes. If a meaningful portion of these customers switch to non-gas heating sources, whether due to technological advancements, environmental concerns, or policy mandates, costs will increase for the Company's remaining customers. Such a scenario could potentially spark a so-called "death spiral."

Question(s):

- a) Please define "meaningful" as used in this sentence.
- b) Please define "spark" as used in this sentence.
- c) Have Concentric or EGI quantified the number of customers switching to non-gas heating sources that would be required to "spark a so-called 'death spiral'" as referenced in this sentence? If so, how many customers? Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric did not have a specific number or percentage of residential customers in mind. Rather, Concentric uses the word "meaningful" to refer to a tipping point where enough residential customers of Enbridge Gas switch to non-gas heating sources that costs will increase for the Company's remaining customers.
- b) As used in the referenced passage, "spark" means cause, lead to, or precipitate.

- c) Concentric has not quantified the number of customers switching to non-gas heating sources that would be required to “spark a so-called ‘death spiral’”.

The following response was provided by Enbridge Gas:

- c) Enbridge Gas has not quantified the number of customers switching to non-gas heating sources that would be required to “spark a so-called ‘death spiral’”.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 58 of 164

Preamble:

Concentric states:

Due to the acceleration of declines in average use per residential customer, declines in the rate of customer additions, a relatively weaker economic growth outlook, the OEB's encouragement of competition, and the Energy Transition pressures, we conclude that the risk of a "death spiral" is higher today than it was in 2012.

Question(s):

- a) Please describe in detail how "acceleration of declines in average use per residential customer" is causally related to the risk of a "death spiral."
- b) Have Concentric or EGI quantified the impact of "acceleration of declines in average use per residential customer" on the likelihood of a "death spiral" or the conditions or timeframe under which a "death spiral" occurs? If so, please provide the analysis conducted. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.
- c) Please describe in detail how "declines in the rate of customer additions" is causally related to the risk of a "death spiral."
- d) Have Concentric or EGI quantified the impact of "declines in the rate of customer additions" on the likelihood of a "death spiral" or the conditions or timeframe under which a "death spiral" occurs? If so, please provide the analysis conducted. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.
- e) Please describe in detail how "a relatively weaker economic growth outlook" is causally related to the risk of a "death spiral."
- f) Have Concentric or EGI quantified the impact of "a relatively weaker economic growth outlook" on the likelihood of a "death spiral" or the conditions or timeframe under

which a “death spiral” occurs? If so, please provide the analysis conducted. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.

- g) Please describe in detail how “the OEB’s encouragement of competition” is causally related to the risk of a “death spiral.”
- h) Have Concentric or EGI quantified the impact of “the OEB’s encouragement of competition” on the likelihood of a “death spiral” or the conditions or timeframe under which a “death spiral” occurs? If so, please provide the analysis conducted. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.
- i) Please describe in detail how “Energy Transition pressures” is causally related to the risk of a “death spiral.”
- j) Have Concentric or EGI quantified the impact of “Energy Transition pressures” on the likelihood of a “death spiral” or the conditions or timeframe under which a “death spiral” occurs? If so, please provide the analysis conducted. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) As average use declines among residential customers, the cost of the system is spread across lower volumes, increasing the cost per cubic meter and lessening the competitive positioning of gas versus alternative energy sources. Further, in a straight-fixed-variable rate design, declines in average use per customer increases the ratio of fixed to variable costs, which may also contribute to customer decision-making with regard to fuel switching.
- b) Concentric has not quantified the impacts of declining use per customer on the likelihood of a death spiral.
- c) As fewer customers are added to Enbridge Gas’s system, the cost of the system is spread across fewer customers, increasing the cost per customer and lessening the competitive positioning of gas versus alternative energy sources.
- d) Concentric has not quantified the impacts of declining customer additions on the likelihood of a death spiral.

- e) A weaker economic outlook contributes to both fewer customer additions and lower use per customer.
- f) Centric has not quantified the impacts of a weaker economic outlook on the likelihood of a death spiral.
- g) Competition from alternative fuels or alternative suppliers reduces customers and increases costs for remaining customers.
- h) Centric has not quantified the impacts of increased competition on the likelihood of a death spiral.
- i) Please see response at Exhibit 1.5.3-ED-148 parts a and b).
- j) Please see response at Exhibit 1.5.3-ED-148 parts a and b).

The following response was provided by Enbridge Gas:

- b) Enbridge Gas has not quantified the impact of accelerating declines in average use per residential customer on the likelihood of a death spiral.
- d) Enbridge Gas has not quantified the impact of declines in the rate of customer additions on the likelihood of a death spiral.
- f) Enbridge Gas has not quantified the impact of a relatively weaker economic growth profile on the likelihood of a death spiral.
- h) Enbridge Gas has not quantified the impact of increased competition the likelihood of a death spiral.
- j) Enbridge Gas has not quantified the impact of energy transition pressures on the likelihood of a death spiral.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 58 of 164

Preamble:

Concentric states:

Further, while the Company benefits from a variety of ratemaking mechanisms that provide risk insulation in the short-term, regulation can do little to mitigate these longer-term pressures because this scenario is driven by economics, not regulatory pressures.

Question(s):

- a) Please identify all regulatory mitigation methods that Concentric or EGI have analyzed in order to conclude that “regulation can do little to mitigate these longer-term pressures.”
 - (i) Please provide the analysis conducted. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.
- b) Please identify all economic analysis of EGI conducted by Concentric or EGI, or that are otherwise in EGI’s possession or accessible by EGI, of the “scenario...driven by economics” referred to in this sentence.
 - (i) Please provide the identified analysis. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.

Response:

The following response has been provided by Concentric Energy Advisors, Inc.:

- a) The response to the unprecedented energy transition for natural gas distributors is a work in progress. There are no definitive economic studies that predict the pathway to net zero, or regulatory approaches, as there are many moving pieces beyond the control of the regulator or the Company. Advances in technology (both supply and demand-side), customer preferences, and legislative policy at the federal, provincial and local level will all play a role in determining the future of the natural gas industry as it's known today.

For a description of Enbridge's planning process on Energy Transition, please see responses at Exhibit I.5.3-IGUA-34, 35, 36, 37, 39, 41 and 42.

The following response has been provided by Enbridge Gas:

- a) Enbridge Gas has not analyzed any particular regulatory mitigation method. Among the tools worthy of consideration are: accelerate the recovery of invested capital through higher depreciation rates; changes in rate design to retain price sensitive loads and the introduction of SFV rates; increased investment in customer conservation programs; and pilot programs designed to accelerate the introduction of advanced end-use technologies, RNG and hydrogen. All of these tools must be used with care as they could accelerate the loss of customer connections if customer costs rise more rapidly than the achieved benefits. Please also see response at Exhibit I.1.10-SEC-28. The proposed average cost of connecting to the Enbridge system of \$45 per month provides significant reliability, resilience and security benefits relative to providing the same from electricity, however it is not known at what cost of connecting to the gas system, customers will conclude that the benefits are outweighed by the costs.
- b) Enbridge Gas has not prepared the economic analysis requested in the interrogatory. Please see the response regarding the company's IRP planning process in the response at Exhibit I.5.3-IGUA-34.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 66-67 of 164, Figure 20

Question(s):

- a) Please provide the workpapers (with working formulas and links) used to calculate the values in Figure 20.
- b) Has EGI or anyone on its behalf conducted, or does EGI have access to, an analysis quantifying the impacts on EGI's Debt/EBITDA, FFO/Debt, FFO/Interest Coverage, EBIT/Interest Coverage, or Debt/Capitalization of any of the following;
 - i. Changes in depreciation rates
 - ii. Infrastructure investment
 - iii. Infrastructure retirement
 - iv. Any decarbonization pathway
- c) Please provide each analysis identified in part (a) of this question. Please provide copies of the spreadsheets or models (with working formulas and links) used to conduct the analysis.

Response:

- a) The following response was provided by Concentric Energy Advisors, Inc.:

Please see Attachment 1.
- b) Enbridge Gas has not conducted nor has access to any such analysis.
- c) The following response was provided by Concentric Energy Advisors, Inc.:

Please see response to a) above.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 70 of 164
Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 71-72 of 164

Preamble:

Concentric states:

Risks influenced by climate change, such as severe weather events, or resulting directly from climate change, such as those due to higher temperatures and changing precipitation patterns are, therefore, increasing for EGI.

Concentric states:

McKinsey and Company published a report in April 2019 in which the consulting firm made specific recommendations to the utility industry with regard to managing climate change risk. While noting that severe weather events such as hurricanes and wildfires are getting worse, McKinsey wrote: "In other ways, too, utilities are more vulnerable to extreme weather events than in the past." The report went on to observe: "Unless utilities become more resilient to extreme weather events, they put themselves at unnecessary risk, in both physical and financial terms. Repairing storm damage and upgrading infrastructure after the fact is expensive and traumatic." McKinsey also quoted from a 2018 report by the National Climate Assessment that stated "utilities could see negative impacts from increased temperatures and heat waves, as well as sea level rises even in the absence of storms. This will increase the financial cost to utilities of climate change and increase the benefits of being prepared." [footnotes removed]

Question(s):

- a) Please provide EGI's best estimate of its (or its predecessor companies') annual cost for "Repairing storm damage and upgrading infrastructure after the fact" for each year from 2012 to the present, as well as EGI's best estimate of that annual cost for any future year for which such an estimate has been prepared.
- b) Please provide EGI's best estimate of its annual cost of "negative impacts from increased temperatures and heat waves, as well as sea level rises even in the absence of storms" and "changing precipitation patterns" for each year from 2012 to

the present, as well as EGI's best estimate of that annual cost for any future year for which such an estimate has been prepared.

Response:

- a) Enbridge Gas typically responds to over 70,000 events annually that may lead to large outages. These events can be caused by a variety of factors including construction damages, line strikes by contractors, station freeze offs, asset condition and weather. Weather would include outages caused by various drivers such as flooding, high winds, winter weather, and lightning strikes. Enbridge Gas does not track weather related drivers of emergency costs. While the Company keeps records of the total cost of emergency and damage repairs, the specific drivers of those events are not tracked. See Table 1 for emergency response and repair costs from 2016 to 2024. Information before 2016 is not available due to inconsistent data and tracking systems. These costs are included in Exhibit 4, Tab 4, Schedule 2, Table 5.

Table 1
Emergency Response & Damage Repair Costs

Line No.	Particulars	2016	2017	2018	2019	2020	2021	2022	2023	2024
		Actual	Bridge Year	Test Year						
1	Salaries & Wages	4.0	4.2	4.2	4.2	4.2	3.8	2.8	1.5	1.6
2	Contract Services	6.6	6.6	6.8	6.3	5.7	7.4	10.7	12.2	12.4
3	Other O&M	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2
4	Total	10.7	10.9	11.2	10.6	10.0	11.3	13.7	13.9	14.2

- b) Please see response to part a). Enbridge Gas does not track these types of costs by driver. The requested information cannot be provided.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 79 of 164

Preamble:

Concentric states:

As discussed previously, starting around 2016, the OEB has encouraged competition in EGI's service territory. Specifically, in certain cases in which EGI or its predecessors informed the OEB of its intent to serve an expanded area, the OEB issued a letter inviting other parties to compete for that service. The affirmation of competition has also been evidenced by EPCOR's successful entrance in the Bruce community. This allowance for competition in community expansions increases risk for EGI. [footnote removed]

Question(s):

Regarding the mechanism by which EGI's risk is increased by competition to serve expanded areas:

- a) Does such competition increase variability and uncertainty in short-term annual return on equity? If so, how?
 - i) Please identify any modeling or quantitative analysis in Concentric's or EGI's possession regarding the extent of such competition's impact on this risk.
 - ii) Please provide that analysis. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.

- b) Does such competition increase risk of stranded assets or other risks related to the return of invested capital? If so, how?
 - i) Please identify any modeling or quantitative analysis in Concentric's or EGI's possession regarding the extent of such competition's impact on this risk.
 - ii) Please provide that analysis. Please provide copies of the spreadsheets (with working formulas and links) used to conduct the analysis.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) The discussion of increased competition from alternate gas suppliers is included in Concentric's assessment of volumetric risk, which Concentric concluded has experienced a modest increase since 2012. The advent of competition increases variability and uncertainty in short-term annual return on equity because, as noted by the OEB in EB-2016-0004, it increases the Company's exposure to forecast risk. Longer term, increased competition could impact Enbridge Gas's ability to grow its customer base and earnings, assuming Enbridge Gas is able to pursue growth plans.
 - i. None.
 - ii. None.

- b) The introduction of increased competition does not have a significant impact on stranded assets or other risks related to return of invested capital.
 - i. None.
 - ii. None.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 81 of 164, Figure 22

Question(s):

- a) Please provide an update to the column labeled “2022 YTD” to reflect the entirety of calendar year 2022.
- b) Please provide all workpapers and input data used to produce this figure, as well as the update for the full year 2022. Please include all data regarding “US Gas Utilities” and “Canadian Utilities” as defined in this figure.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see Attachment 1. Concentric observes that the values for the full calendar year 2022 are similar to those shown in Figure 22 of the report. Government bond yields have increased to some degree in both Canada and the U.S., and average market volatility as measured by the VIX is slightly higher. P/E ratios, M/B ratios, Beta coefficients, and utility credit ratings are very similar to the original values in Figure 22.
- b) Please see the response to a).

This page is intentionally left blank. Due to size, this Attachment has not been included.

Please see Exhibit I.5.3-IGUA-47 Attachment 1.pdf on the OEB's RDS.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 92 of 164, Figure 29

Question(s):

- a) Did Concentric consider the analysis conducted for, and results of, the depreciation study presented as Exhibit 4, Tab 5, Schedule 1, Attachment 1, when considering the comparison between EGI and proxy groups?
- b) Did Concentric consider the results of that depreciation study regarding the difference between “calculated accumulated depreciation” and “allocated actual booked amount”?
- c) If the answers to parts (a) or (b) of this question are in the affirmative, in what way did Concentric’s consideration of the depreciation study inform its conclusions regarding the suitability of comparing EGI’s remaining life and % depreciated to the proxy groups?
- d) If the answers to parts (a) and (b) of this question are in the negative, why did Concentric not consider the depreciation study’s results?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) No. The Concentric team working on the cost of capital was aware that the Company had commissioned the depreciation study. We were also aware that the Company is filing for alignment of its historic EGD and Union depreciation asset groups, plant accounts, and depreciation methodologies. We are further aware that the Company considered the treatment of accelerated depreciation under an “Economic Planning Horizon” approach but determined that this approach is not appropriate at this time as it would cause “unnecessary rate increases.” (See Exhibit 1, Tab 2, Schedule 1, pages 29 to 30.)

- b) No.
- c) see a-b) above.
- d) The depreciation study was completed in parallel with Concentric's cost of capital study. The cost of capital analysis considered the results in Figure 29, and formed the basis of our conclusions on page 92 of our report. In order to directly compare Enbridge Gas and the proxy companies, Figure 29 necessarily relied on actual, historical data, and did not reflect changes to Enbridge Gas' or the proxy companies' future depreciation practices. Concentric notes that, as described in response to part a), the Company is filing to implement depreciation rates jointly between the Union and EGD assets, which does not materially impact the risk profile of Enbridge Gas.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 92 of 164

Preamble:

Concentric states:

Further, as shown in Figure 30, approximately two thirds of Ontario's residents use natural gas for space heating, which ranks third among all Canadian provinces. This means that the Company faces relatively higher risk than other Canadian gas utilities due to its exposure to customers that could leave its system via conversions to alternative fuels, including electrification.

Question(s):

- a) Has EGI or any of its consultants or affiliates or their consultants conducted analysis to quantify the "relatively higher risk" compared to other Canadian gas utilities referred to in this statement? If so, please provide the analysis with all supporting workpapers in electronic form (with working formulas and links). If not, why not?
- b) Please describe in detail the causal relationship between (1) the proportion of households in a province that use natural gas for space heating and (2) relative risk due to exposure to customers that could leave a gas utility via conversions to alternative fuels.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric has not done this analysis.
- b) Gas distribution companies with a higher percentage of households using gas for space heating have more to lose from the Energy Transition than companies with less reliance on natural gas for space heating. This is especially true in provinces or states where environmental policies are focused on electrification of buildings and/or on restrictions or bans on installing new gas furnaces or other appliances. Gas companies in provinces that are already heavily reliant on electricity for space

heating do not serve these customers, and therefore have less to lose from the Energy Transition than do companies such as Enbridge Gas, which has a substantial percentage of residential customers using natural gas for space heating.

The following response was provided by Enbridge Gas:

- a) Enbridge Gas has not done this analysis.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 109 of 164

Preamble:

Concentric states:

These analyses demonstrate that gas distribution utilities are, on average, trading at a discount to their electric utility peers. This shift occurred in the second half of 2018, which is consistent with the timing of credit rating agencies implementing ESG criteria and with certain institutional investors and pension funds adopting more stringent limits or restrictions on their ability to own shares in fossil-fuel companies that contribute significantly to higher carbon and greenhouse gas emissions.

Question(s):

- a) Please provide the workpapers and complete analyses that “demonstrate that gas distribution utilities are, on average, trading at a discount to their electric utility peers.”
 - i. Please include annual or sub-annual data necessary to evaluate the claim that “This shift occurred in the second half of 2018”
- b) Please identify the specific events or statements that Concentric is referring to when it refers to “the timing of credit rating agencies implementing ESG criteria and with certain institutional investors and pension funds adopting more stringent limits or restrictions on their ability to own shares in fossil-fuel companies that contribute significantly to higher carbon and greenhouse gas emissions.” Please provide the date and particulars of each such event or statement.

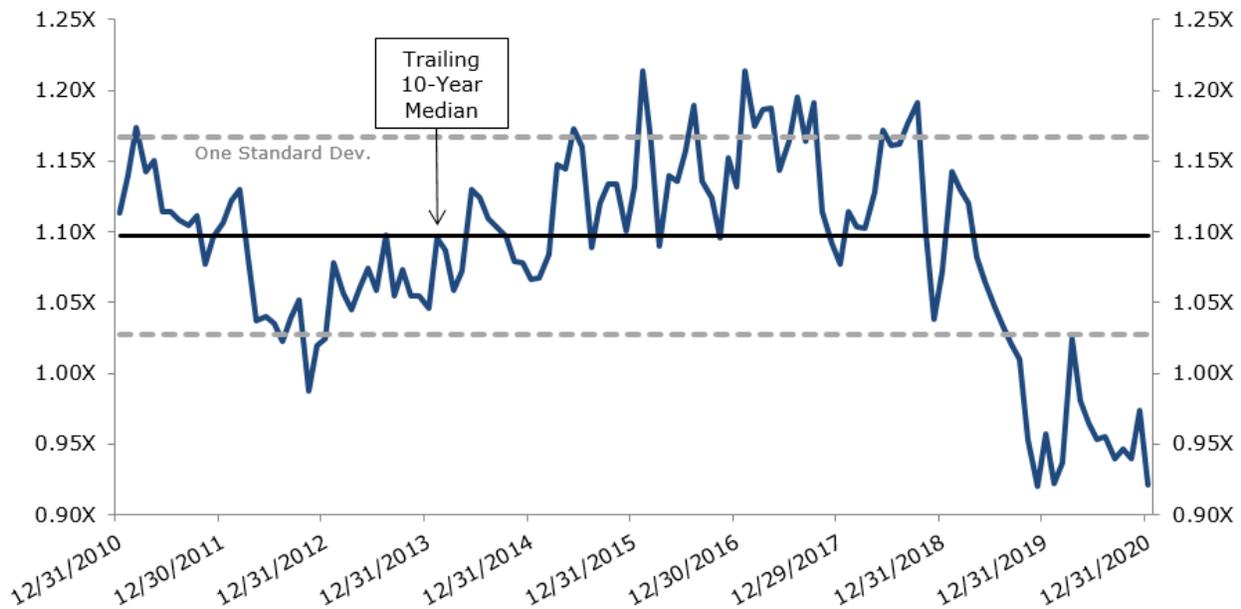
Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) The basis for this statement is a report published by Wells Fargo Securities in January 6, 2021, and referenced on page 104 of Concentric’s report. Figure 1, which appeared in the Wells Fargo report, compares the median forward P/E ratio for the

Gas LDC universe and the Electric Utility universe from December 2010 through December 2020. Figure 1 shows that gas distributors consistently traded at a higher earnings multiple than electric utilities for the vast majority of time until the second half of 2018. Since that time, Gas LDCs began to trade at a discount relative to Electric utilities. Concentric did not include the Figure in its report because we were not able to update the analysis for 2020 and 2021. Based on current market data as of February 27, 2023, the companies in the U.S. Gas proxy group are trading at a discount of approximately 2.5% to the Value Line Electric Utility universe (see Attachment 1).

Figure 1
Forward P/E Ratio of Gas LDC Universe vs. Electric Utility Universe¹



- b) Although the credit rating agencies did not implement specific ESG criteria in the rating process until 2021, the issue was getting investor attention in mid-2018. For example, in September 2018, S&P published an article entitled “The Rise of ESG in Fixed Income,” which is provided as Attachment 2. In addition, the Edison Electric Institute developed an ESG reporting template for its members in November 2018 (see Attachment 3), and the American Gas Association members joined this initiative in August 2019 (see Attachment 4). Further, Moody’s published a report showing that one-third of rating actions in 2019 were ESG-related (see Attachment 5).

¹ Source: Reproduced from Wells Fargo Securities, LLC report, January 6, 2021, at 6.

Please also see pages 21-22 of Concentric's report for a discussion of the reaction among investors to the Energy Transition. Many institutional investors began placing limits or restrictions on ownership of fossil fuel related companies. Specifically, we cite a January 2020 BlackRock letter on this issue, as well as the reaction of Canadian banks and pension funds. This was not an issue for investors in 2012.

U.S. VALUE LINE ELECTRIC UNIVERSE

Company	Ticker	[2]	[3]	[4]
		30-Day Avg Stock Price	2024 Consensus EPS	2024 Projected P/E
Alliant Energy Corporation	LNT	\$54.80	2.89	18.96
ALLETE	ALE	\$64.09	4.11	15.59
Ameren	AEE	\$88.15	4.68	18.84
American Electric Power Company, Inc.	AEP	\$94.56	5.64	16.77
Avangrid	AGR	\$42.97	2.38	18.05
Avista	AVA	\$42.48	2.44	17.41
Black Hills Corp	BKH	\$70.77	3.89	18.19
CenterPoint	CNP	\$30.26	1.61	18.80
CMS Energy	CMS	\$63.12	3.34	18.90
Consolidated Edison	ED	\$95.56	5.19	18.41
Dominion Energy	D	\$61.80	3.88	15.93
DTE Energy	DTE	\$116.71	6.70	17.42
Duke Energy Corporation	DUK	\$102.85	5.99	17.17
Edison International	EIX	\$66.59	5.13	12.98
Entergy Corporation	ETR	\$109.55	7.20	15.22
Exelon Corporation	EXC	\$42.67	2.50	17.07
Eversource Energy	ES	\$83.08	4.69	17.71
Evergy Inc	EVRG	\$62.50	3.96	15.78
First Energy	FE	\$41.88	2.67	15.69
Hawaiian Electric	HE	\$41.67	2.45	17.01
IDACORP	IDA	\$106.55	5.44	19.59
MGE Energy Corp	MGEE	\$71.11	3.81	18.66
NextEra Energy Inc.	NEE	\$82.50	3.36	24.55
Northwestern	NWE	\$57.74	3.60	16.04
OGE Energy Corporation	OGE	\$39.39	2.15	18.32
Otter Tail Corp	OTTR	\$60.44	3.43	17.62
PGE Corp	PCG	\$15.91	1.35	11.79
Pinnacle West Capital Corporation	PNW	\$75.60	4.14	18.26
Portland General Electric Company	POR	\$48.24	3.04	15.87
PPL	PPL	\$29.66	1.71	17.35
Public Service Enterprise Group	PEG	\$61.41	3.72	16.51
Sempra Energy	SRE	\$157.85	9.00	17.54
Southern Company	SO	\$69.75	4.03	17.31
WEC Energy Group	WEC	\$94.41	4.90	19.27
Xcel Energy	XEL	\$70.01	3.60	19.45
MEAN				17.43

U.S. GAS PROXY GROUP

Company	Ticker	[1]	[2]	[3]
		30-Day Avg Stock Price	2024 Consensus EPS	2024 Projected P/E
Atmos Energy Corporation	ATO	\$114.04	6.41	17.79
New Jersey Resources Corporation	NJR	\$49.63	2.75	18.05
NiSource	NI	\$27.49	1.69	16.27
Northwest Natural Gas Company	NWN	\$48.52	2.81	17.27
ONE Gas, Inc.	OGS	\$77.83	4.31	18.06
South Jersey Industries	SJI	NA	NA	
Spire, Inc.	SR	\$70.29	4.34	16.20
Southwest Gas Corporation	SWX	\$64.58	4.16	15.52
MEAN				17.02

acquisition completed 2/1/23

Notes:

[1] Bloomberg Professional, as of 1/30/2023

[2] Yahoo! Finance as of 2/27/23

[3] Equals [1]/[2]

CANADIAN PROXY GROUP

		[1]	[2]
Company	Ticker	2012 EV/EBITDA	2022 EV/EBITDA
Algonquin Power & Utilities Corp.	AQN.TO		18.66
AltaGas Ltd.	ALA.TO		12.28
Canadian Utilities Limited	CU.TO		13.24
Enbridge Inc	ENB.TO		13.49
Fortis, Inc.	FTS.TO		13.28
Hydro One Ltd.	H.TO		13.83
MEAN			14.13
Median			13.39

U.S. ELECTRIC PROXY GROUP

		[2]	[3]
Company	Ticker	2012 EV/EBITDA	2022 EV/EBITDA
Alliant Energy Corporation	LNT		14.56
ALLETE	ALE		12.37
Ameren	AEE		12.72
American Electric Power Company, Inc.	AEP		12.22
Avangrid	AGR		12.41
Avista	AVA		11.45
Black Hills Corp	BKH		13.98
CenterPoint	CNP		12.37
CMS Energy	CMS		11.27
Consolidated Edison	ED		12.64
Dominion Energy	D		15.39
DTE Energy	DTE		15.25
Duke Energy Corporation	DUK		13.32
Edison International	EIX		12.95
Entergy Corporation	ETR		10.96
Exelon Corporation	EXC		6.58
Eversource Inc	EVRG		10.89
First Energy	FE		10.88
Hawaiian Electric	HE		10.74
IDACORP	IDA		12.56
MGE Energy Corp	MGEE		14.88
NextEra Energy Inc.	NEE		23.75
Northwestern	NWE		12.23
OGE Energy Corporation	OGE		8.55
Otter Tail Corp	OTTR		9.94
Pinnacle West Capital Corporation	PNW		9.72
Portland General Electric Company	POR		9.38
PPL	PPL		10.58
Public Service Enterprise Group	PEG		58.25
Sempra Energy	SRE		24.16
Southern Company	SO		14.66
WEC Energy Group	WEC		14.54
Xcel Energy	XEL		13.38
MEAN			14.23
Median			12.41

U.S. GAS PROXY GROUP

		[1]	[2]
Company	Ticker	2012 EV/EBITDA	2022 EV/EBITDA
Atmos Energy Corporation	ATO		16.36
New Jersey Resources Corporation	NJR		15.14
Northwest Natural Gas Company	NWN		10.49
ONE Gas, Inc.	OGS		15.90
South Jersey Industries	SJI		16.25
Spire, Inc.	SR		12.26
Southwest Gas Corporation	SWX		10.37
MEAN			13.82
Median			15.14

Source: Yahoo Finance, February 28, 2022

The Rise Of ESG In Fixed Income

September 10, 2018

Key Takeaways

- ESG has expanded from a niche sector in the equity market to the mainstream fixed-income sphere.
- The credit implications of ESG issues have increasingly become more visible and material, leading to a greater focus by fixed-income market participants.
- Regulators, focused on meeting global commitments, are emphasizing ESG-related disclosure and embedding such concepts into mainstream capital markets.
- Investor demand for fixed-income ESG finance has grown and bred new financial products, a trend that we expect to continue as values-based millennials inherit a massive wealth transfer estimated at \$30 trillion.

Environmental, social, and governance (ESG), long considered a niche consideration in equity investing, has made major inroads on the mainstream fixed-income market. Climate change and resource scarcity, workplace productivity and product safety, along with technological advances and changing consumer preferences, are among the ESG-related risk factors that have real credit implications. Regulators, intent on meeting global climate and sustainable development commitments, are working to better integrate ESG concepts into the financial system. Concurrently, investors are not only taking greater interest in how companies address these challenges, but are also avoiding certain investments based on their ESG preferences. In turn, new fixed-income products have been developed and are expanding rapidly to meet growing investor demand. We expect these trends to continue as mainstream capital markets increasingly find ways to address ESG-related risks, many of which are not easily discernable on financial statements. Here, S&P Global Ratings explores the foundations of ESG and what is driving interest, understanding, and adoption in the fixed-income marketplace.

The Foundations Of ESG

ESG is considered within the context of corporate behavior and investment management, and is by no means a new phenomenon. Its history dates back to the 1800s when religious groups established investment guidelines informed by ethical and religious values. The investment approach remained niche in the equity markets but started to grow in popularity following the creation of the first ESG-focused mutual funds in the 1980s. By 1999, the Dow Jones

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The Rise Of ESG In Fixed Income

Sustainability Indices (DJSI) were created, the first global sustainability benchmarks tracking the stock performance of thousands companies in terms of economic, environmental, and social criteria. (DJSI are owned by S&P Dow Jones Indices, a division of S&P Global, as is S&P Global Ratings.) Over the years, ESG investment approaches, along with the terminology, evolved from exclusionary or positive screening, to integrating ESG factors into investment decisions; shareholder advocacy initiatives; voting proxies, where available; and impact investing.

It wasn't until the launch of the UN Principles for Responsible Investment (UN PRI) in 2006 that the concept of ESG started to spread into the mainstream. The investment principles, which encourage the incorporation of ESG factors into investment and ownership decisions, have attracted a global base of signatories, steadily growing from nearly 100 signatories in its infancy to over 1,800, representing nearly all the world's professionally managed assets today. While the equity market has historically been on the front lines of ESG investing, the bond market is quickly catching up.

Investor Demand Accelerates

Assets managed according to ESG strategies reached nearly \$23 trillion by 2016, up 25% from 2014, accounting for around one-quarter of professionally managed assets globally, according to the Global Sustainable Investment Alliance's latest review of the state of sustainable investment (see table 1). And in the fixed-income sphere, at S&P Global Ratings we've observed an increase in investor interest in ESG fixed-income investment strategies and consequently greater attention to how entities are navigating environmental and social challenges. Institutional investors such as pension funds and insurers are particularly interested in ESG because it captures long-term and existential risks.

Table

Assets Managed Under ESG Strategies See Strong Growth

Region	2014 (bil. \$)	2016 (bil. \$)	Growth from 2014 to 2016 (%)	Compound annual growth rate (%)
Europe	10,770	12,040	11.7	5.7
U.S.	6,572	8,723	32.7	15.2
Canada	729	1,086	49.0	22.0
Australia/New Zealand	148	516	247.5	86.4
Asia (excluding Japan)	45	52	15.7	7.6
Japan	7	474	6,689.6	724.0
Total	18,271	22,891	25.2	11.9

ESG--Environmental, social, and governance.

The rise in investor demand has led to an acceleration in new fixed-income markets dedicated to ESG themes. For example, the green bond market, whose proceeds are earmarked for projects with specific environmental objectives, has grown rapidly over the past five years, achieving a compound annual growth rate of 85%. We expect the market to continue to accelerate, reaching \$200 billion in new issuance in 2018.

Despite this rapid growth, current demand for green bonds far exceeds supply, which has led to high levels of oversubscription. While this has not always led to pricing advantages, it seems to suggest that longer term and in a higher interest rate environment, it may. The social and

The Rise Of ESG In Fixed Income

sustainable bond market has also emerged alongside the green bond market, where bonds are raised for social projects or a combination of green and social initiatives. Across the board, the UN's Sustainable Development Goals (SDGs) which bridge green, social, and sustainability concepts, have become an overarching ESG framework that some issuers and investors use to align their bonds with positive impact. According to the UN, \$3 trillion to \$5 trillion will be required annually to achieve the goals by 2030, most of which is expected to come from the private sector, suggesting that the SDG market has significant growth potential.

We expect ESG demand to continue on a growth trajectory as millennials, who by 2025 will collectively comprise 75% of the workforce, place greater emphasis on integrating these values into their investment choices. Indeed, millennials, who are considered a values-driven generation, are poised to receive a wealth transfer estimated at nearly \$30 trillion from baby boomers. A 2017 report by Morgan Stanley found that 85% of millennials are interested in sustainable investing and are twice as likely as the general population to invest in companies that have social or environmental targets. In response to this growing demand, nearly half of asset managers polled by Morgan Stanley plan to dedicate entire portfolios to ESG. We also anticipate that asset managers will use ESG factors to help make investment decisions, thereby making ESG management part of their fiduciary duty.

Spotlight On ESG And Credit

This investment approach has gained a foothold in the fixed-income market in recent years largely due to growing recognition that ESG-related issues, while previously thought of as longer term and more esoteric, can present immediate and material credit risks. Weather-related supply chain disruptions, pollution spills, product safety recalls, and workplace fatalities--all under the ESG umbrella--have had financial and credit repercussions. The World Economic Forum, which highlights the most pressing risks we face in its annual Global Risks Report, illustrates the growing severity and frequency of ESG-related risks over the past decade. Environmental or societal factors were among four of the five biggest risks in terms of impact. These risks include extreme weather, water crises, natural disasters, and failure of climate change mitigation and adaptation. In 2008, only one ESG risk--pandemics--made the list. This shows that society is acknowledging that ESG issues are becoming more common and material, resulting in greater attention across the financial markets, including fixed income. For our part, through a series of lookback studies, we have found that ESG factors have become more material credit drivers in the corporate sector. Social issues--such as those related to human capital management, safety management, demography, consumer-related factors, and social cohesion--have also played an increasing role in corporate credit rating actions. While social issues contributed less frequently to rating actions than did environmental factors, when they were material they were overwhelmingly negative to credit quality, reflecting the greater downside risks of social issues. This is particularly true for human capital management and social cohesion, which placed the greatest downward pressure on ratings.

We expect that ESG risks will intensify and new opportunities will emerge as regulations change, demographics shift, and climate change worsens. As a result, fixed-income market participants are paying more attention to these issues and are attempting to differentiate for management's ability to mitigate these increasingly acute risks.

The Rise Of ESG In Fixed Income

Regulatory Pressures Mounts

The ESG regulatory landscape has also evolved in recent years as global political and financial leaders have underlined the link with finance. Countries around the world have woken up to the pivotal role the finance sector plays in deploying capital to achieve policy objectives. This has in large part been prompted by the Paris Agreement, which will require investment of an estimated US\$1 trillion a year to meet its climate targets.

However, the scope of regulation is broader than climate finance. Regulators are now working to embed sustainable finance principles into the financial sector and reorient the economy to meet sustainable development goals. The initiatives vary but are generally centered on enabling financial institutions to integrate ESG into investment decision-making and improve disclosure about these issues.

Europe, in particular, is taking a leadership role in promoting sustainable finance. A number of countries such as France, Germany, Sweden, and the U.K. have issued some form of ESG reporting and disclosure mandates in recent years. France, for example, passed Article 173 of the Energy Transition law, which requires institutional investors to disclose how they are contributing to national carbon targets. The pressure continues to mount following the March 2018 unveiling of the European Commission's report, "Action Plan: Financing Sustainable Growth," a roadmap of reforms built on the recommendations of the High-Level Expert Group (HLEG) on Sustainable Finance. The plan involves a sustainability taxonomy, standards and labels for green financial products, clarification about the duties of institutional investors and asset managers related to their consideration of ESG issues, incorporating sustainability in prudential requirements, and strengthening sustainability disclosure. (S&P Global participated in the HLEG.)

Nevertheless, ESG and sustainable finance-related regulation is not a uniquely European phenomenon. China is also making great strides in promoting sustainable finance. In August 2016, the country launched "Guidelines for Establishing the Green Financial System," and stated officially that a green finance system is part of the country's national strategy. What's more, of the top 50 economies by GDP reviewed by the UN PRI, only Iran had no policy initiatives on sustainable finance. As regulation develops in this area, we expect better disclosure by companies will facilitate the assessment of ESG performance and promote ESG investment.

ESG Is Here To Stay

The recognition of ESG factors as material credit drivers, regulatory pressure to improve disclosure, and growing investor demand are pulling these risks into the fixed-income mainstream. Indeed, as issuers return to the bond market to refinance debt or raise new capital, fixed income is poised to play an important role in illuminating ESG risks and driving capital toward projects with environmental and societal benefits. However, challenges to embedding these risks in the financial system remain, including lack of ESG-related data and limited understanding of how to best report and utilize ESG metrics in investment decision-making. Nonetheless, as these risks grow in importance, companies will be compelled to improve disclosure, both to meet potential compliance obligations and to satisfy investors. While ESG has only recently emerged as a force to be contended with in the fixed-income market, we believe it is only likely to grow in prominence over time.

The Rise Of ESG In Fixed Income

Related Criteria And Research

- How Social Risks and Opportunities Factor Into Global Corporate Ratings, April 11, 2018
- How Environmental and Climate Risks and Opportunities Factor Into Global Corporate Ratings - An Update, Nov. 9, 2017
- How Environmental And Climate Risks Factor Into Global Corporate Ratings, Oct. 21, 2015

This report does not constitute a rating action.

The Rise Of ESG In Fixed Income

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ESG/Sustainability White Paper November 2018

Introduction and Summary

Environmental, social, governance, and sustainability (ESG/sustainability) factors, once considered a niche investment topic, are now an important consideration in the mainstream investment community. The implementation of sustainable, long-term investment strategies is not a new practice, but, in recent years, the assessment of ESG/sustainability factors has grown in significance for the global investment community.

Most large companies now report ESG information to investors and other stakeholders using a variety of voluntary reporting frameworks that were developed to address all ESG stakeholder concerns for every industry and in any country. The Edison Electric Institute (EEI) and its member companies have led the way in differentiating and focusing on the needs of investors by developing the first and only industry-focused and investor-driven reporting template for ESG and sustainability-related information. The EEI ESG/sustainability template encourages voluntary reporting of ESG/sustainability information in both quantitative and qualitative formats specifically based on investor input.

Electric company business models are evolving and are incorporating ESG factors into their long-term strategies, and the EEI ESG/sustainability template enables companies to present their sustainability stories in an accurate, timely, and concise manner that is favored by investors. EEI companies piloted these disclosures in late 2017 and early 2018, and Version 1 of the EEI ESG/sustainability template was released in August 2018. The results of the enhanced disclosure for EEI member companies using the pilot version of the EEI ESG/sustainability template and engagement with investors were evident in the 2018 proxy season, with 17 ESG-related proxy proposals withdrawn by the proponents who initiated them. This white paper briefly discusses the process of developing industry-focused and investor-driven ESG/sustainability reporting practices.

The EEI ESG/Sustainability Template

Companies that voluntarily report using the EEI ESG/sustainability template share a common goal to provide investors with relevant information that:

- Allows integration of ESG/sustainability data and performance.
- Provides clarity about risks (e.g., stranded assets, regulatory issues, etc.) and opportunities (e.g., investments in renewable energy, etc.) and how they are being managed.
- Provides insight into growth strategy, assumptions, and future trajectory.
- Provides both qualitative and quantitative information.
- Serves as a primary reporting channel for consolidated ESG/sustainability information relevant to investors and other stakeholders.

The EEI ESG/sustainability template is divided into two sections: (1) a brief qualitative discussion around a company's ESG/sustainability governance and strategy, and (2) a set of quantitative metrics provided in a Microsoft Excel spreadsheet, as outlined and defined below.

Qualitative

- ESG/Sustainability Governance: Management and oversight of ESG/sustainability.
- ESG/Sustainability Strategy: Practices, programs, and initiatives designed to support the company's transition to a lower carbon and increasingly sustainable energy future.

Quantitative

- Portfolio: An Excel-based data reporting template that is customized for regulated electric companies to include metrics on owned and/or purchased generation data by technology/resource type, as well as other metrics, such as capital investments. Data for these areas should include as much historical, current, and forward-looking information as is appropriate for each company.
- Emissions: The data reporting template also contains a section focused on emissions.
- Resources: The data reporting template also contains a section focused on human resources and natural resources.

The Excel spreadsheet includes a 'Definitions' page to define each metric, specify units of measure, and provide a source for each definition. To the extent possible, this page was developed using definitions that generally are accepted in the industry already. EEI utilized efforts already undertaken by the Electric Power Research Institute's Energy Sustainability Interest Group (ESIG) by including common definitions that were agreed upon through an in-depth stakeholder process.

EEI encourages companies to complete the template in the third quarter (3Q) of each year consistently to provide investors with information from the prior calendar year (e.g., companies provide investors with calendar year 2017 data in 3Q 2018). Although 3Q is typically the earliest timeframe when most companies can produce the final quantitative data on an annual basis, investors prefer this information sooner in the year, so companies also are encouraged to complete the template earlier in the year if possible.

For the ultimate users of this data, it is important to note that the emissions data contained in each template relates only to the particular company filling it out. Since the template allows the reporting of both generation and purchased power, emissions from one entity's generation could be reflected as purchased power in another entity's report. Therefore, it is not possible to aggregate the various reports to determine total sector emissions, as doing so would overstate the total emissions for the participating companies.

Note on Materiality: ESG information has the potential to impact long-term sustainability. Financial materiality, in contrast, is a threshold for identifying aspects of reported financial information that are significant in influencing the investment decisions of investors. EEI and its member companies do not necessarily consider all ESG/sustainability information to be financially material and intend the ESG/sustainability information provided in the EEI ESG/sustainability template to be supplemental to the material financial information that has been, and continues to be, provided under U.S. Securities and Exchange Commission (SEC) reporting requirements. To the extent that any ESG information is considered financially material by an individual company, such information already would be captured in the appropriate SEC-required financial reporting by that company.

Member Company Collaboration with Investors

To develop industry-focused and investor-driven ESG/sustainability reporting practices, EEI assembled a broad working group consisting of two subgroups: the ESG/Sustainability Member Committee and the ESG/Sustainability Investor Group.

- The ESG/Sustainability Member Committee is comprised of EEI member company officials from various disciplines, including accounting, environment, ESG/sustainability, finance, treasury, investor relations, and legal. EEI's Board of Directors, consisting of member company CEOs, provides support by mobilizing their employees to engage with and participate in this committee. The cross-disciplinary nature of this committee was vital in developing a robust reporting template that covered all aspects of ESG and sustainability.
- The ESG/Sustainability Investor Group is comprised of finance sector specialists working in asset management, ESG/sustainability, and investment banking, as well as buy-side and sell-side analysts. The institutional investors who participate in this group are consequential in determining what ESG and sustainability-related information is of interest to the investment community. Engagement with this group provided the foundation for what the EEI ESG/sustainability template is today.

Stakeholder Engagement

EEI and its member companies are engaging with key stakeholders working in the ESG/sustainability space – educating them on the electric power industry's ESG activities, soliciting their feedback on the EEI ESG/sustainability template, and inviting them to participate in the template development process, including working group meetings. These stakeholders include:

- Organizations involved in the development of ESG/sustainability reporting frameworks, such as the Task Force on Climate-related Financial Disclosures (TCFD), the Sustainability Accounting Standards Board (SASB), and CDP (formerly the Carbon Disclosure Project).
- Companies engaged in ESG/sustainability reporting and/or ratings such as Bloomberg, IHS Markit, MSCI, S&P Global Market Intelligence, Sustainalytics, and TruCost.
- Major credit ratings agencies including Fitch, Moody's, and Standard & Poor's.
- Other business and energy groups and associations, including the American Gas Association (AGA), American Petroleum Institute (API), American Public Power Association (APPA), Business Roundtable, Chamber of Commerce, Electric Power Research Institute (EPRI), International Petroleum Industry Environmental Conservation Association (IPIECA), and National Rural Electric Cooperative Association (NRECA).
- Proxy service firms such as Institutional Shareholder Services (ISS) and Glass Lewis.
- ESG/sustainability advocacy groups such as Ceres.

EEI ESG/Sustainability Template Development Process

When the initiative kicked off in early 2016, EEI began by evaluating the existing ESG/sustainability reporting practices of its member companies. Most members already were issuing an ESG or sustainability report on an annual or biannual basis, but the type of reporting/metrics included in these reports was not consistent across the electric power industry, and these reports typically were designed for electricity customers and other stakeholders, but not for investors.

As a first step in the development of a voluntary reporting template, EEI conducted a call with a group of institutional investors in the summer of 2016 to focus on the most relevant ESG information for investors. The topics that were discussed on that call were the basis for a survey that EEI developed and distributed to a broader group of institutional investors to solidify which ESG topics were of most relevance to the investment community. The first draft of the EEI ESG/sustainability template was developed in fall 2016 based on the results of that survey.

These initial steps were extremely important in identifying key ESG metrics, and it is also when the notion of having a qualitative section to provide context for the data in a quantitative section was established. With this baseline set of information and ideas, EEI hosted the first meeting of the ESG/Sustainability Member Committee to review and refine the draft template in October 2016. EEI then led a series of working group meetings in 2017 and 2018, involving major investors and member companies to continue developing and refining the EEI ESG/sustainability template.

One of the key findings in the early stages of the development of the template was that brevity must be a cornerstone. Investors urged electric companies to be concise in their ESG reporting and to focus on the most relevant topics and metrics in ESG disclosures. Another important consideration for investors is consistency so that ESG disclosures could have a measure of comparability across companies. Regarding quantitative information, the EEI ESG/sustainability template was developed using definitions that generally are accepted in the industry already and align with the reporting of publicly available data to the extent possible.

The draft template was enhanced during the summer of 2017, when some EEI member companies conducted an internal pilot exercise that allowed investors participating in the working group to review different versions of the populated draft template. Following this internal pilot, EEI continued to work with its member companies and investors to finalize the draft template for a public pilot release, which officially was launched in December 2017 (see [2017 EEI Press Release](#)). More than 20 EEI member companies participated in the public pilot exercise by posting populated EEI ESG/sustainability templates on their company webpages. For context, this pilot group represented about two-thirds of the investor-owned electric power industry by market capitalization.

In early 2018, the working group met to review the results of the public pilot exercise and discuss modifications to further refine the template. EEI officially launched Version 1 of the EEI ESG/sustainability template in August 2018 (see [2018 EEI Press Release](#)). The EEI member companies participating in Version 1 of the EEI ESG/sustainability template have published their 2017 data on the investor relations or sustainability sections of their websites. For those interested in the information, refer to the [EEI ESG/Sustainability webpage](#) for hyperlinks to member company websites and template locations.

The EEI ESG/sustainability template is envisioned to be an iterative product that can evolve over time. As was the case during the development of the pilot and Version 1 template, EEI will continue to work on balancing its members' need for flexibility with investors' desire for comparability. The working group is currently working on updates for Version 2 of the EEI ESG/sustainability template, which is scheduled for release in 2019 for companies to report 2018 data. One key update will be the addition of ESG metrics related to natural gas, so the template can be used by natural gas distribution companies, generally referred to as local distribution companies (LDCs). EEI is working with AGA on the incorporation of these additional metrics. Moreover, EEI and AGA currently are working with the upstream and midstream natural gas industries on the next area of focus of the industry's sustainability efforts. The goal of this new initiative is to foster sustainability practices and reporting across the entire natural gas supply chain, addressing methane emissions and water impacts and enhancing safety practices, among other issues.





NEWS

**FOR IMMEDIATE RELEASE
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EEI – BRIAN REIL, (202) 508-5514
AGA – JAKE RUBIN, (202) 824-7027**

EEI AND AGA LAUNCH VERSION 2 OF ESG/SUSTAINABILITY REPORTING TEMPLATE

WASHINGTON, D.C. (August 29, 2019) – The Edison Electric Institute (EEI) and the American Gas Association (AGA) today released an updated version of the jointly developed environmental, social, governance, and sustainability (ESG/sustainability) reporting template, which provides investors with uniform and consistent quantitative data and qualitative information. The updated template will be utilized by nearly all of EEI’s member companies and most of AGA’s member companies by the end of 2019.

“The newest version of the EEI and AGA ESG/sustainability reporting template will continue to allow electric and natural gas companies to deliver the most reliable and transparent ESG/sustainability data,” said EEI President Tom Kuhn. “This robust, stakeholder-driven process identified clear ways to enhance the reporting template, and we are pleased to continue our partnership with AGA as we work to ensure we are meeting the needs of the investor community.”

Version 2 of the ESG/sustainability reporting template integrates AGA's quantitative metrics for natural gas distribution companies into the spreadsheet, and qualitative reporting elements were added for cybersecurity governance and natural gas sustainability.

“Natural gas utilities are making incredible strides reducing emissions and enhancing sustainability and this new version of our environmental, social, governance and sustainability reporting template is yet another way for our industry to demonstrate this progress,” said AGA President and CEO Karen Harbert. “These clear, consistent metrics are tailored to utility operations and provide the information that investors want to see.”

In December 2017, EEI’s pilot ESG/sustainability reporting template was launched to encourage voluntary reporting of ESG/sustainability information in both quantitative and qualitative formats.

Version 1 of the ESG/sustainability template was released in August 2018, and the updated version was announced in November 2018 when EEI and AGA partnered to incorporate natural gas metrics into the reporting framework. The updated template was created to benefit electricity and natural gas customers and to help EEI and AGA member companies provide the financial

sector with more uniform and consistent ESG/sustainability data and information regarding natural gas.

“As ESG disclosure continues to evolve from a ‘nice-to-have’ to a ‘must-have,’ EEI’s efforts to create a comprehensive reporting template and methodology that respond to the needs of both members and financial institutions are notable,” said Val Smith, global head of corporate sustainability at Citi. “With the release of the Version 2 ESG template, EEI and its members are demonstrating a commitment to both transparency and continual improvement, and we applaud them for getting out in front of these important trends.”

EEI and AGA member companies remain committed to working with natural gas suppliers and producers to foster sustainability practices and reporting across the entire natural gas supply chain.

Information regarding EEI member companies can be found on the investor relations or sustainability sections of their websites or on the EEI ESG [website](#).

Information regarding AGA member companies can be found [here](#).

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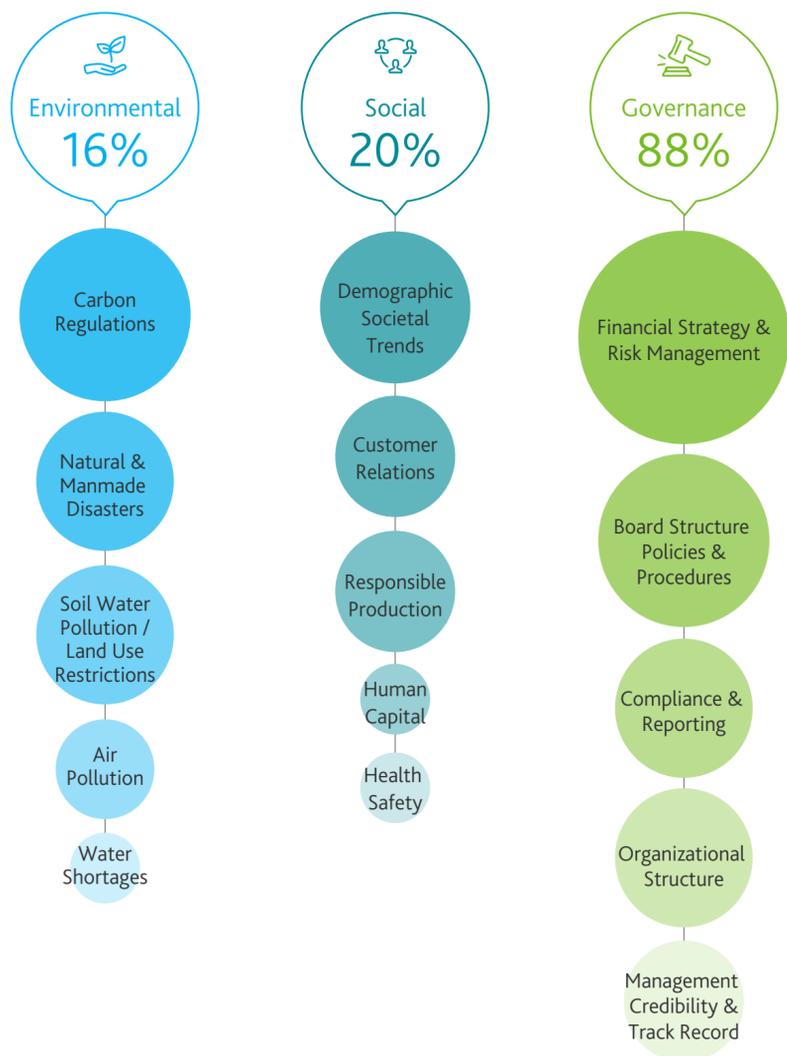
The Edison Electric Institute (EEI) is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for more than 220 million Americans, and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States. In addition to our U.S. members, EEI has more than 65 international electric companies as International Members, and hundreds of industry suppliers and related organizations as Associate Members.

The American Gas Association (AGA), founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 74 million residential, commercial and industrial natural gas customers in the U.S., of which 95 percent — more than 71 million customers — receive their gas from AGA members. Today, natural gas meets more than one-fourth of the United States' energy needs.

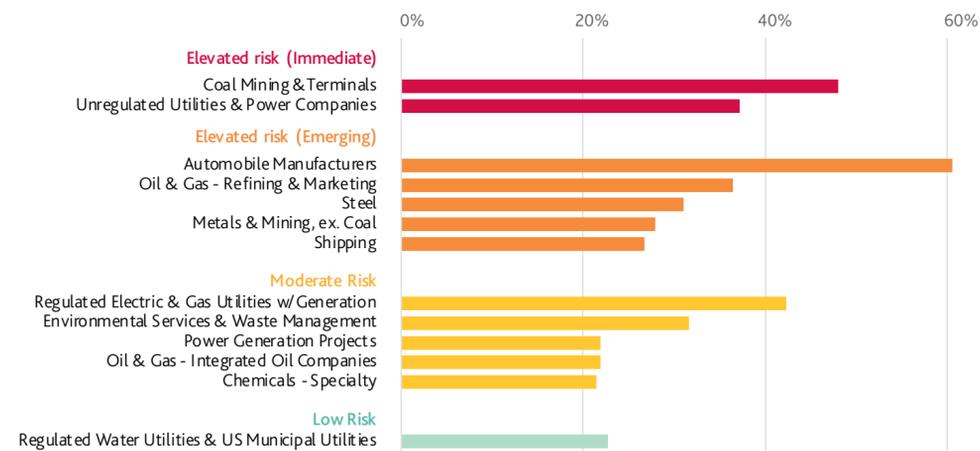
ESG factors frequently cited as material credit considerations in 2019 private-sector rating actions

Of the 7,637 rating actions that we published last year for private-sector issuers, 2,521, or 33%, contained references to material ESG considerations, underscoring the significance of these considerations in our credit analysis. We expect that the materiality of ESG considerations will continue to increase.

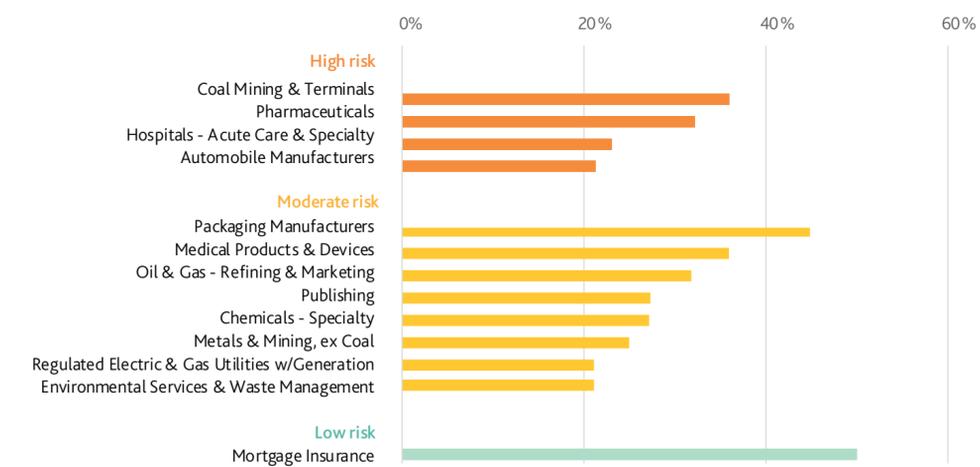
Of the rating actions that cited ESG considerations, 88% included references to governance issues, 20% referred to social issues and 16% cited environmental issues, with many containing references to more than one ESG consideration.



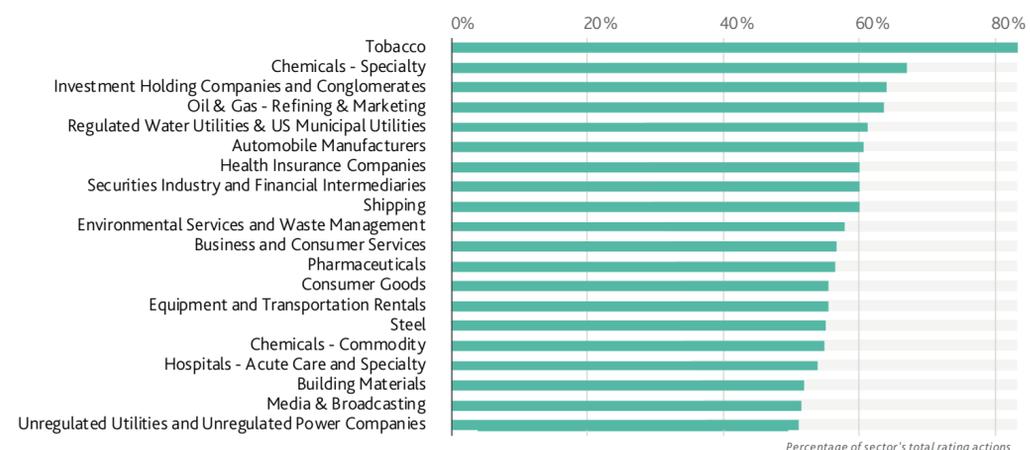
Environmental considerations:
Strong correlation between "elevated risk" heat map scores and language in rating actions in 2019



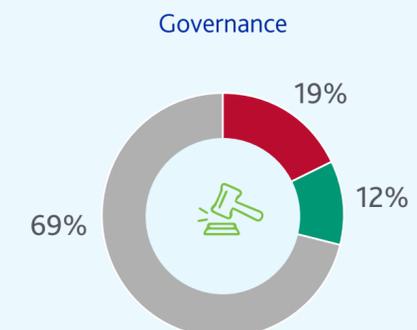
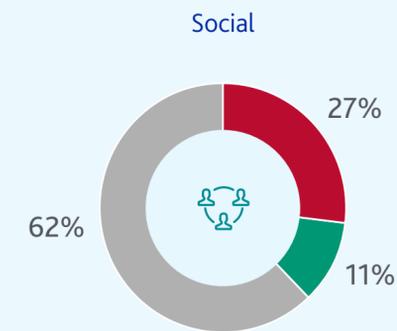
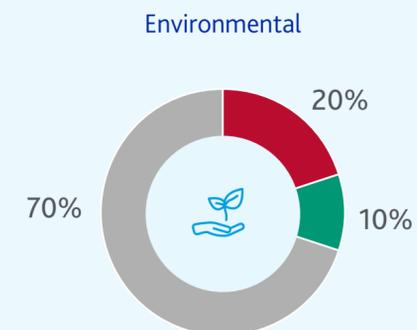
Social considerations:
Frequently cited in rating actions across a wide range of sectors



Governance considerations:
Mentioned in more than half of the rating actions in 20 sectors



Rating directionality of Moody's 2019 private-sector rating actions that cited ESG considerations



⊕ Positive
⊖ Neutral
⊖ Negative

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 83 of 164

Preamble:

Concentric states (emphasis added):

Those measures provide relevant data from which to determine where, within a reasonable range, Enbridge Gas' deemed equity ratio should be set by the OEB, with the regulated operating company equity ratios being most applicable for purposes of assessing Enbridge Gas' regulated equity thickness.

Question(s):

Please explain precisely how Concentric accounted for the fact noted above that regulated operating company equity ratios are the "most applicable" for Assessing Enbridge Gas' (EG) equity thickness. For example, were the results from these two samples weighted heavier? If so, please state the weightings used for analysis purposes, and the justification for these weights? If they were not weighted heavier, please explain why not (given the statement above)?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Please see response at Exhibit I.5.3-STAFF-226. In addition, Concentric placed greatest weight on the operating company authorized equity ratios because these most closely relate to the decision the OEB is being asked to make in this proceeding, and would also be considered by investors and rating agencies. Concentric also notes, that comparison to peer companies is just one facet of the analysis provided by Concentric in support of its recommendation.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 83 of 164

Preamble:

Concentric constructed the US operating company sample by selecting the “ten largest US natural gas distribution utilities, as measured by net utility plant, gas customers, and sales volumes.”

Question(s):

- a) How many companies were evaluated before narrowing it down to just ten?
- b) Please explain why Concentric decided to limit this sample to the “ten largest.”

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric downloaded data from SNL Financial for companies that provided gas distribution service in the U.S. There were approximately 80 companies that served natural gas customers. From among those, Concentric selected the ten largest companies in terms of customers, net gas plant, and sales volume using data for 2021.
- b) Enbridge Gas is the largest gas distributor in Canada and one of the largest in North America. In order to identify companies that were most comparable to Enbridge Gas, Concentric thought it was important to include only those companies with similar size characteristics in the U.S. operating company proxy group. Companies that fell outside the top 10 were substantially smaller in terms of customers served, sales volume, and net gas plant.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 84 of 164

Preamble:

Figures 23 and 24 provide equity ratio summary statistics for the various proxy groups.

Question(s):

- a) Please confirm that the mean and median figures for “2-Year Avg. Book Equity Ratio” that are presented in Figure 23 and Figure 24 respectively, are determined using observations for only four of the 10 Canadian operating companies in this proxy group.
- b) Please confirm that one of the four observations used to determine the mean and median figures for “2-Year Avg. Book Equity Ratio” for the Canadian operating company proxy group, which are presented in Figure 23 and Figure 24, was an outlier of 49.92% for FortisBC Energy, which also greatly exceeded its’ authorized equity ratio of 38.5%.
- c) Please confirm that if the equity ratio of 49.92% for FortisBC Energy was excluded, the average for “2-Year Avg. Book Equity Ratio” for this proxy group would be 40.42%, and the median would be 38.8%.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Confirmed.
- b) Confirmed.
- c) Confirmed. Concentric has reported mean equity ratios for the proxy groups in Figure 23 and median equity ratios in Figure 24. By reporting the median values for

the proxy groups, Concentric accounts for high and low outliers. We do not agree with the suggestion that outliers should be excluded from the calculation.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 85 of 164
Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 89 of 164

Preamble:

Concentric notes *that when constructing proxy groups that the NERC recommends “the inclusion of companies with credit ratings no more than one notch above or below the utility or utilities whose rate is at issue.”*

Concentric notes that “Enbridge Gas has an “A” issuer and unsecured debt rating from DBRS, and an “A-” corporate and unsecured debt credit rating from S&P.”

Question(s):

- a) Please provide all available debt rating reports (i.e., DBRS, Moody’s, Fitch and DBRS) for Enbridge Gas for the last two years.
- b) For comparison purposes to Enbridge Gas, please provide all current available debt ratings (i.e., DBRS, Moody’s, Fitch and DBRS), as well as the supporting most recent debt rating reports for all 34 companies used in the four proxy groups.
- c) Given the NERC criterion pointed out by Concentric on page 85 noted above, please explain why Concentric (page 89) decided to implement the following screening criteria for companies to be included in the US holding company proxy group – “Have an investment grade credit rating.” I.e., since companies with a BBB- rating for example, would lie 3 to 4 notches below the credit rating for Enbridge Gas. Why not increase the stringency of this screen to BBB+ or above?
- d) Please confirm that during the current General Cost of Capital (GCOC) Proceedings taking place in Alberta, in the fall of 2022 Concentric recommended including US companies in their “North American” sample if they had “credit ratings of at least BBB+ from S&P or Baa1 from Moody’s.” If not confirmed, please clarify.

- e) Please explain why Concentric has decided to “relax” this screening criterion during these proceedings.
- f) Please confirm that during the current Alberta GCOC Proceedings mentioned in part (d), the Alberta Utilities Commission (AUC) recommended that US companies be included in proxy groups only if they had credit ratings of at least BBB+ or Baa1. If not confirmed, please clarify.

Response:

- a) Please see response at Exhibit I.1.8-STAFF-14 part a) iv).

The following response was provided by Concentric Energy Advisors, Inc.:

- b) Please see Attachment 1 for the S&P and Moody’s credit ratings for each holding company in the Canadian and U.S. proxy groups and the S&P rating for the companies in the U.S. Gas Operating Company proxy group. Concentric does not have access to credit ratings from DBRS or Fitch.
- c) Concentric decided to use a BBB- credit rating screen because it is an investment grade credit rating and results in a larger sample size. Concentric notes that all of the companies in the U.S. Gas Operating Company proxy group have an S&P rating of BBB+ or higher. Three are rated BBB+, five are rated A-, one is rated A, and one is not rated at the operating company level.
- d) Confirmed.
- e) Please see response at Exhibit 1.5.3-IGUA-55 part c).
- f) Confirmed.

Canadian Holding Company	S&P Rating	Moody's Rating
Algonquin Power & Utilities Corporatio	BBB	NR
AltaGas Limited	BBB-	NR
Canadian Utilities Limited	BBB+	NR
Emera Inc.	BBB	Baa3
Fortis Inc.	A-	Baa3
Hydro One Limited	A-	NR

U.S. Holding Company	S&P Rating	Moody's Rating
Atmos Energy Corporation	A-	A1
New Jersey Resources Corporation	NR	A1
NiSource Inc.	BBB+	Baa2
Northwest Natural Gas Company	A+	Baa1
ONE Gas, Inc.	A-	A3
South Jersey Industries, Inc.	BBB	NR
Southwest Gas Corporation	BBB-	Baa2
Spire, Inc.	A-	Baa2

U.S. Gas Operating Company	S&P Rating	Moody's Rating
Southern California Gas Company	A	
Consumers Energy Company	A-	
Northern Illinois Gas Company	A-	
DTE Gas Company	A-	
Consolidated Edison Company of NY	A-	
The East Ohio Gas Company	BBB+	
Brooklyn Union Gas	BBB+	
Atlanta Gas Light Company	BBB+	
Columbia Gas of Ohio Inc.	NR	parent is NiSource
The Peoples Gas Light and Coke Co.	A-	

Source: S&P January 2023

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 89 of 164

Preamble:

Concentric states:

The last proxy group (i.e., the US HoldCo Proxy Group) is comprised of publicly-traded US natural gas distribution companies that would be considered by investors as generally comparable in risk to Enbridge Gas.

In order to construct its proxy group of US Holding Companies, Concentric notes:

To obtain companies of like risk, we performed a number of screens to develop a group of companies that are primarily engaged in the provision of regulated natural gas distribution utility service.

Concentric then starts with “the ten domestic companies that Value Line classifies as natural gas utilities,” before applying three additional screens, including;

- i. an “investment grade credit rating” criterion;
- ii. having regulated net income that makes up greater than 60% of total income for the consolidated company; and
- iii. having regulated gas net income that makes up greater than 60% of net income for the consolidated company’s regulated operations.

Question(s):

- a) For each of the Holding Companies included in **both** the Canadian and US Holding company proxy groups, please provide the following information:
 - i. The size of the company in terms of revenue and total assets.
 - ii. A list of all operating companies that are subsidiaries of each utility, as well as the jurisdiction(s) in which each of these companies and their subsidiaries operate.
 - iii. The percentage breakdown of revenue, operating earnings and net income from each of the operating companies identified in part (ii).
 - iv. The percentage breakdown of regulated versus unregulated revenue, operating earnings and net income for the utilities.

- v. The percentage breakdown of regulated versus unregulated revenue, operating earnings and net income for each utility broken out between operations that are based in Canada, versus operations that are based in other countries.
 - vi. A similar percentage breakdown to that requested in part (iv) as between operations related to transmission, distribution, generation, and other activities.
- b) Please confirm that during the current GCOC Proceedings taking place in Alberta and in the fall of 2022 Concentric recommended including US companies in their “North American” sample if they satisfied the two following criteria:
- i. derived at least 90 percent of operating income from regulated operations in the most recent three year period (in this case, 2019-2021); and
 - ii. derived at least 70 percent of regulated operating income from electric utility service in the most recent three-year period (for electric utilities), or at least 65 of regulated operating income from gas distribution service in the same period (for gas utilities).
- If not confirmed, please clarify.
- c) Please explain why Concentric has decided to change (and “relax”) these screening criteria during these proceedings.
- d) Please confirm that during the current Alberta GCOC Proceedings mentioned in part (b), the AUC determined that US utilities would be excluded from proxy groups if:
- i. less than 80 per cent of their assets are associated with rate regulated activities regardless of whether those assets consist solely of electric utility operations, natural gas utility operations or a combination of both; or
 - ii. less than 75 per cent of their operating income is from rate regulated utility operations.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a)
 - i. Please see Attachment 1.
 - ii. Please see Attachment 1.
 - iii.-vi. Concentric did not use these data in our analysis.
- b) Confirmed.

- c) Please see pages 85 to 86 of Concentric's report, where the screening criteria for the U.S. Gas holding company proxy group are discussed. As explained, there are only ten gas companies in the Value Line coverage universe. Because Concentric was developing a group of gas distributors for comparison to Enbridge Gas in Ontario, Concentric decided it was reasonable to use somewhat different screening criteria than are typically used to select a proxy group for estimating the authorized return on equity (ROE). Not only did Concentric relax the percentage of regulated income and percentage of gas income, but Concentric did not include screens for consistent dividend payments or M&A activity, since neither is relevant for purposes of comparing the authorized equity ratio for Enbridge Gas to other similarly situated companies.

By contrast, in Alberta, the AUC indicated that it was looking to develop a comparator group of both electric and gas utility companies, meaning that there were many more companies from which to choose that would be used to estimate the cost of equity for Alberta's regulated electric and gas utilities.

In addition, Concentric's recommendation to increase the equity ratio for Enbridge Gas to 42% is based primarily on the equity ratios for the operating companies in the Canadian and U.S. proxy groups, not the holding companies.

- d) Confirmed.

Company	Operating Subsidiary	Jurisdiction	Service	
<u>Canadian HoldCo Proxy Group</u>				
Algonquin Power & Utilities Corp.	Liberty Utilities (Peach State Nat. Gas) Corp.	Georgia	Gas	
	Liberty Utilities (Midstates Natural Gas) Corp.	Illinois	Gas	
	Liberty Utilities (NE Nat Gas)	Massachusetts	Gas	
	Empire District Gas Co.	Missouri	Gas	
	Liberty Utilities (Midstates)	Missouri	Gas	
	Liberty Utilities EnergyNorth	New Hampshire	Gas	
	Liberty Gas New Brunswick	New Brunswick	Gas	
	SEMCO Energy Inc.	Michigan	Gas	
AltaGas Ltd.	Washington Gas Light Co.	District of Columbia	Gas	
	Washington Gas Light Co.	Maryland	Gas	
	Washington Gas Light Co.	Virginia	Gas	
	ATCO Gas	Alberta	Gas	
Canadian Utilities Limited	New Mexico Gas Co.	New Mexico	Gas	
	Peoples Gas System	Florida	Gas	
Emera Inc.	Central Hudson Gas & Electric	New York	Gas	
Fortis Inc.	UNS Gas Inc.	Arizona	Gas	
	FortisBC Energy	British Columbia	Gas	
<u>S HoldCo Proxy Group</u>				
Atmos Energy Corporation	Atmos Energy Corporation	Kansas	Gas	
	Atmos Energy Corporation	Kentucky	Gas	
	Atmos Energy Corporation	Louisiana	Gas	
	Atmos Energy Corporation	Mississippi	Gas	
	Atmos Energy Corporation	Tennessee	Gas	
	Atmos Energy Corporation	Texas	Gas	
	New Jersey Resources Corporation	New Jersey Natural Gas Co.	New Jersey	Gas
	NiSource Inc.	Columbia Gas of Kentucky Inc.	Kentucky	Gas
		Columbia Gas of Maryland Inc.	Maryland	Gas
		Columbia Gas of Ohio Inc.	Ohio	Gas
		Columbia Gas of Pennsylvania Inc.	Pennsylvania	Gas
	Northwest Natural Gas Company	Columbia Gas of Virginia Inc.	Virginia	Gas
		Northwest Natural Gas Co.	Oregon	Gas
		Northwest Natural Gas Co.	Washington	Gas
ONE Gas, Inc.	Kansas Gas Service Co.	Kansas	Gas	
	Oklahoma Natural Gas Co.	Oklahoma	Gas	
	Texas Gas Service Co. Inc.	Texas	Gas	
South Jersey Industries, Inc.	Elizabethtown Gas Co.	New Jersey	Gas	
	South Jersey Gas Co.	New Jersey	Gas	
Southwest Gas Corporation	Southwest Gas Corp.	Arizona	Gas	
	Southwest Gas Corp.	California	Gas	
	Southwest Gas Corp.	Nevada	Gas	
Spire, Inc.	Spire Alabama Inc.	Alabama	Gas	
	Spire Gulf Inc.	Alabama	Gas	
	Spire Missouri Inc. - East	Missouri	Gas	
	Spire Missouri Inc. - West	Missouri	Gas	

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 91-92 of 164

Preamble:

Concentric states:

All else equal, relatively higher remaining book lives and/or relatively lower depreciation rates indicate that it will take longer for an investor to recover the return of invested capital, therefore increasing exposure to Energy Transition risks such as stranded asset risk and volumetric risk.

Figure 29 provides summary statistics regarding "Remaining Life," etc. for Enbridge Gas and the various proxy groups.

Question(s):

- a) Can Concentric provide empirical support for the cited statement? For example, is there empirical evidence showing that the required rate of return on equity for companies with longer-lived assets is higher than for those with shorter-lived assets?
- b) Is Concentric suggesting that investors would prefer to invest in companies whose assets are older and nearer the end of their useful lives? If so, please explain the logic behind this assertion. If not, please explain why this is not a corollary of the suggestion that investing in companies with newer and less depreciated assets is riskier than investing in companies with older and more depreciated assets.
- c) Would having assets that are newer actually reduce risk for companies? For example, wouldn't this imply the company would have to allocate relatively less to future capital expenditures to upgrade assets than would comparable companies with older assets?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric refers to the risk of return of capital which is placed at greater risk with long-lived assets.
- b) Under circumstances with shifting public policy that calls into question the growth and sustainability of the natural gas industry, investors would naturally seek to mitigate exposure to the industry. Higher remaining book lives and/or relatively lower depreciation rates indicate that it will take longer for an investor to recover the return of invested capital, therefore increasing exposure to Energy Transition risks.
- c) The balance of newer vs. older assets involves more than investment risk. Gas utilities must maintain the safety and reliability of their systems, even if risks of long-term asset recovery are increasing. Unlike some industries where investors can allow assets to deteriorate under unfavorable market conditions, utilities are required to maintain their systems to a high level of safety and reliability.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 94-96 of 164

Preamble:

Concentric discusses regulatory rankings of Ontario and other jurisdictions and provides a summary of these rankings in the form of averages in Figure 31. We are interested in seeing greater detail regarding how these averages were determined, as well as the rankings for the individual companies included in the various proxy groups, and how they were weighted.

Question(s):

- a) Please provide a figure identical to Figure 31 that provides the median rankings for the various proxy groups.
- b) Please provide the rankings for all companies included in the proxy groups, including a description of how these company rankings were determined, given that many of the companies own and operate utilities in numerous jurisdictions. For example, were the company rankings determined by using “simple” averages of all the operating companies under ownership, or were they weighted by revenue, income, etc. related to the various operating companies that are owned by holding companies?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see Attachment 1.
- b) The averages in Figure 31 are simple averages of the S&P and UBS rankings for the jurisdictions in which the various operating utility companies provide service.

Company	Operating Subsidiary	Jurisdiction	Service	[1]	[2]		
				S&P	Median	Mean	UBS
<u><i>anadian OpCo Proxy Group</i></u>							
Apex Utilities Inc.	N/A	Alberta	Gas	Highly	2		4
ATCO Gas	N/A	Alberta	Gas	Highly	2		4
Energir	N/A	Quebec	Gas	Most	1		N/A
FortisBC Energy	N/A	British Columbia	Gas	Most	1		1
Gazifere Inc.	N/A	Quebec	Gas	Most	1		N/A
Heritage Gas Limited	N/A	Nova Scotia	Gas	Most	1		2
Liberty Gas New Brunswick	N/A	New Brunswick	Gas	N/A	N/A		N/A
Pacific Northern Gas Ltd	N/A	British Columbia	Gas	Most	1		1
Pacific Northern Gas Ltd (FSJ/DC)	N/A	British Columbia	Gas	Most	1		1
Pacific Northern Gas Ltd (TR)	N/A	British Columbia	Gas	Most	1		1
				Most	1.0	1.2	1.0
<u><i>anadian HoldCo Proxy Group</i></u>							
Algonquin Power & Utilities Corp.	Liberty Utilities (Peach State Nat. C	Georgia	Gas	Highly	2		1
	Liberty Utilities (Midstates Natural G	Illinois	Gas	Very	3		2
	Liberty Utilities (NE Nat Gas)	Massachusetts	Gas	Highly	2		3
	Empire District Gas Co.	Missouri	Gas	Very	3		3
	Liberty Utilities (Midstates)	Missouri	Gas	Very	3		3
	Liberty Utilities EnergyNorth	New Hampshire	Gas	Highly	2		4
	Liberty Gas New Brunswick	New Brunswick	Gas	N/A	N/A		N/A
AltaGas Ltd.	SEMCO Energy Inc.	Michigan	Gas	Most	1		1
	Washington Gas Light Co.	District of Columbia	Gas	More	4		5
	Washington Gas Light Co.	Maryland	Gas	Very	3		3
	Washington Gas Light Co.	Virginia	Gas	Highly	2		3
Canadian Utilities Limited	ATCO Gas	Alberta	Gas	Highly	2		4
Emera Inc.	New Mexico Gas Co.	New Mexico	Gas	Adequate	5		5
	Peoples Gas System	Florida	Gas	Most	1		1
Fortis Inc.	Central Hudson Gas & Electric	New York	Gas	Very	3		5
	UNS Gas Inc.	Arizona	Gas	More	4		5
	FortisBC Energy	British Columbia	Gas	Most	1		1
				Very	2.5	2.6	3.0
<u><i>S OpCo Proxy Group</i></u>							
Southern California Gas Company	N/A	California	Gas	More	4		3
Consumers Energy Company	N/A	Michigan	Gas	Most	1		1
Northern Illinois Gas Company	N/A	Illinois	Gas	Very	3		2
DTE Gas Company	N/A	Michigan	Gas	Most	1		1
Consolidated Edison Company of NY	N/A	New York	Gas	Very	3		5
The East Ohio Gas Company	N/A	Ohio	Gas	Very	3		3
Brooklyn Union Gas Company	N/A	New York	Gas	Very	3		5
Atlanta Gas Light Company	N/A	Georgia	Gas	Very	3		1
Columbia Gas of Ohio, Inc.	N/A	Ohio	Gas	Very	3		3
The Peoples Gas Light and Coke Company	N/A	Illinois	Gas	Very	3		2
				Very	3.0	2.7	2.5

				[1]	[2]		
Operating Subsidiary	Jurisdiction	Service		S&P	Median	Mean	UBS
<u>S HoldCo Proxy Group</u>							
Atmos Energy Corporation	Atmos Energy Corporation	Kansas	Gas	Highly	2		4
	Atmos Energy Corporation	Kentucky	Gas	Most	1		2
	Atmos Energy Corporation	Louisiana	Gas	Highly	2		2
	Atmos Energy Corporation	Mississippi	Gas	More	4		4
	Atmos Energy Corporation	Tennessee	Gas	Highly	2		3
	Atmos Energy Corporation	Texas	Gas	Very	3		3
New Jersey Resources Corporation	New Jersey Natural Gas Co.	New Jersey	Gas	More	4		3
NiSource Inc.	Columbia Gas of Kentucky Inc	Kentucky	Gas	Most	1		2
	Columbia Gas of Maryland Inc.	Maryland	Gas	Very	3		3
	Columbia Gas of Ohio Inc.	Ohio	Gas	Very	3		3
	Columbia Gas of Pennsylvania Inc.	Pennsylvania	Gas	Highly	2		2
Northwest Natural Gas Company	Columbia Gas of Virginia Inc.	Virginia	Gas	Highly	2		3
	Northwest Natural Gas Co.	Oregon	Gas	Highly	2		3
	Northwest Natural Gas Co.	Washington	Gas	Very	3		3
ONE Gas, Inc.	Kansas Gas Service Co.	Kansas	Gas	Highly	2		4
	Oklahoma Natural Gas Co.	Oklahoma	Gas	More	4		3
	Texas Gas Service Co. Inc.	Texas	Gas	Very	3		3
South Jersey Industries, Inc.	Elizabethtown Gas Co.	New Jersey	Gas	More	4		3
	South Jersey Gas Co.	New Jersey	Gas	More	4		3
Southwest Gas Corporation	Southwest Gas Corp.	Arizona	Gas	More	4		5
	Southwest Gas Corp.	California	Gas	More	4		3
	Southwest Gas Corp.	Nevada	Gas	Very	3		4
Spire, Inc.	Spire Alabama Inc.	Alabama	Gas	Most	1		1
	Spire Gulf Inc.	Alabama	Gas	Most	1		1
	Spire Missouri Inc. - East	Missouri	Gas	Very	3		3
	Spire Missouri Inc. - West	Missouri	Gas	Very	3		3
				Very	3.0	2.7	3.0
<hr/>				<hr/>			
Enbridge Gas Inc.	Ontario			Most			3

Notes: to be updated

[1] S&P Global RatingsDirect, "Updated Views on North American Utility Regulatory Jurisdictions - June 2021," June 29, 2021

[2] UBS, "North American Power & Utilities, Mind the Gap(s): 2021 Utility Outlook"

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 96-98 of 164

Preamble:

On pages 96-98, Concentric discusses five regulatory mechanisms available to Enbridge Gas and estimates the percentages of the companies in the proxy groups operating in other jurisdictions that also have similar mechanisms available to them. Concentric provides a summary of this analysis in Figure 32. We are interested in seeing greater detail regarding how these averages were determined, as well as the ratings for the individual companies included in the various proxy groups, and how they were weighted.

Question(s):

- a) Footnote 214 notes that “Information is not readily available for several of the companies in the Canadian OpCo proxy group.” Please state how many of the 10 companies included in this sample were actually used to determine the percentages reported in Figure 32 for this proxy group.
- b) Please state how many of the companies included in the other three proxy groups were actually used to determine the percentages reported in Figures 32 for the respective proxy group.
- c) Please explain clearly how these percentages for the various companies included in the proxy groups (provided in Schedule 3), were determined, given that many of the companies own and operate utilities in numerous jurisdictions. For example, were the company rankings determined by using “simple” averages of all the operating companies under ownership, or were they weighted by revenue, income, etc. related to the various operating companies that are owned by holding companies?
- d) Please confirm that the average percentages across all four proxy groups for the five regulatory mechanisms available to the companies in the proxy groups are all well below 100%, with average (and range) percentages respectively of: 45.5 (40-56);

65.3 (42-80); 79.0 (61-100); 75.8 (67-83); and, 54.8 (39-80). If not confirmed, please provide the calculated averages and ranges for the five regulatory mechanisms.

- e) On page 98 Concentric states (bold added for emphasis) that “On the basis of the above, Concentric concludes that Enbridge Gas is comparable to the proxy companies...” In fact, since Enbridge Gas answers yes (i.e., 100%) with respect to the existence of all five regulatory mechanisms examined, versus proxy group percentages that are much lower, doesn't Concentric's analysis as provided in Figure 32 actually demonstrate that Enbridge Gas has lower regulatory risk relative to all four proxy groups based on its' access to these five regulatory mechanisms? Please explain your answer.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Figure 32 is a summary of data provided in Schedule 3 of Concentric's report (pages 152 to 153 of 164). For the Canadian operating companies, Schedule 3 presents information for nine of the ten companies regarding multi-year rate plans of formula based rates, eight of the ten companies with regard to test year convention, six of ten companies regarding revenue decoupling, four of ten companies regarding conservation programs, and six of ten companies regarding capital cost tracking mechanisms.
- b) The percentages for the other three proxy groups were calculated using all 17 operating utility companies held by the Canadian proxy group, all 10 companies in the U.S. operating company proxy group, and all 26 companies held by the U.S. Gas proxy group.
- c) The percentages in Figure 32 are simple averages.
- d) Concentric's analysis is based on the percentages for each proxy group, not the combined percentage for all four proxy groups.
- e) Figure 32 to Concentric's report supports Concentric's conclusion that constructive ratemaking mechanisms are widely available to the proxy companies. Concentric's conclusion that Enbridge Gas is comparable to the proxy companies in terms of regulatory risk draws on the data presented in Figure 32 but is also based on regulatory assessments by equity and debt investors, as well as statements made by other regulatory jurisdictions touting the supportiveness of their regulatory frameworks, as discussed at pages 94 to 98 of 164 of Concentric's report.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 99 of 164

Preamble:

Concentric states (emphasis added):

*While the Company is quite large as measured by customers, sales, assets, etc., its operations are limited to natural gas distribution in Ontario, Canada. This **lack of regulatory and geographic diversity partially mitigates the risk reductions** created by the Company's large size.*

Question(s):

- a) Concentric has stated previously that the operating company proxy groups are the "most applicable" to Enbridge Gas. Therefore, if we first look at these two most applicable proxy groups, please confirm that this statement would also apply to the 10 operating companies included in the Canadian Operating Company Proxy Group, as well as to the 10 companies included in the US Operating Company Proxy Group. I.e., they also operate in one jurisdiction and geographic region as well. If not please explain.
- b) Turning attention to the two (less applicable) holding company proxy groups, please confirm that jurisdiction exposure for the two holding company proxy groups range from (average): one jurisdiction (for two companies) to five, with an average of 3.2 for the six Canadian holding companies; and, one jurisdiction to eight, with an average of 3.4 for the eight US holding companies. If not confirmed please provide the range and average for these two proxy groups.
- c) Given that the 20 companies included in the two most applicable groups (i.e., operating companies) have no additional regulatory or regional diversity; and (b) there is very little additional diversity, please justify the statement: "This lack of regulatory and geographic diversity partially mitigates the risk reductions created by the Company's large size."
- d) The S&P rankings provided in Figure 31 show that Ontario is a more highly rated regulatory jurisdiction than those for the average company in the proxy groups, and

the evidence provided in Figure 32 shows that Enbridge Gas has superior regulatory support mechanisms than all of the proxy groups that operate in various other jurisdictions. Given this evidence provided by Concentric, please explain why being located in one “above average” supportive regulatory environment would actually increase risk for Enbridge Gas, as opposed to proxy group companies operating across several less supportive regulatory environments, where the average level of supportiveness is lower.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Concentric confirms that the utility operating companies generally operate in a single jurisdiction.
- b) Confirmed.
- c) The statement on Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 99 of 164 that “[t]his lack of regulatory and geographic diversity partially mitigates the risk reductions created by the Company’s large size” is supported by the following statement made by S&P that is quoted on page 99 “EGI lacks geographic and regulatory diversity. EGI operates only in Ontario. It is the largest gas distributor in Ontario and serves virtually all of Ontario with approximately 3.8 million residential, commercial, and industrial customers. However, compared with other utilities, EGI lacks geographic and regulatory diversity, making it reliant on the Ontario Energy Board (OEB) and its regulation to sustain its credit quality.”

Concentric agrees that the other gas operating utilities in Canada and the U.S. also operate in single jurisdictions. However, Figures 23 and 24 of Concentric’s Report demonstrate that those other gas operating utilities have mean and median allowed equity ratios from 40.5% in Canada to 51.4% in the U.S., as compared to Enbridge Gas at 36% deemed equity.

- d) Concentric disagrees that Figure 31 shows that Ontario is a more highly rated regulatory jurisdiction than “the average company in the proxy groups.” Ontario has the same S&P ranking as the Canadian Opco group, and, while its S&P ranking is higher than the Canadian HoldCo, US OpCo, and US HoldCo proxy groups, S&P notes that all regulation is credit supportive, and that its rankings are only a matter of degree. Further, as shown in Figure 31 to Concentric’s report, UBS ranks Ontario below the Canadian OpCo proxy group, and the same as the other proxy groups. Further, Concentric disagrees with the premise that “Enbridge Gas has superior regulatory support mechanisms than all of the proxy groups that operate in various other jurisdictions.” Please see response at Exhibit I.5.3-IGUA-58 for further

discussion of Concentric's findings with regard to the constructiveness of Enbridge Gas's regulatory mechanisms compared to the proxy groups.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 101-103 of 164

Preamble:

On pages 101-103, Concentric provides an equity ratio comparison of Enbridge Gas to the four proxy groups. Concentric provides a summary of this analysis in Figure 34 (averages) and Figure 35 (medians), which replicate the previous Figures 23 and 24 provided on page 84.

Question(s):

With respect to the six companies included in the second proxy group in these tables (i.e., the Canadian Holding Companies group), please confirm the following:

- i) Four of the five operating companies referenced for Algonquin are US-based, with only one Canadian company.
- ii) All five of the AltaGas Inc. operating companies referenced are US-based.
- iii) The only company referenced for CU Ltd. is ATCO Gas, which is Canadian-based (Alberta).
- iv) Both of the two operating companies referenced for Emera are US-based.
- v) Two of the three operating companies referenced for Fortis are US-based, with FortisBC Energy being the lone Canadian company referenced.
- vi) The only operating company referenced for Hydro One is Canadian-based; however, no data is provided.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- i) Confirmed.
- ii) Confirmed.
- iii) Confirmed.
- iv) Confirmed
- v) Confirmed. FortisBC Energy Inc. is a large gas distribution company in British Columbia that has more than one million customers.
- vi) Hydro One is an electric only company. It does not provide natural gas service.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 103-104 of 164

Preamble:

Concentric discusses credit metrics for Enbridge Gas and the four proxy groups, and reports these metrics in Figure 37 on page 104.

Question(s):

- a) Please provide the detailed formulas used to calculate all five ratios reported in Figure 37.
- b) Please provide a table that provides S&P guidance regarding each of these credit metrics with respect to debt rating categories for utilities. For example, would an "EBITDA Interest Coverage" ratio ≥ 2.0 correspond to an A or A- rating for a low business risk utility, for example?
- c) Please provide all data and workpapers used to calculate the credit metrics for "Enbridge Gas Inc. (Reg-only)".
- d) Please provide all data and workpapers used to calculate all of the reported credit metrics for each company included in each proxy group. Provide all sources for these metrics (i.e., S&P debt rating reports, etc.).
- e) For comparison purposes with the reported proxy group metrics, please report the credit metrics for all companies included in the proxy groups using only regulated operations, similar to the credit metrics for reported for "Enbridge Gas Inc. (Reg-only)". This is required to assess the informativeness of the "Enbridge Gas Inc. (Reg-only)" reported metrics.
- f) Please provide all data and workpapers used to calculate the "regulated operations only" credit metrics calculated for all proxy group companies as requested in part (e).
- g) Please confirm that Concentric's credit metric analysis is based on the metrics of 13 of the 14 companies included in the two Holding Company samples, does not report

or rely on metrics for the 10 companies included in the CanadianOpCo group, and uses only 7 of the 10 companies included in the USOpCo group. Please explain how such an approach, which heavily weights (i.e., uses 13 of 14) holding companies, and provides a much lower weighting to operating utilities (i.e., uses only 7 of 20), is consistent with Concentric's statement (on page 83) that the regulated operating company samples were the "most applicable for purposes of assessing Enbridge Gas' regulated equity thickness."

- h) Please provide a table similar to Figure 37, with historic data and all supporting data and working papers used to calculate the credit metrics 2011-2020 for each of:
- i. Enbridge Gas Inc. (S&P)
 - ii. Enbridge Gas Inc. (Reg-only)

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

For purposes of responding to this question, Concentric assumes that IGUA is also referring to Figure 19 on page 66 of Concentric's report, which provides a comparison of the credit metrics for Enbridge Gas to those of the various proxy groups.

- a) The credit metrics shown in Figure 37 of Concentric's report were reported by S&P using the rating agency's method.
- b) Please see pages 58-60 of Concentric's report, where Concentric indicated that Enbridge Gas has a business risk ranking of "Excellent" and a financial risk ranking of "Significant" from S&P. As shown in Figure 16 on page 60, this combination of business and financial risk equates to an anchor assessment of "a-" from S&P. Figure 15 shows the credit metrics required to be consistent with a "Significant" financial risk profile, according to S&P's rating methodology. For example, a company's FFO/Debt ratio should be between 9 and 13, and the Debt/EBITDA ratio should be between 4 and 5.
- c) Please see response at Exhibit I.5.3-IGUA-44 part a) for the S&P credit metrics for Enbridge Gas at both the total company and regulated levels.
- d) Please see Confidential Attachment 1. The information for each company in the attachment was provided by S&P. Enbridge Gas is seeking confidential treatment of this attachment for the reasons set out in the Company's accompanying request for confidential treatment of certain information filed in this proceeding.

- e) As indicated in the response to part d), Concentric relied on credit metrics reported by S&P. Concentric does not have the ability to separate regulated and unregulated operations for the proxy group companies.
- f) Please see the response to e) above.
- g) Figure 19 on page 66 of Concentric's report compares the 2021 S&P credit metrics for Enbridge Gas at both the total company and regulated only levels to the various proxy groups. This allows for comparison between Enbridge Gas and each of the Canadian holding company proxy group, the U.S. holding company proxy group, and the U.S. operating company proxy group. As noted below Figure 19, there are insufficient companies in the Canadian operating company proxy group that are rated by S&P to produce meaningful results. Concentric does not place more importance or weight on one of these proxy groups than another for purposes of this comparison. As discussed on pages 61-62 of Concentric's report, this analysis demonstrates that Enbridge Gas has on average a weaker financial profile than both the Canadian and U.S. holding company proxy groups and the U.S. operating company proxy group. This supports Concentric's conclusion on page 62 that Enbridge Gas' financial profile is relatively weak relative to its peer companies.
- h) Please see response at Exhibit I.5.3-STAFF-217 for Enbridge Gas' S&P credit metrics from 2012 to 2021 at the total company level. This information has not been calculated at the regulated only level by either Concentric or Enbridge Gas over the time period requested.

CREDIT METRICS ANALYSIS

Company Name	Ticker	Rating	Debt to Capital Ratio	EBITDA Interest Coverage	FFO to Cash Interest Coverage	FFO / Debt (%)	Debt to EBITDA
Enbridge Gas Inc. (Per S&P)		A-					
Enbridge Gas Inc. (Regulated-Only)							
Canadian HoldCo Group							
Algonquin Power and Utilities Corp.	AQN	BBB					
AltaGas Utilities Inc	ALA	BBB-					
Canadian Utilities Ltd.	CU	A-					
Emera Inc.	EMA	BBB					
Fortis, Inc.	FTS	A-					
Hydro One Inc.	H	A-					
Canadian HoldCo Average							
US OpCo Group							
Southern California Gas Company		A					
Consumers Energy Company		A-					
Northern Illinois Gas Company		A-					
DTE Gas Company		A-					
Consolidated Edison Company of NY		A-					
The Eash Ohio Gas company		BBB+					
Brooklyn Union Gas Company [1]		BBB+					
Atlanta Gas Light Company		BBB+					
Columbia Gas of Ohio, Inc.		N/A					
The Peoples Gas Light and Coke Company		A-					
US OpCo Average							
US HoldCo Group							
Atmos Energy Corporation [2]	ATO	A-					
New Jersey Resources Corporation	NJR	NR					
NiSource Inc.	NI	BBB+					
Northwest Natural Gas Company	NWN	A+					
ONE Gas, Inc.	OGS	BBB+					
South Jersey Industries, Inc.	SJI	BBB					
Southwest Gas Corporation	SWX	BBB					
Spire, Inc. [2]	SR	A-					
US HoldCo Average							

Notes & Sources:

All values are based on S&P Capital IQ, Credit Stats Direct, Select Stats & Ratios as calculated and adjusted by S&P Capital IQ for the most recent period, December 31, 2021 unless otherwise stated.

[1] Fiscal year ended on March 31, 2022

[2] Fiscal year ended on September 30, 2021



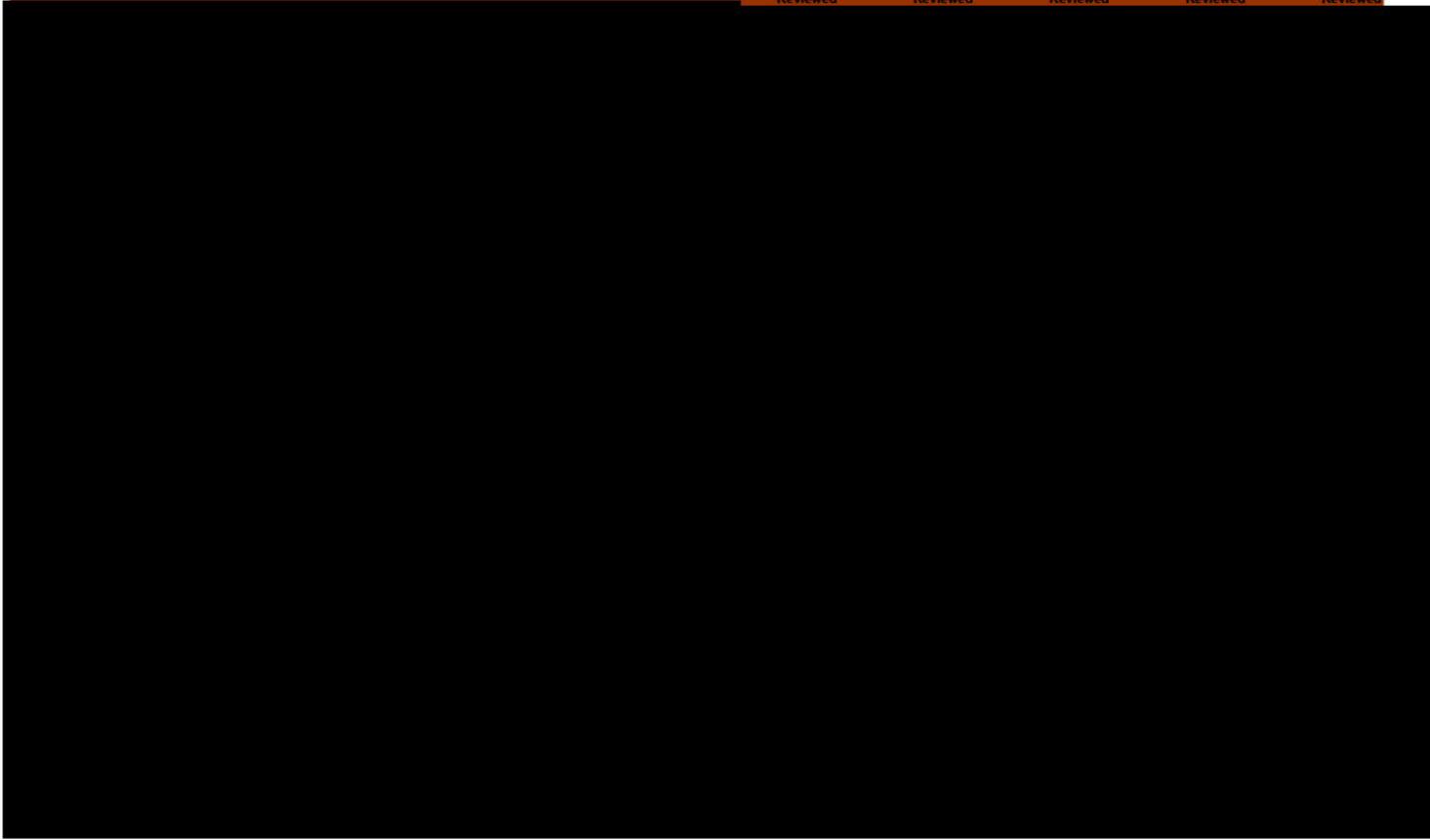
Algonquin Power & Utilities Corp. (TSX:AQN) > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template:	Adjusted	Restatement:	Latest Filings
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Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	12 months Dec-31-2017 CAD Reviewed	12 months Dec-31-2018 USD Reviewed	12 months Dec-31-2019 USD Reviewed	12 months Dec-31-2020 USD Reviewed	12 months Dec-31-2021 USD Reviewed
Currency					



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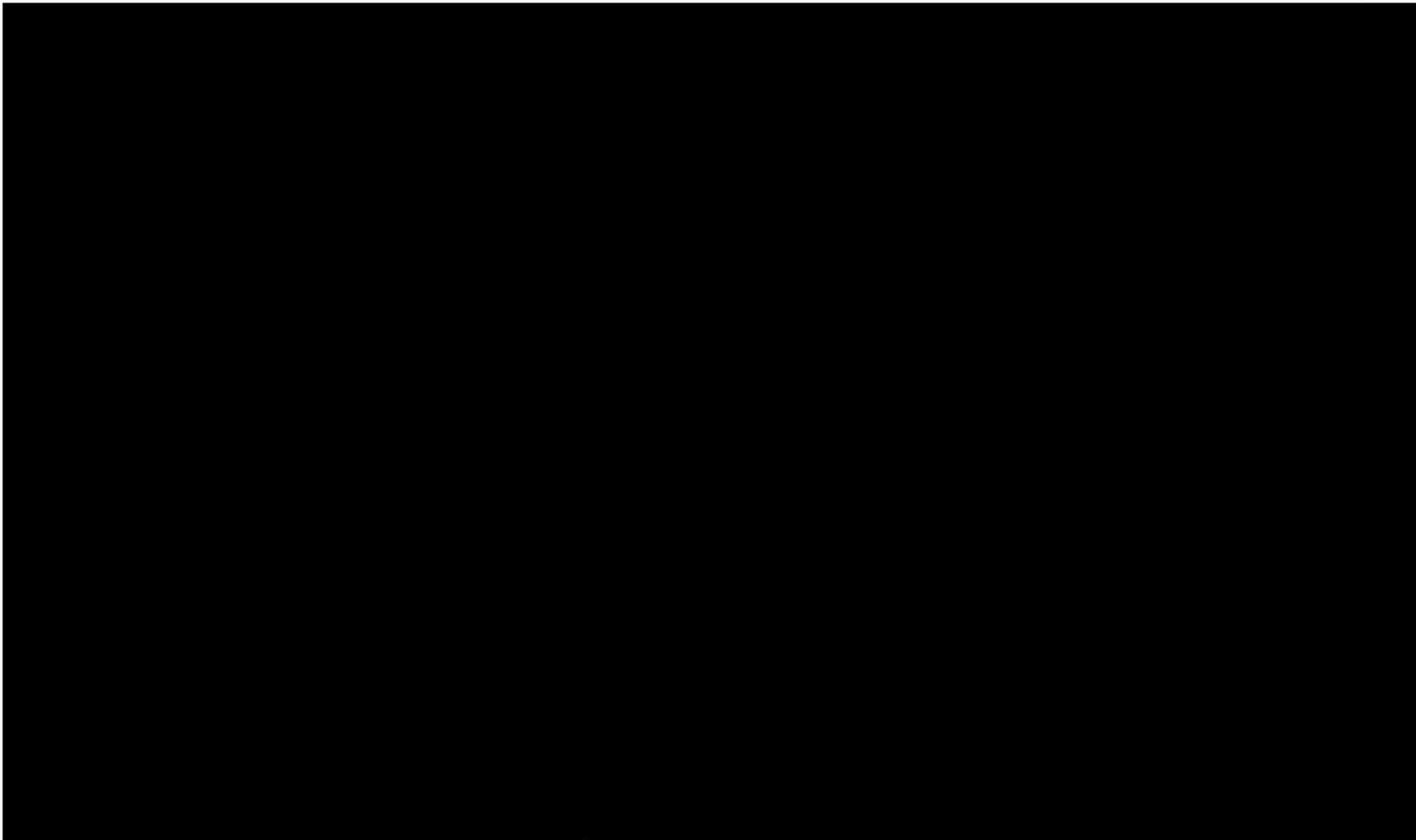
AltaGas Ltd. (TSX:ALA) > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

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Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
For the Fiscal Period Ending							
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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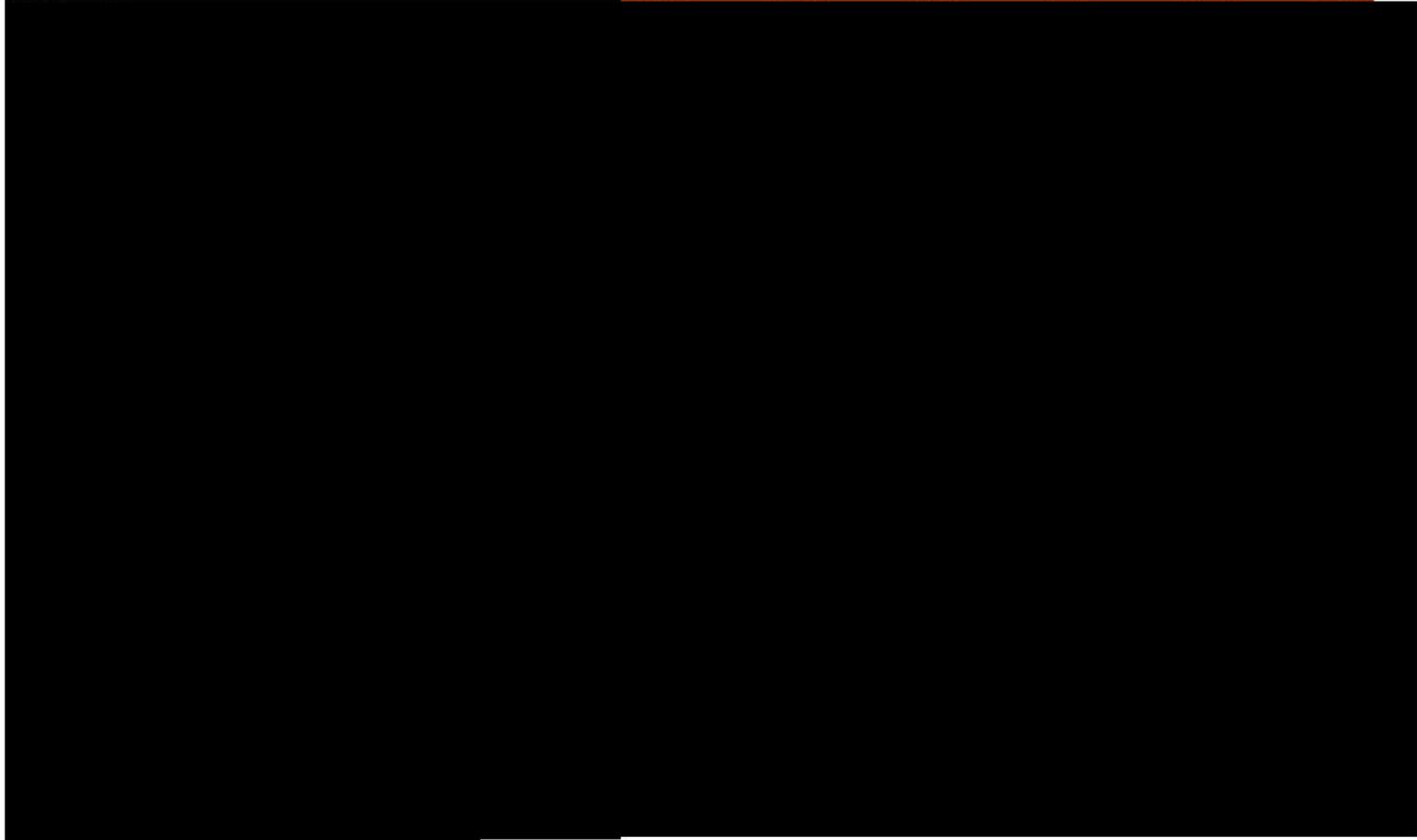
Canadian Utilities Limited (TSX:CU) > CreditStats Direct® > Select Stats & Ratios

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Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

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For the Fiscal Period Ending							
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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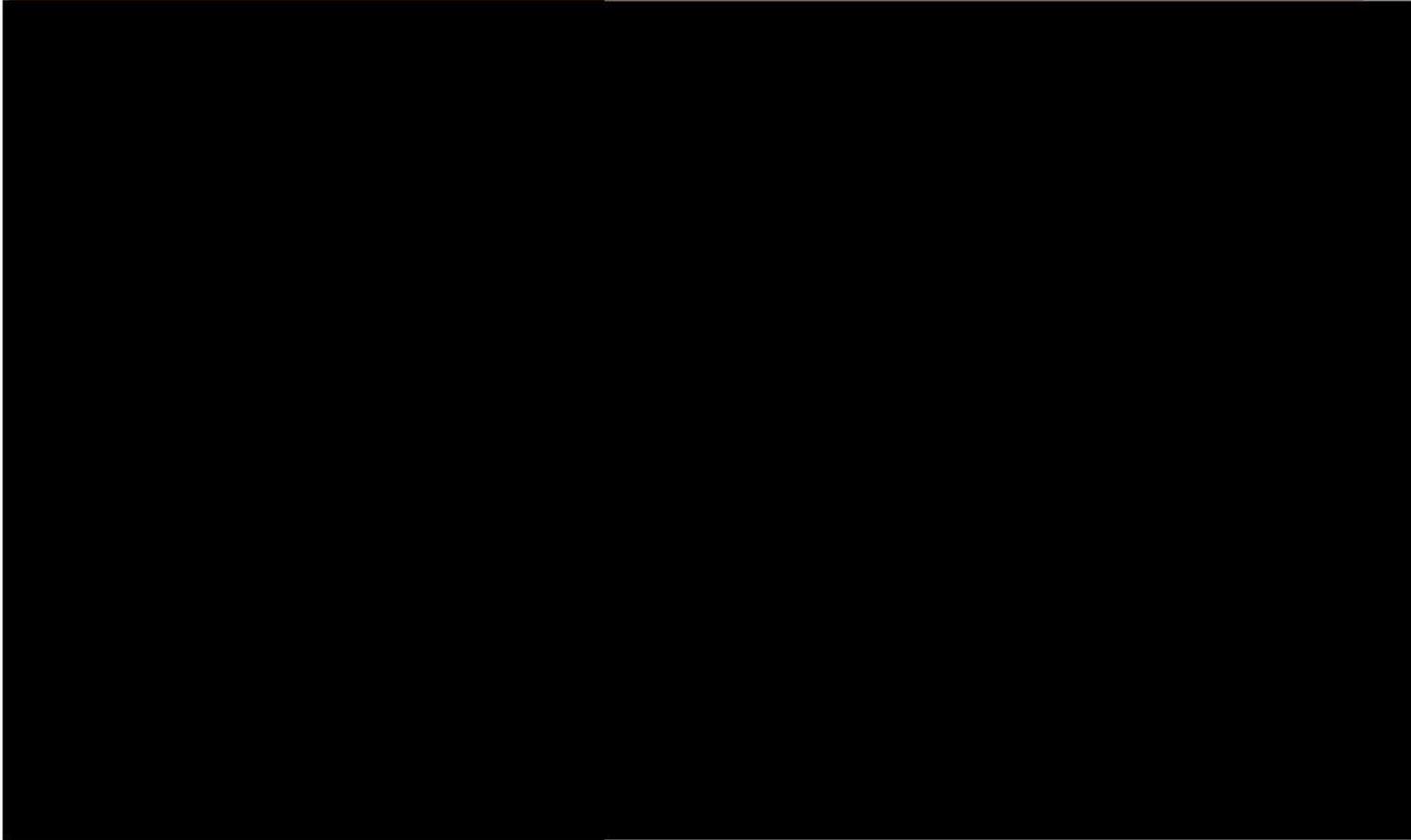
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Select Stats & Ratios

	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
For the Fiscal Period Ending							
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD
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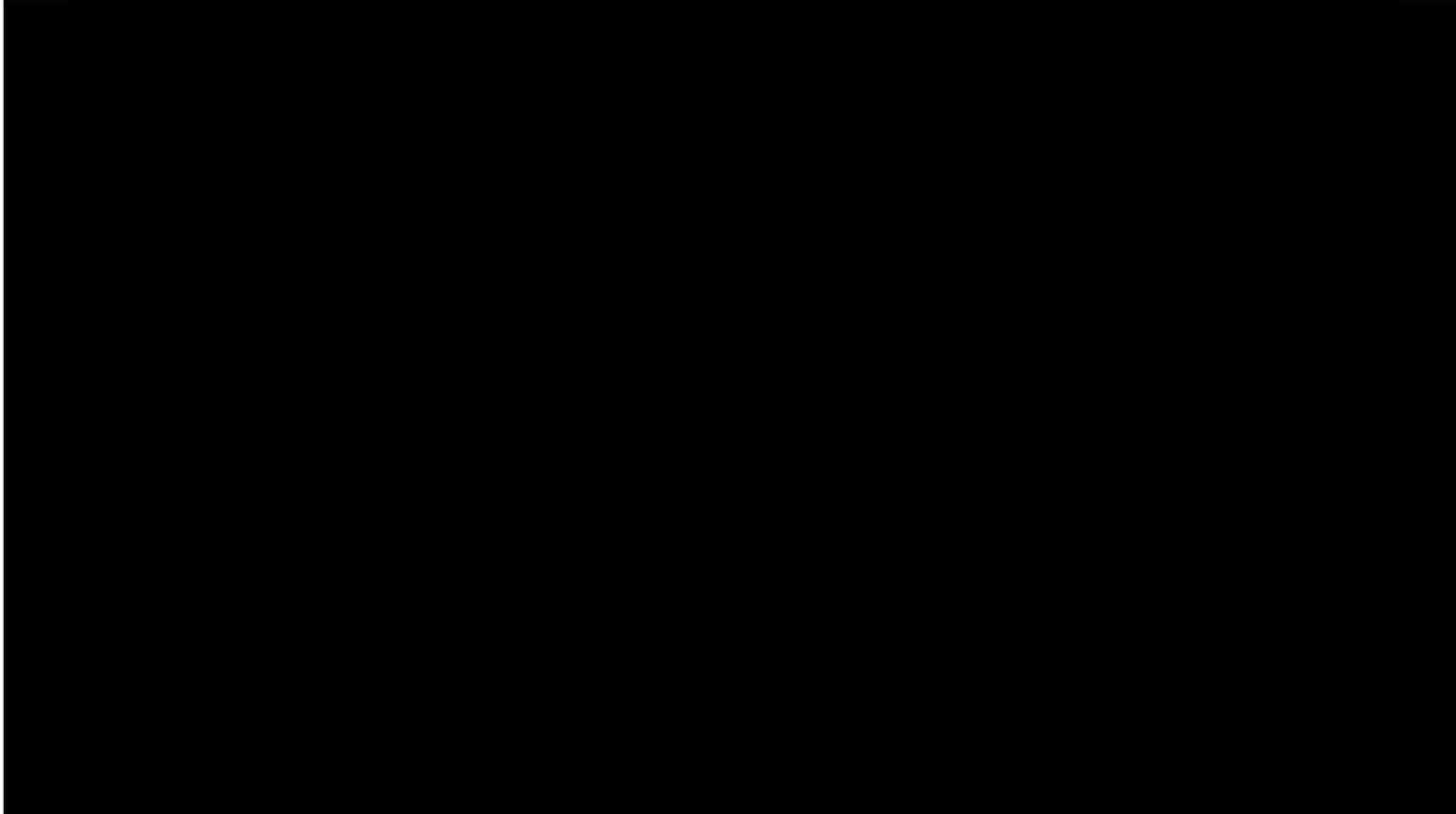
Fortis Inc. (TSX:FTS) > CreditStats Direct® > Select Stats & Ratios

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Restatement: Latest Filings
 Order: Latest on Right
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Select Stats & Ratios							
	Most						
For the Fiscal Period Ending	Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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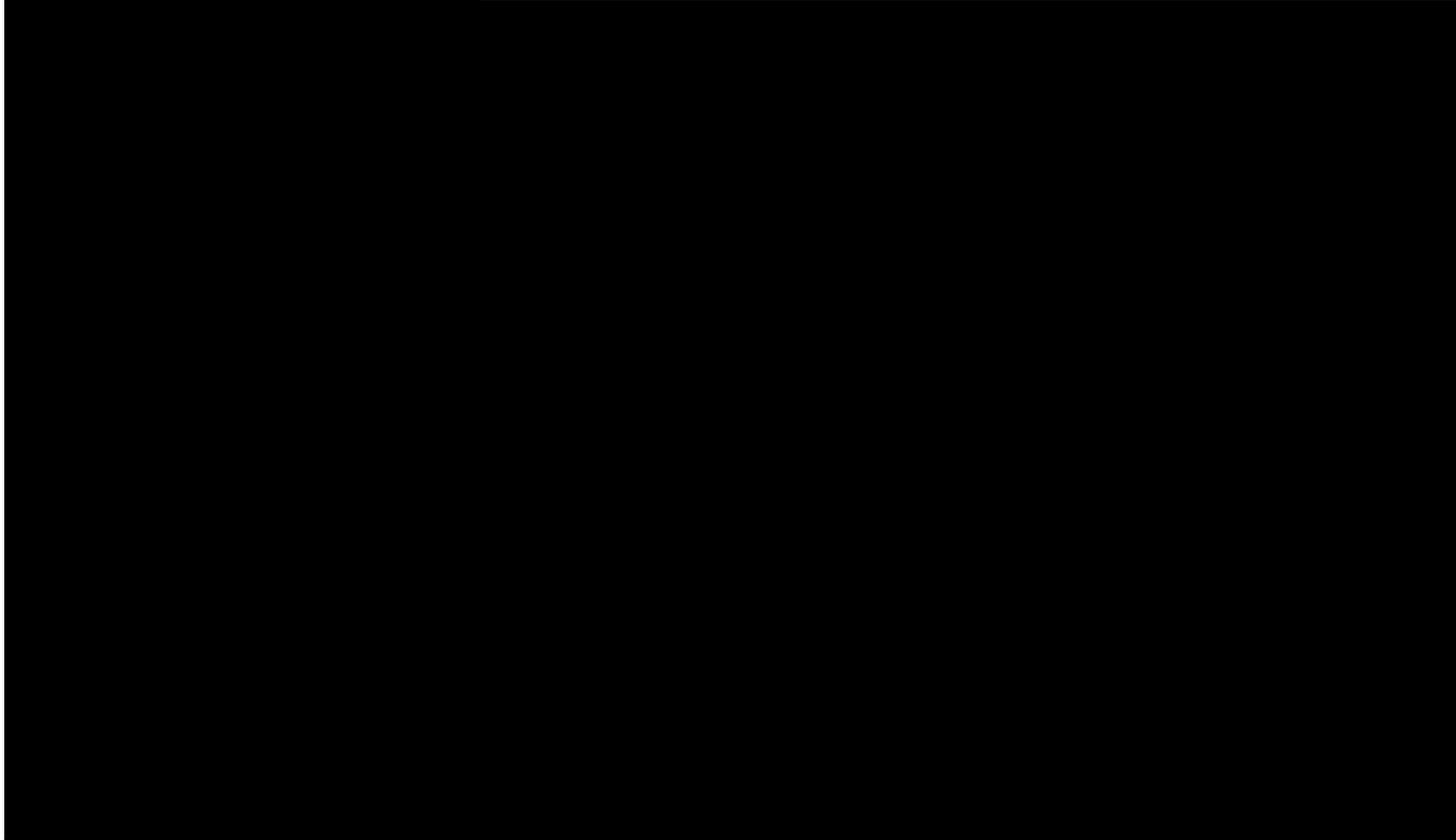
Hydro One Limited (TSX:H) > CreditStats Direct® > Select Stats & Ratios

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Currency: Reported Currency
Units: S&P Capital IQ (Default)

Restatement: Latest Filings
Order: Latest on Right
Conversion: Historical
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Select Stats & Ratios							
For the Fiscal Period Ending	Most	12 months					
	Recent 3 Yrs. Unweighted Avg.	Dec-31-2016	Dec-31-2017	Dec-31-2018	Dec-31-2019	Dec-31-2020	Dec-31-2021
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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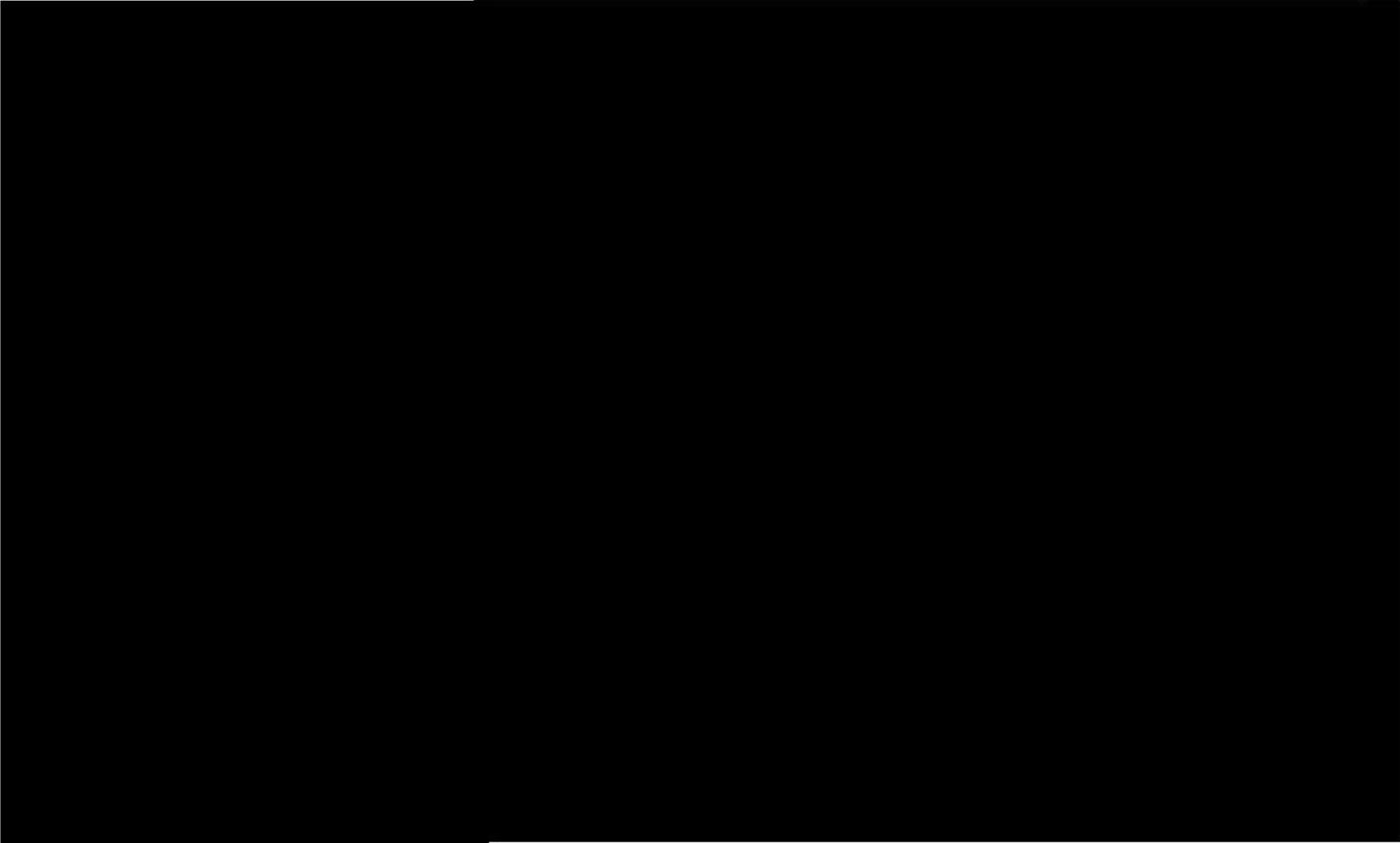
Atmos Energy Corporation (NYSE:ATO) > CreditStats Direct® > Select Stats & Ratios

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Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Sep-30-2016	12 months Sep-30-2017	12 months Sep-30-2018	12 months Sep-30-2019	12 months Sep-30-2020	12 months Sep-30-2021
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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NiSource Inc. (NYSE:NI) > CreditStats Direct® > Select Stats & Ratios

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Template:	Adjusted	Restatement:	Latest Filings
Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
For the Fiscal Period Ending							
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed

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Northwest Natural Gas Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template:	Adjusted	Restatement:	Latest Filings
Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most	12 months					
	Recent 3 Yrs. Unweighted Avg.	Dec-31-2016	Dec-31-2017	Dec-31-2018	Dec-31-2019	Dec-31-2020	Dec-31-2021
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed

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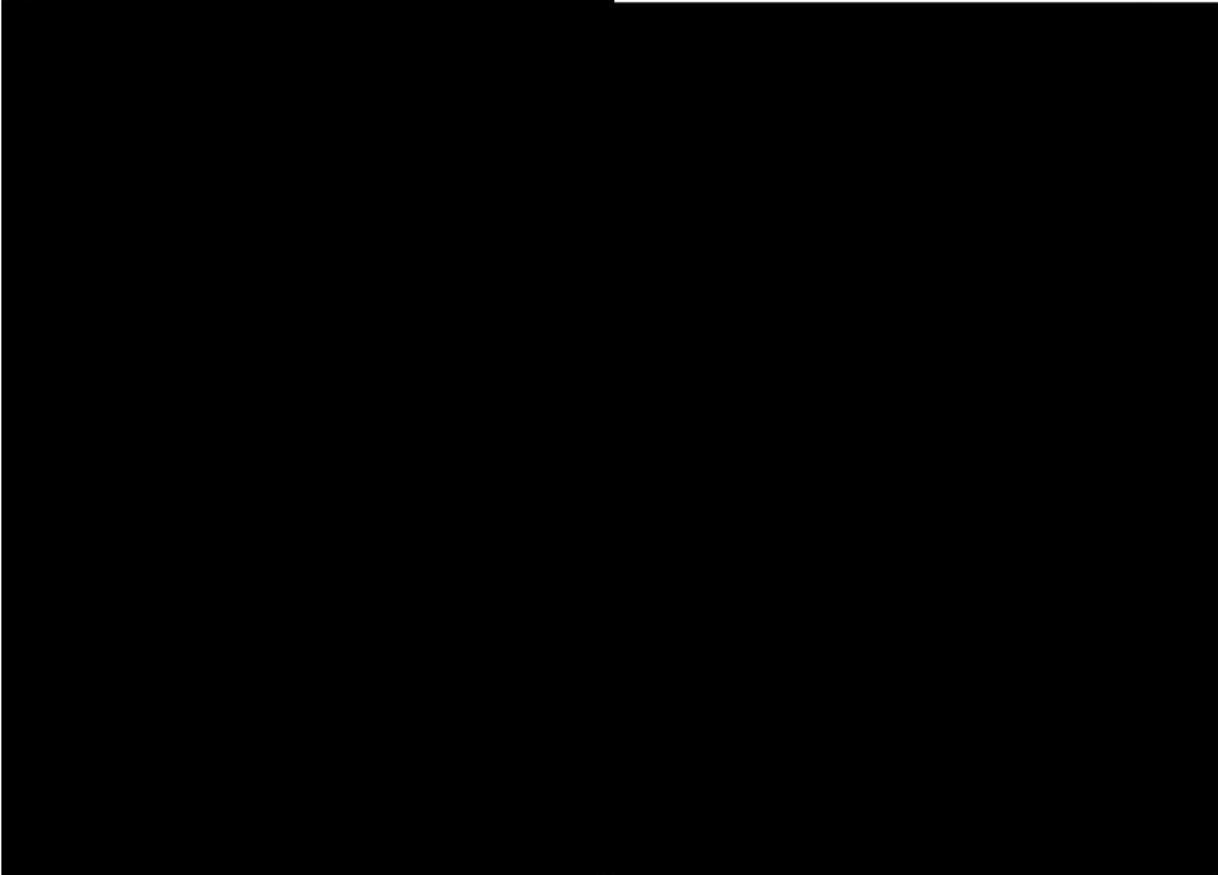
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Enbridge Gas Inc. > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template:	Adjusted	Restatement:	Latest Filings
Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios					
For the Fiscal Period Ending		12 months	12 months	12 months	12 months
Currency		Dec-31-2018	Dec-31-2019	Dec-31-2020	Dec-31-2021
Currency	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed



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Pacific Gas and Electric Company > CreditStats Direct® > Select Stats & Ratios

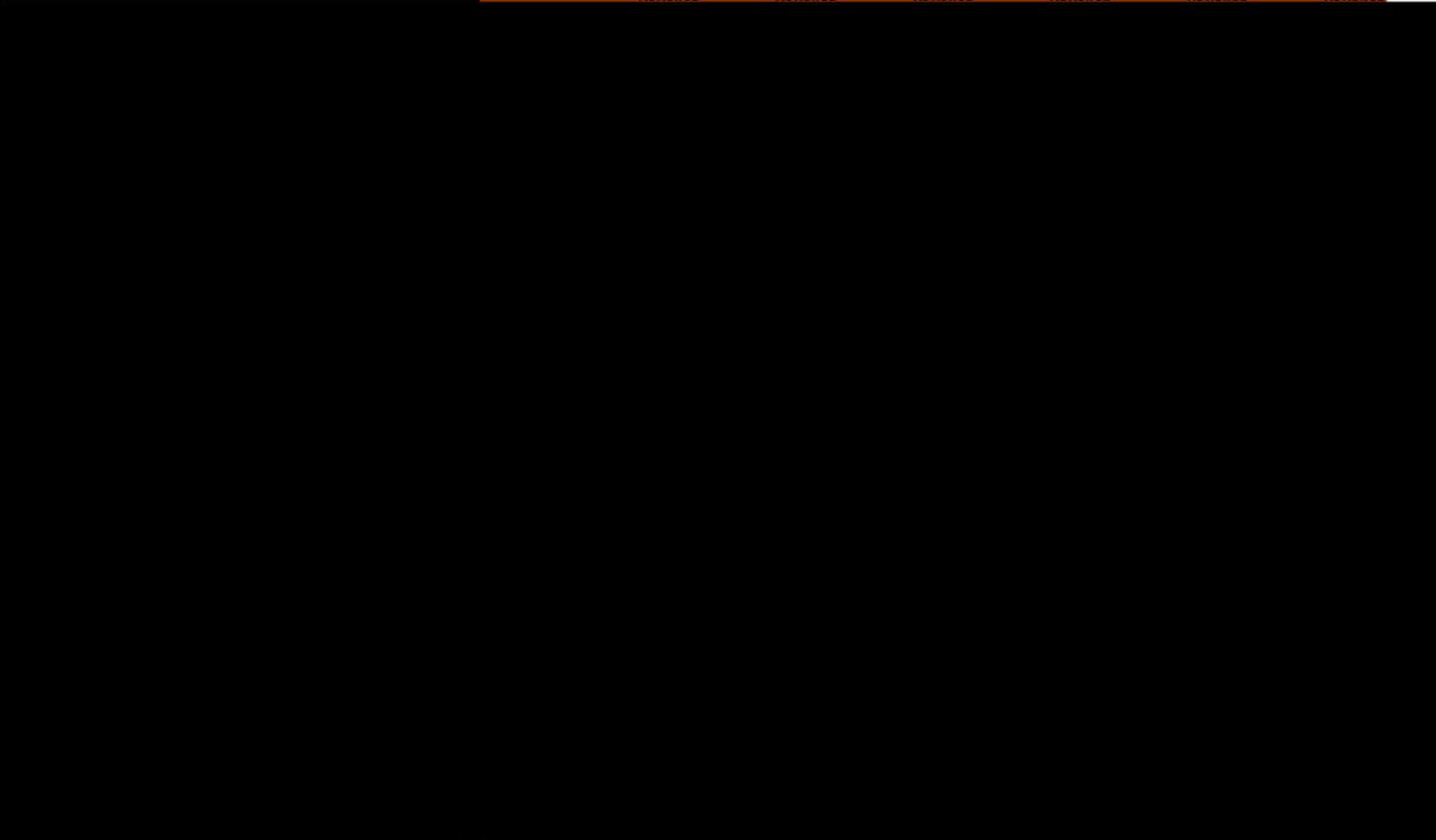
In Millions of the reported currency.

Template: Adjusted
 Period Type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
Currency	USD	USD	USD	USD	USD	USD	USD
		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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S&P
Capital IQ

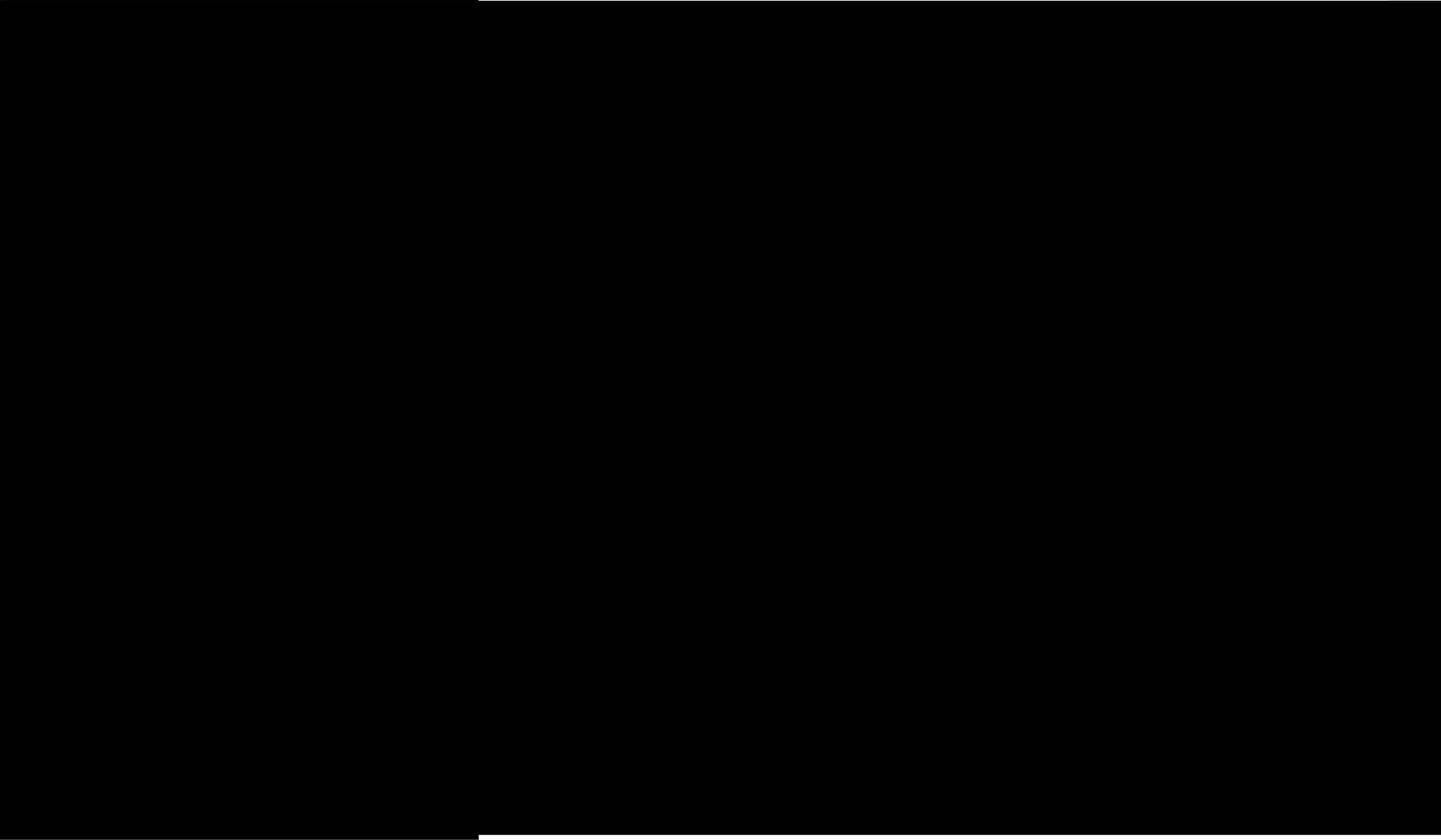
Southern California Gas Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template:	Adjusted	Restatement:	Latest Filings
Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
For the Fiscal Period Ending							
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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Consumers Energy Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template:	Adjusted	Restatement:	Latest Filings
Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed

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DTE Gas Company > CreditStats Direct® > Select Stats & Ratios

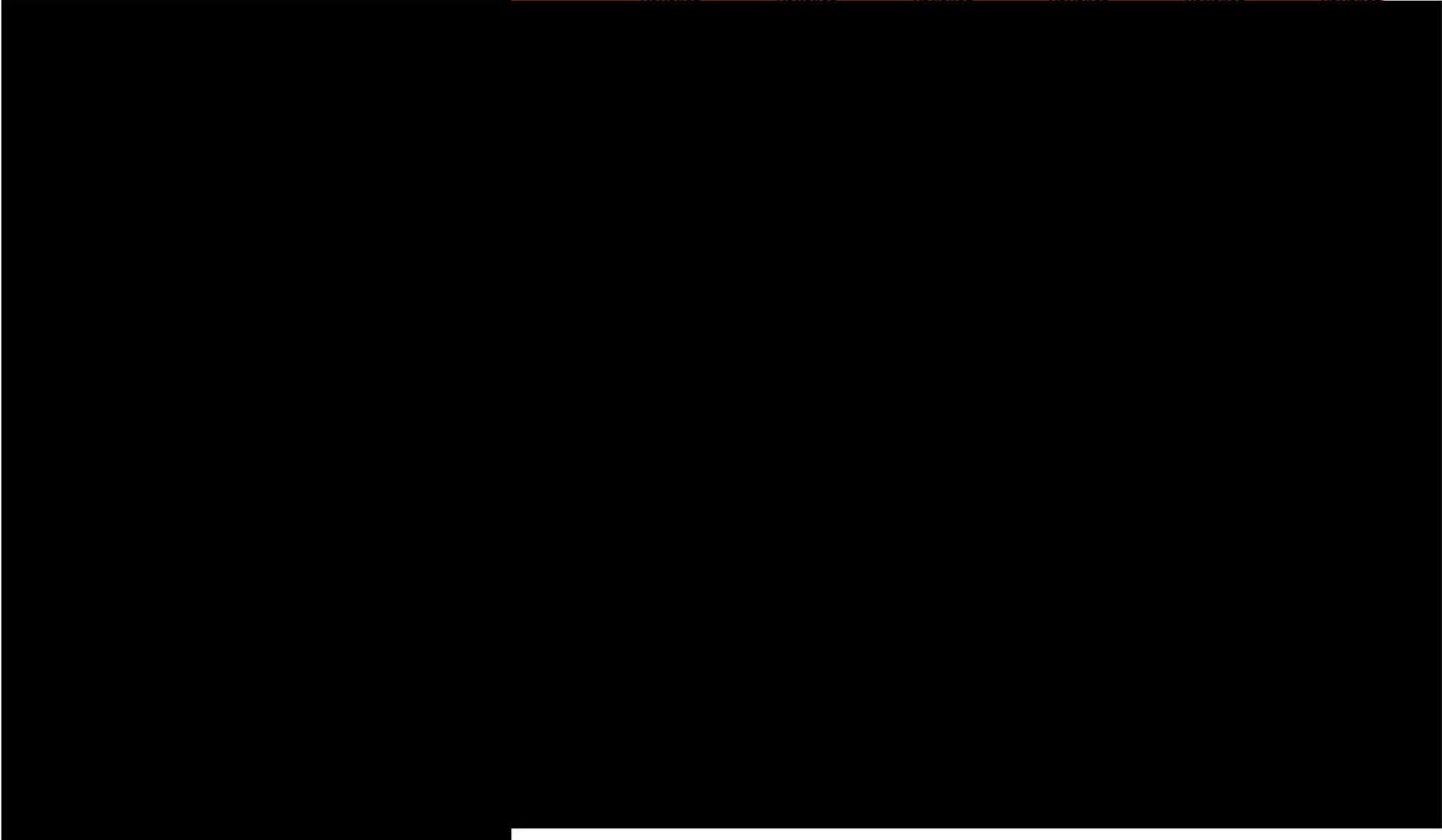
In Millions of the reported currency.

Template: Adjusted
 Period Type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
Currency	USD	USD	USD	USD	USD	USD	USD
		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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Consolidated Edison Company of New York, Inc. > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template: Adjusted
 Period Type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status							



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Énergir Inc. > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template: Adjusted
 Period Type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios							
For the Fiscal Period Ending	Most	12 months					
	Recent 3 Yrs. Unweighted Avg.	Sep-30-2016	Sep-30-2017	Sep-30-2018	Sep-30-2019	Sep-30-2020	Sep-30-2021
Currency	CAD	CAD	CAD	CAD	CAD	CAD	CAD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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The Brooklyn Union Gas Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template: Adjusted
 Period Type: Annual
 Currency: Reported Currency
 Units: S&P Capital IQ (Default)

Restatement: Latest Filings
 Order: Latest on Right
 Conversion: Historical
 Decimals: Capital IQ (Default)

Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Mar-31-2017	12 months Mar-31-2018	12 months Mar-30-2019	12 months Mar-31-2020	12 months Mar-31-2021	12 months Mar-31-2022
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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The East Ohio Gas Company > CreditStats Direct® > Select Stats & Ratios

In Millions of the reported currency.

Template: Adjusted
Period Type: Annual
Currency: Reported Currency
Units: S&P Capital IQ (Default)

Restatement: Latest Filings
Order: Latest on Right
Conversion: Historical
Decimals: Capital IQ (Default)

Select Stats & Ratios					
For the Fiscal Period Ending	Most	12 months	12 months	12 months	12 months
	Recent 3 Yrs. Unweighted Avg.	Dec-31-2018	Dec-31-2019	Dec-31-2020	Dec-31-2021
Currency	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed



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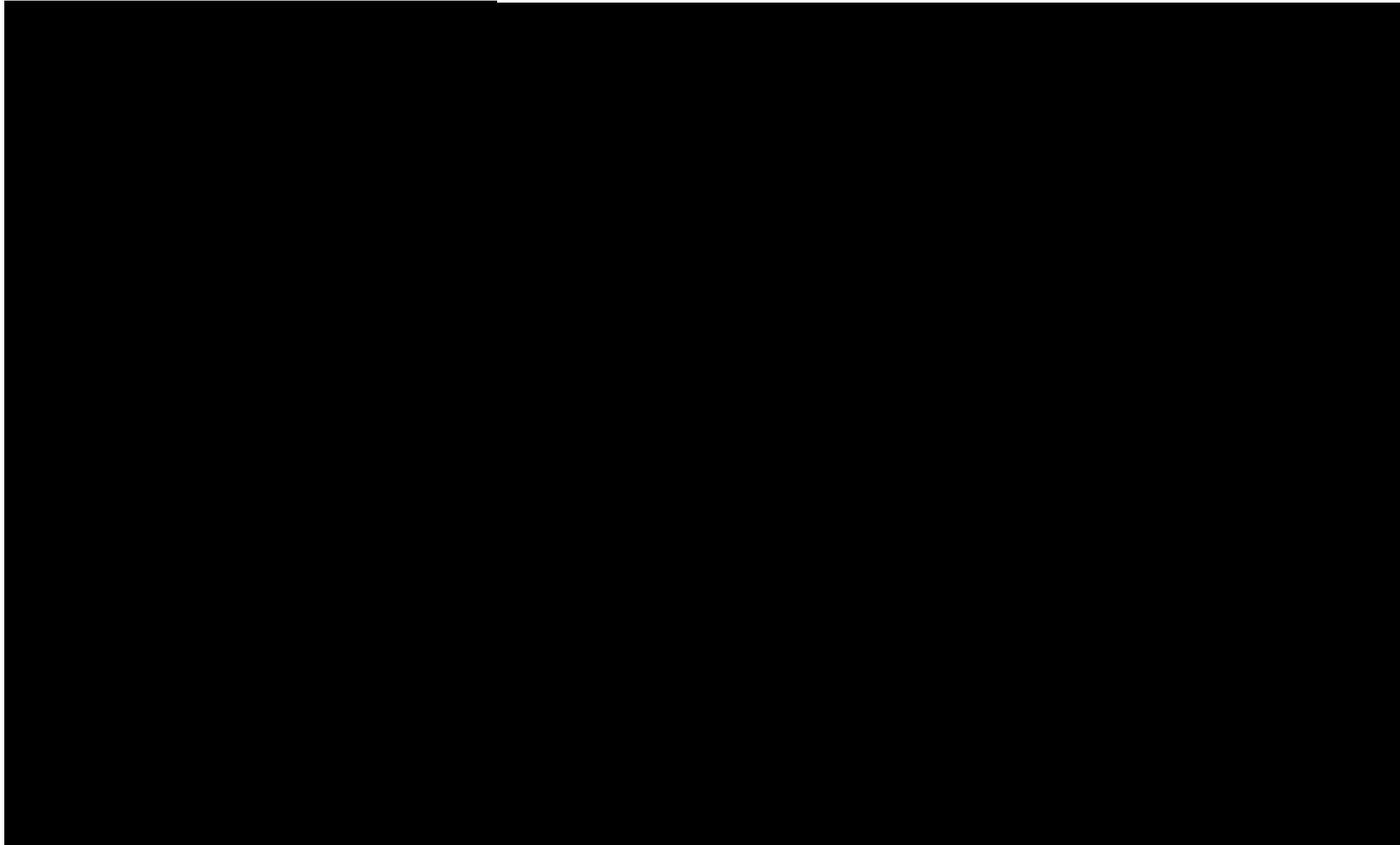
The Peoples Gas Light and Coke Company > CreditStats Direct® > Select Stats & Ratios

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Template:	Adjusted	Restatement:	Latest Filings
Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
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	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
For the Fiscal Period Ending							
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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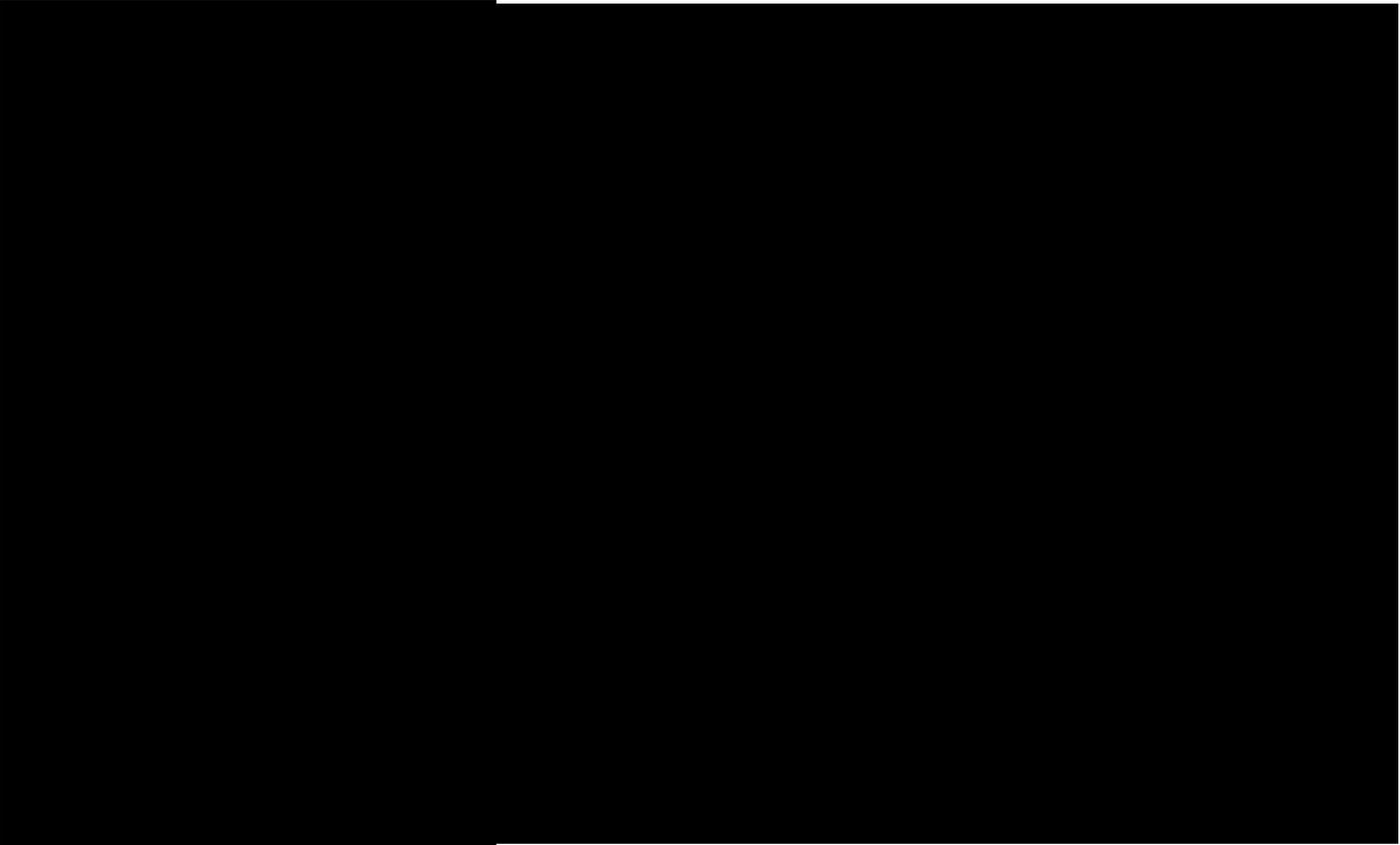
ONE Gas, Inc. (NYSE:OGS) > CreditStats Direct® > Select Stats & Ratios

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Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

Select Stats & Ratios

	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
For the Fiscal Period Ending							
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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Period Type:	Annual	Order:	Latest on Right
Currency:	Reported Currency	Conversion:	Historical
Units:	S&P Capital IQ (Default)	Decimals:	Capital IQ (Default)

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For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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Period Type: Annual
Currency: Reported Currency
Units: S&P Capital IQ (Default)

Restatement: Latest Filings
Order: Latest on Right
Conversion: Historical
Decimals: Capital IQ (Default)

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	Most Recent 3 Yrs. Unweighted Avg.	12 months Dec-31-2016	12 months Dec-31-2017	12 months Dec-31-2018	12 months Dec-31-2019	12 months Dec-31-2020	12 months Dec-31-2021
For the Fiscal Period Ending							
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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Currency:	Reported Currency	Conversion:	Historical
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Select Stats & Ratios

For the Fiscal Period Ending	Most Recent 3 Yrs. Unweighted Avg.	12 months Sep-30-2016	12 months Sep-30-2017	12 months Sep-30-2018	12 months Sep-30-2019	12 months Sep-30-2020	12 months Sep-30-2021
Currency	USD	USD	USD	USD	USD	USD	USD
Adjustment Status		Reviewed	Reviewed	Reviewed	Reviewed	Reviewed	Reviewed



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ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 104-105 of 164

Preamble:

Concentric provides a comparison of Enbridge Gas' weighted returns on equity to those for the four proxy groups. Concentric provides a graphic summary of this analysis in Figure 38.

Concentric states:

As a result, the Company's weighted authorized return on equity (3.12%) is substantially below that of other Canadian operating gas utilities (3.94% on average) and recent U.S. gas decisions (4.83% on average).

Question(s):

- a) Please confirm the US data depicted in Figure 38 references the data for 55 US operating companies, and includes data for only three of the 10 US operating companies included in the US Operating Companies Proxy Group. If not confirmed please explain.
- b) Please confirm that using the data for only the three companies included in the US Operating Companies Proxy Group the average ROE would be 9.48%, the average equity ratio would be 47.2%, and the average weighted authorized return on equity would be 4.47%. If not confirmed please explain.
- c) Please explain why Concentric chose to use 55 utilities for this analysis, including 52 that were not included in the US Operating Companies proxy group, a group that Concentric constructed with the intention of being most comparable to Enbridge Gas.
- d) Please reconstruct Figure 38, and provide all supporting data and worksheets, using only data for the 10 companies included in the US Operating Companies proxy group.

Response:

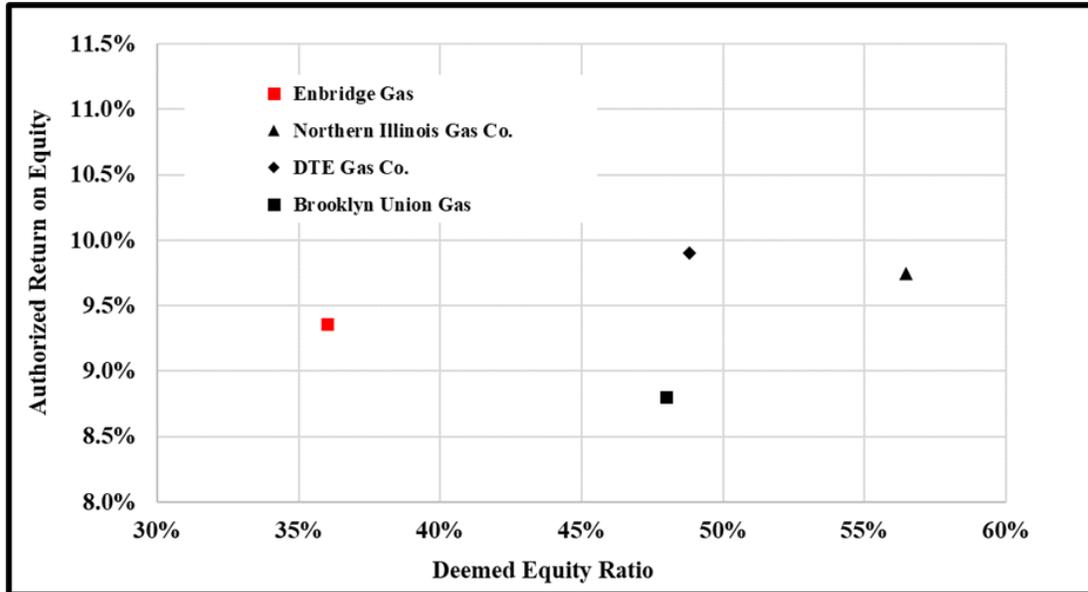
The following response was provided by Concentric Energy Advisors, Inc.:

- a) Confirmed.
- b) Confirmed for Northern Illinois Gas Company and Brooklyn Union Gas Co. The equity ratio of 39.23% for DTE Gas Co. needs to be adjusted because Michigan is one of four U.S. states that includes certain zero cost items such as net deferred income tax in the capital structure. When these items are removed, the regulatory capital structure for DTE Gas Co. includes 48.80% common equity.
- c) As explained in Concentric's report, Figure 38 is based on the most recent rate case decisions for gas operating utilities in Canada and rate case decisions for U.S. gas operating utilities in 2021 and 2022. This analysis is used to compare the weighted ROE (authorized ROE times allowed common equity ratio) for Enbridge Gas to the averages for gas distribution companies in Canada and recent decisions for U.S. gas distributors. Concentric notes that the data in subpart (b) for the three U.S. gas companies is consistent with the conclusion that Enbridge Gas' weighted ROE is well below its peer group companies in the U.S., even when adjusted for the updated 9.36% ROE in Ontario.
- d) Please see Table 1 and scatter plot in Figure 1 for the requested data. As shown, the weighted ROE for Enbridge Gas is much lower than other large gas distributors in the U.S., with which Enbridge Gas competes for capital, primarily because the deemed equity ratio is between 12 and 18 percentage points lower for Enbridge Gas.

Table 1

	Authorized ROE	Equity Ratio	Weighted ROE
Enbridge Gas	9.36%	36.00%	3.37%
Northern Illinois Gas Co.	9.75%	54.46%	5.31%
DTE Gas Co.	9.90%	48.80%	4.83%
Brooklyn Union Gas Co.	8.80%	48.00%	4.22%

Figure 1



ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 108-109 of 164

Preamble:

Concentric discusses Gas utilities trading at a discount to electric utilities, and states: *Concentric examined financial and valuation measures to evaluate the relative risk of the natural gas distribution and electric utility sectors, including: 1) forward P/E ratios, and 2) Beta coefficients. We compared these measures for the natural gas LDC proxy group companies and the Value Line Electric Utility universe in 2021 versus the same measure in 2012. As discussed in this section of the report, Concentric's analysis demonstrates that investment risk (which includes both business risk and financial risk) for natural gas distribution companies has increased relative to electric utilities. Whereas gas distributors were traditionally viewed as having somewhat lower risk profiles than electric utilities, now the opposite is true, with investors perceiving higher risk for gas distributors as compared to electric utilities. This supports our recommendation that the deemed equity ratio for EGI should increase, particularly when considered in the context of the OEB's deemed equity ratio for electric distributors at 40%.*

Concentric further states that:

These analyses demonstrate that gas distribution utilities are, on average, trading at a discount to their electric utility peers.

Question(s):

- a) Please provide all data, worksheets, and a summary table providing the results of Concentric's analysis of forward P/E ratios and betas. In particular, please provide:
 - i. The data, worksheets and summary stats for the LDC Proxy group (and for each company included in this proxy group), and for the Value Line Electric Utility universe for forward P/E ratios and betas for the years from 2012-2022 inclusive.
 - ii. The calculations and figures (i.e., averages, medians, etc.) for forward P/E ratios and betas (including the sources for such information) used to arrive at Concentric's conclusions.

- b) The price-to-book (P/B) ratio is a more commonly used measure (than P/E ratios) for assessing whether or not companies are trading at a premium or discount in financial practice, since it provides information regarding whether or not a company trades above or below the book values of their assets. Please provide the P/B ratios for the LDC Proxy group (and for each company included in this proxy group), and for the Value Line Electric Utility universe for the years from 2012-2022 inclusive. Please provide all data, worksheets, and a summary table providing the results of this analysis.
- c) Please explain why Concentric asserts that higher betas would indicate “a discount to their electric utility peers.”
- i. Please provide any academic or empirical support for this statement.
 - ii. Would Concentric agree that financial theory would suggest that the prices of companies with higher betas would reflect these higher betas. If Concentric disagrees, please explain.
 - iii. Over the period referenced by Concentric (i.e., 2012-2021), the data provided by Concentric in Exhibit 5 shows that stock returns on the TSX Index averaged 6.03%, and the S&P500 Index averaged 14.07%. Would Concentric agree that stocks with higher betas are more likely to display greater price increases than stocks with lower betas during such periods of positive market returns (i.e., since by the definition of beta their prices would be more likely to increase even more than the average market increase during upswings)? For example, stocks with high betas can frequently trade at huge (and sometimes unjustifiable) premiums relative to other stocks with lower betas, such as high-tech stocks did during the 1998-2001 period. If Concentric disagrees with this observation, please explain why.
 - iv. Given that stocks with higher betas will, by definition, increase more than stocks with lower betas, please explain why Concentric argues that higher betas (if they exist) are indicative of stocks trading at a discount.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see response at Exhibit I.5.3-IGUA-50 for information supporting Concentric’s conclusions regarding P/E ratios. Please see response at Exhibit I.5.3-Staff-233 for information regarding Concentric’s analysis of beta coefficients.
- b) Concentric disagrees with the premise of the question, as P/E ratios are commonly used to assess trading data. Concentric did not analyze price-to-book ratios in its analysis and, as such, did not gather such data.

c)

i. Betas in Concentric's analysis were used to demonstrate changes in risk between 2012 and 2022. Please see response at Exhibit I.5.3-IGUA-50, which provides information on P/E ratios and a demonstration that LDCs have traded at a discount to electric utilities.

ii.-iii. Concentric agrees that higher beta stocks would be expected to outperform lower beta stocks during an up market, and the corollary is true, low beta stocks would be expected to outperform high beta stocks during a down market. A company with a higher beta has greater risk and also greater expected returns.

iv. Please see the response to part c) i.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 109 of 164

Preamble:

Concentric discusses betas with respect to Gas utilities trading at a discount to electric utilities. Concentric includes Figure 40, which includes Bloomberg beta coefficients.

Concentric states that:

Figure 40 below demonstrates that five-year weekly Beta coefficients from Bloomberg for gas distributors are currently somewhat lower than for electric utilities but have increased to a greater degree since 2012.

Question(s):

- a) Please confirm that it is common practice to determine betas using weekly data using the previous two years of weekly data, and not the previous five years of data. Please also confirm that using two years of weekly data is the Bloomberg “default”, as well as for the majority of finance professionals that do such calculations on their own. If not confirmed, please explain and provide supporting data/references.
- b) Please confirm the betas presented in Figure 40 for the Canadian Proxy Group are determined using the betas for the companies included in the Canadian Holding Company proxy group. If not confirmed, please explain how these betas were determined.
- c) Please provide both the adjusted betas and the raw betas for all companies used in determining the Canadian Proxy Group betas provided in Figure 40, and denote which ones (i.e., adjusted or raw betas) were used in calculating the reported beta.
- d) Please confirm the betas presented in Figure 40 for the US Gas Proxy Group are determined using the averages for the companies included in the US Holding Company proxy group. If not confirmed, please explain how the reported betas are determined.

- e) Please provide both the adjusted betas and the raw betas for all companies used in determining the US Gas Proxy Group betas provided in Figure 40, and denote which ones (i.e., adjusted or raw betas) were used in calculating the reported beta.
- f) Please explain how the betas presented in Figure 40 for the “U.S. Electric Utility Group ex-PG&E” group are determined using the betas for the companies included in this group.
- g) Please provide both the adjusted betas and the raw betas for all companies used in determining the “U.S. Electric Utility Group ex-PG&E” provided in Figure 40, and denote which ones (i.e., adjusted or raw betas) were used in calculating the reported beta.
- h) Please confirm “adjusted betas” are determined using the following equation, which adjusts a raw (unadjusted) beta towards “1”: $\text{Beta}(\text{adjusted}) = (2/3)(\text{Raw Beta}) + (1/3)(1)$. If not confirmed, please explain.
- i) Please provide both the adjusted betas and the raw betas for the summary measures provided for the three proxy groups presented, as well as for all companies used in determining the three proxy sample betas provided in Figure 40 from 2012-2021 as estimated using: (i) five years of weekly data; (ii) two years of weekly data; and, (iii) five years of monthly data.
- j) Please reproduce Figure 40 using raw betas for all years from 2012 to 2021 inclusive, based on: (i) five years of weekly data; (ii) two years of weekly data; and, (iii) five years of monthly data.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) The purpose of this section of Concentric’s report is to compare the relative risk of gas and electric utilities, and how that risk has changed since 2012 when the OEB last reviewed the business risk and the deemed equity ratio for Enbridge Gas. Concentric used beta as an indicator of such changes in risk. As explained at Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 109 of 164, beta is a measure of risk for equity investors, regardless of whether it is calculated over a two or a five-year period. In making the comparison shown in Figure 40, Concentric consistently used five years of weekly data to compute betas. This is consistent with the way Value Line calculates beta.
- b) Confirmed.

- c) The betas shown in figure 40 are adjusted using the Blume method (not raw or unadjusted betas), which is consistent with Concentric's approach to the CAPM analysis when performing such analyses for determining utility ROEs. Concentric did not analyze raw betas in performing the analysis in our report, and, as such, did not gather the requested data.
- d) Confirmed.
- e) Please see response to part c).
- f) The 2012 betas for the U.S. Electric Utility universe in Figure 40 were taken from Value Line as of November 30, 2012. The 2022 betas in Figure 40 were downloaded from Bloomberg. Both are five-year, adjusted betas. PG&E was excluded from the analysis because the company's credit rating is below investment grade and its stock was not traded for a period after filing for bankruptcy.
- g) Please see response to part c).
- h) Confirmed, that is the standard Blume method for adjusting raw betas.
- i) Concentric has not performed this analysis for its report. Please see the response to parts a) and c).
- j) Concentric has not performed this analysis for its report.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 112-114 of 164

Preamble:

Concentric discusses equity reports and P/E ratios for Canadian and US utilities. Based on an examination of Figure 41, Concentric concludes that:

The valuation of Canadian utilities declined substantially relative to U.S. utilities over the 2010-2022 timeframe. Specifically, Canadian utilities traded at an approximately 56 percent premium to U.S. utilities in 2012, an approximately 21 percent discount to U.S. utilities in 2019, and are trading at a slight discount (i.e., approximately 4 percent) to U.S. utilities so far in 2022.

Question(s):

- a) Please confirm that over the period referenced by Concentric (i.e., 2012-2021), the data provided by Concentric in Exhibit 5 shows that stock returns on the TSX Index averaged 6.03% versus 14.07% (i.e., Canadian returns were 57.1% lower), while Canadian utilities returned an average of 9.03% versus 11.46% returned by US utilities (i.e., Canadian utility returns were only 20.3% lower). If not confirmed then please provide the actual numbers and percentages of difference.
- b) Please confirm the P/E ratio for the TSX Index was 12.8 at the end of 2022, while the P/E ratio for the S&P500 Index was 18.6 (i.e., the TSX Index P/E was 31.1% lower); while at the end of 2012 the P/E ratio for the TSX Index was 15.8 and the P/E ratio for the S&P500 Index was 14.4 (i.e., the TSX Index P/E was 9.8% higher). If not confirmed then please provide the actual numbers and the percentage differences.
- c) Given the fact that Canadian market returns were 57% lower than US market returns over this period, as reflected in the fact that the TSX Index P/E ratio was 31% lower than that for the S&P 500 at the end of 2022, versus having a 9.8% higher P/E ratio at the end of 2012, isn't it more reasonable to assume the small "discount" to Canadian utility P/Es in 2022 is mostly attributable to the weaker performance of the broader Canadian stock market relative to the US market, than to investors'

assessments of the relative risk of Canadian versus US utilities? If not, please explain why not.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Confirmed.
- b) Concentric has not researched the P/E ratios for the TSX or S&P 500 Indexes in the preparation of its report.
- c) Please see Exhibit 5, Tab 3, Schedule 1, Attachment 1, pages 112-114 of Concentric's report. On those pages, Concentric provides a summary of Scotiabank equity analyst findings regarding the convergence of Canadian and U.S. utility valuations, which Scotiabank related to similarities in U.S. and Canadian regulatory environments. Concentric tested Scotiabank's conclusions by updating the P/E ratio analysis conducted by ScotiaBank, and Concentric's analysis validated ScotiaBank's findings. Concentric understands, however, that other market forces, including returns in the broader market, impact returns on individual securities.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 115-117 of 164

Preamble:

Concentric discusses credit agency perspectives regarding the relative risks of Canadian versus US utilities.'

Question(s):

- a) Please confirm that the entire discussion in this section is based on a 2013 Moody's article. If not confirmed, please provide all additional material that Concentric relied on at the time that its evidence was written.
- b) On page 116, Concentric provides a quote from the 2013 Moody's report that states "US regulated utilities in recent years have exhibited stronger financial ratios relative to similarly rated regulated international utility peers." Please confirm that this observation is simply a by-product of the higher allowed ROEs and equity ratios in the US that existed at the time, and still do. If not confirmed, please explain.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Not confirmed. In addition to the 2013 Moody's report, Concentric also references on pages 112 and 113 of its report that S&P ranks all U.S. and Canadian jurisdictions as being credit supportive.
- b) Concentric does not agree with this characterization of the 2013 Moody's report. As shown by the quotes on pages 111 to 112 of Concentric's report, Moody's stated that they were adopting a generally more favorable view of the relative credit supportiveness of the U.S. regulatory environment. The reasons cited for this change in Moody's view included the increased prevalence of automatic cost recovery provisions, reduced regulatory lag, and generally fair and open relationships between utilities and regulators. Moody's goes on to cite a number of

improvements in the U.S. regulatory environment. In summary, Moody's assessment since September 2013 has been that U.S. utilities have reduced regulatory lag and are better able to earn their authorized returns due to increased prevalence of adjustment clauses and cost recovery mechanisms than was previously the case. Please also see response at Exhibit I.5.3-STAFF-234.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 117-120 of 164

Preamble:

Concentric discusses North American utility merger activity and notes:

Since 2000, we identified 22 transactions where a Canadian utility acquired a U.S. utility and three where a U.S. utility acquired a Canadian utility.

On page 120, Concentric concludes:

In other words, our analysis shows that Canadian utilities are choosing to invest in U.S. where higher returns are available than in Canada. This is direct market evidence of better potential reward for taking on a similar level of risk.

Question(s):

- a) Please explain why Concentric suggests such evidence implies a “similar level of risk” for Canadian and US utilities. Specifically, please explain why this isn’t actually a “return” (or excess return) story, since US utilities in general receive higher allowed ROEs and higher equity ratios than Canadian utilities – which is consistent with US utilities displaying higher risk.
- b) A bottom line measure of risk is the ability of utilities to earn their allowed ROE. Please reconcile Concentric’s assertion that US utilities possess similar risk to Canadian utilities with the observation that most Canadian operating utilities earn above their allowed ROE, whereas the average US utility earns *below* their allowed ROE.

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Please see the response at Exhibit I.5.3-STAFF-235. There is no evidence to support the contention that U.S. utilities have higher risk than their Canadian peers, as documented in Concentric’s report on pages 110 to 123.

- b) A comparison of earned returns by utilities is a complex undertaking requiring accounting data at the regulated utility level for the comparators. This data, to Concentric's knowledge, is not uniformly available for Canadian and U.S. comparators. Absent such comparable data, one cannot reach meaningful conclusions.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 81 of 164

Preamble:

Concentric provides average P/E ratios, P/B ratios, betas and debt ratings for Canadian and US gas utilities in Figure 22.

Question(s):

- a) Please explain why, in determining the averages for these variables, Concentric included the six utilities included in the Canadian Holding Company sample, but also included Enbridge Inc. and TC Energy Corporation – two utilities that Concentric specifically excluded in constructing the Canadian Holding Company proxy group. Why did Concentric not use the Canadian Proxy Group that Concentric specifically devised so as to be “comparable” to Enbridge Gas?
- b) Please explain why, in determining the averages for these variables, Concentric included the eight US utilities included in the US Holding Company sample, but also included Chesapeake Utilities Corporation and UGI Corporation – two utilities that were excluded in constructing the US Holding Company proxy group. Why not use the US Proxy Group that Concentric specifically devised so as to be “comparable” to Enbridge Gas?

Response:

The following response was provided by Concentric Energy Advisors, Inc.:

- a) Figure 22 in Concentric’s report provides broad context of market indicators regarding the perceived riskiness of Canadian utility and gas utility investments. Concentric notes that omission of Enbridge, Inc. and TC Energy would not change the “risk takeaways” in Figure 22.

- b) Figure 22 in Concentric's report provides broad context of market indicators regarding the perceived riskiness of Canadian utility and gas utility investments. Concentric notes that omission of Chesapeake Utilities Corporation and UGI Corporation would not change the "risk takeaways" in Figure 22.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Pages 106-109 of 164

Preamble:

Concentric discusses Gas versus Electric Risks

Question(s):

- a) Please provide the total delivered gas volumes for Enbridge Gas Inc. (Reg-only) for each of 2011-2021
- b) Please provide the total delivered gas volumes related to heating load for Enbridge Gas Inc. (Reg-only) for each of 2011-2021.
- c) Please provide the cost of upgrading the electric grid to replace the Enbridge Gas Inc. (Reg-only) heating load with electric heat.

Response:

- a) The total unnormalized throughput volumes for Enbridge Gas for 2011 through 2021 are provided in Table 1.

Table 1
Throughput Volumes - Unnormalized - Total EGI

<u>Line No.</u>	<u>Particulars</u>	<u>Total Volumes (10³m³)</u>
		(a)
1	2011	25,640,427
2	2012	24,400,054
3	2013	26,900,471
4	2014	28,104,053
5	2015	26,511,805
6	2016	24,899,187
7	2017	24,416,885
8	2018	26,779,310
9	2019	27,175,542
10	2020	25,478,152
11	2021	25,792,803

b) The total estimated delivery gas volumes related to heating load for Enbridge Gas for 2011 through 2021 are provided in Table 2. Heat load estimations are produced using Enbridge Gas general service residential and non-residential average use model weather coefficients as well as degree days produced using the proposed methodologies as provided at Exhibit 3, Tab 2, Schedule 5 and Exhibit 3, Tab 2, Schedule 3 of evidence respectively.

Table 2
Estimated Volume Related to Heat Load

<u>Line No.</u>	<u>Year</u>	<u>Volume (10³m³)</u>
		(a)
1	2011	9,661,988
2	2012	8,436,873
3	2013	10,434,441
4	2014	11,577,804
5	2015	10,706,825
6	2016	9,872,605
7	2017	10,130,513
8	2018	11,089,211
9	2019	11,612,642
10	2020	10,197,808
11	2021	9,986,104

- c) Enbridge Gas does not know the cost to upgrade the electricity grid to replace the heating load with electric heat; however, the Pathways to Net-Zero for Ontario (P2NZ) Report indicates that in the Electrification scenario, electricity system costs of \$468 billion could be required to accommodate the levels of building, transportation and industrial electrification presented in the scenario as provided at Exhibit 1, Tab 10, Schedule 5, Attachment 2, Figure 18. As provided at Exhibit 1, Tab 10, Schedule 5, Attachment 2, page 47, costs for expanding and upgrading electricity distribution systems (last-mile delivery) were out of scope in the P2NZ and are, therefore, not included in the \$468 billion. /u

The IESO in their Pathways to Decarbonization (P2D) Study examined an aggressive high demand scenario with increased electrification of buildings, transportation and industry. This scenario does not achieve an economy wide net-zero for Ontario and instead focuses on a net-zero grid by 2050 that can support the demand scenario. The IESO estimates that it would cost up to \$425 billion to build the modelled non-emitting grid.¹ Included in the costs are transmission, generation and interties with neighbouring jurisdictions. Like the P2NZ Report, the impacts on and any costs associated with the distribution system are out of scope.² /u

Neither study quantified the cost of ensuring equivalent resilience for the electric industry to displace heat currently delivered by the natural gas industry. The natural gas industry plans for zero outages due to the characteristics of the gas system (manual restoration of service etc) vs. the SAIDI and SAIFI reliability metrics commonly used by the electricity industry, which do not necessarily highlight the long duration impact of extreme weather events. Please also see response at Exhibit I.1.10-SEC-13.

¹ IESO Pathways to Decarbonization, 2022, page 4 Available: <https://www.ieso.ca/-/media/Files/IESO/Document-Library/gas-phase-out/Pathways-to-Decarbonization.ashx>

² ibid, page 7

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 115 of 164

Question(s):

Please provide an updated Figure 42 that uses S&P data.

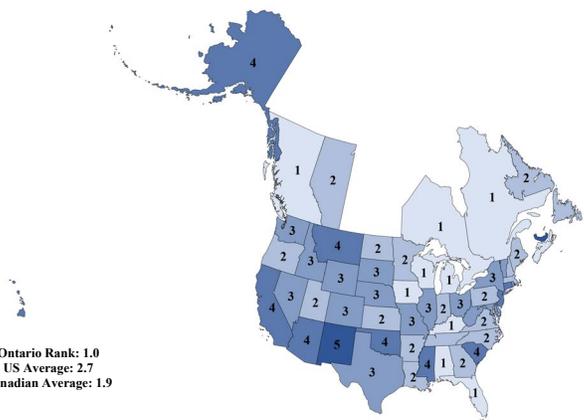
Response:

The following response was provided by Concentric Energy Advisors, Inc.:

Please see Attachment 1.

State/Province	Country	S&P Ranking
Alabama	United States	1
British Columbia	Canada	1
Florida	United States	1
Iowa	United States	1
Kentucky	United States	1
Michigan	United States	1
Nova Scotia	Canada	1
Ontario	Canada	1
Wisconsin	United States	1
Quebec	Canada	1
Alberta	Canada	2
Arkansas	United States	2
Georgia	United States	2
Indiana	United States	2
Kansas	United States	2
Louisiana	United States	2
Maine	United States	2
Massachusetts	United States	2
Minnesota	United States	2
New Hampshire	United States	2
Newfoundland & Labrador	Canada	2
North Carolina	United States	2
North Dakota	United States	2
Oregon	United States	2
Pennsylvania	United States	2
Tennessee	United States	2
Utah	United States	2
Virginia	United States	2
Texas	United States	3
Colorado	United States	3
Delaware	United States	3
Idaho	United States	3
Illinois	United States	3
Maryland	United States	3
Missouri	United States	3
Nebraska	United States	3
Nevada	United States	3
New York	United States	3
Ohio	United States	3
Rhode Island	United States	3
South Dakota	United States	3
Texas RRC	United States	2
Vermont	United States	3
Washington	United States	3
West Virginia	United States	3
Wyoming	United States	3
New Orleans	United States	3
Arizona	United States	4
California	United States	4
Connecticut	United States	4
District of Columbia	United States	4
Mississippi	United States	4
Montana	United States	4
New Jersey	United States	4
Oklahoma	United States	4
South Carolina	United States	4
Alaska	United States	4
Hawai	United States	4
New Mexico	United States	5
Prince Edward Island	Canada	5

Ontario Rank: 1.0
 US Average: 2.7
 Canadian Average: 1.9



Powered by Bing
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US Avg. 2.7
 CA Avg. 1.9
 Source:
 Updated Views on North American Regulatory Jurisdiction - June 2021. S&P Global Ratings

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association (IGUA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 58, Paragraph 1

Preamble:

The cited evidence states:

In 2020, residential customers accounted for approximately 57% of the Company's revenues but just 32% of its sales volumes.

Question(s):

a) Please complete the following table for the most recent full year for which data are available:

	% Customers	% Regulated Revenue	% Gas Supply Revenue	% Storage Revenue	% Transmission Revenue	% Distribution Revenue	% Sales Volume	% System Peak Demand
Residential		e.g. 57%					e.g. 32%	
Commercial								
Institutional								
Small Industrial								
Medium Industrial								
Large Industrial								
Electric Generation								
Other								
Total	100%	100%	100%	100%	100%	100%	100%	100%

In the event that EGI's data do not differentiate between some of these end use classes (e.g. between Commercial and Institutional), please provide data at the level of aggregation they are available.

In the event that the values on the Other row are non-zero, please identify the type(s) of customers or uses reflected on this row.

b) Please provide the definitions EGI used to differentiate customer types in the table provided in response (e.g., to differentiate between different sizes of industrial customers).

Response:

- a) Please see Attachment 1 for 2022 Actual data in the requested format. For clarity Enbridge Gas has used the following assumptions to complete the table:
- i. Revenue percentages exclude the impact of deferrals/accounting adjustments.
 - ii. Sales Volumes is based on total consumption volumes.
 - iii. Gas Supply Revenue includes commodity, load balancing, transportation and Union North storage charges.
 - iv. Storage Revenue includes Union general service storage charges, Union South rate T1, T2, T3 storage, and EGD load balancing.
 - v. Transmission Revenue includes Union North rate zone and EGD rate zone transportation charges.
 - vi. Distribution Revenue includes delivery revenue charges, such as customer charges, contract demand charges, and delivery commodity charges.
- b) Enbridge Gas has differentiated customer types by relying on existing residential, commercial, and industrial groups available for general service to represent the residential, commercial, and small industrial groupings. The distribution contract market has been split into large industrial and electric generation, based on a specific list of gas fired power generators. This specified list has been used to respond to other interrogatories, such as response to Exhibit I.1.10-GEC-3 and Exhibit I.1.10-ED-9. Enbridge Gas does not maintain a further breakdown for the contract market.

Percentage Allocation of 2022 Actual Data by Available Customer Categories

Line No.	Particulars	% Customers (a)	% Regulated Revenue (b)	% Gas Supply Revenue (c)	% Storage Revenue (d)	% Transmission Revenue (e)	% Distribution Revenue (f)	% Sales Volume (g)	% System Design Demand (h)
1	Residential	92.3%	61.6%	60.2%	48.7%	55.1%	63.7%	29.8%	
2	Commercial	7.4%	28.0%	31.8%	36.9%	34.7%	22.7%	22.9%	
3	Institutional								
4	Small Industrial	0.3%	3.2%	3.7%	4.8%	3.6%	2.4%	3.5%	See Note 1
5	Medium Industrial								
6	Large Industrial	0.0%	6.2%	4.2%	8.1%	6.5%	8.9%	34.2%	
7	Electric Generation	0.0%	1.0%	0.1%	1.5%	0.1%	2.3%	9.7%	9.3%
8	Other								
9	Total	100%	100%	100%	100%	100%	100%	100%	100%

Note 1: The general service demand is 67.5 % and the contract rate is 23.2 %

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit 5, Tab 3, Sch. 1, Table 2

Question(s):

- a) Based on the figures shown in Table 2 and absent any inflationary increases beyond 2025, and the EGI proposal for the phase in of the increase in the equity component over the 2024 through 2028 period, please confirm that:
 - i. the incremental revenue impact over the 2024 through 2028 period is approximately \$267 million;
 - ii. the increase in the return on equity accruing to the shareholder over the 2024 through 2028 period is approximately \$280 million; and
 - iii. the increase in income taxes over the 2024 through 2028 period is approximately \$101 million.
- b) If the figures in part (a) are not correct, please provide the correct figures, including showing the calculation of the correct figures.
- c) Please provide a version of Table 2 that reflects a return on equity of 9.36% (i.e. the OEB approved figure for 2023) in place of the 2022 approved figure of 8.66%.
- d) Based on the return of equity requested in part (c) above, please provide the revised figures provided in part (a), or as corrected in part (b).

Response:

- a-b) Please see Attachment 1. Within Attachment 1, Table 1 reproduces Table 2 from Exhibit 5, Tab 3, Schedule 1, as updated March 8, 2023. Table 2 within Attachment 1 provides a breakdown of the 2024 incremental revenue requirement of moving from a 36% to 38% equity component of capital structure. The components of the incremental revenue requirement include: a reduction in interest expense, an increase in the return on equity, and an increase in taxes on the return on equity. Table 3 within Attachment 1 provides a breakdown of the incremental revenue requirement of moving from a 38% to 42% equity component of capital structure,

were it to occur in 2024 (i.e. it leverages 2024 rate base and associated debt reductions that would occur). Table 3 also apportions the incremental revenue requirement of moving from a 38% to 42% equity component of capital structure into 4 equal annual amounts, which equate to the Company's proposed phased equity thickness base rate adjust in each of 2025 to 2028. Finally, Table 4 within Attachment 1 provides the combined annual and cumulative 2024 to 2028 incremental revenue requirement impacts of the Company's proposed phased equity thickness proposal. As seen in Table 4, over the 2024 to 2028 term the incremental revenue (or Revenue Requirement) impact is an increase of approximately \$268.6 million, an increase in return on equity of approximately \$282.0 million, an increase in taxes on the return on equity of approximately \$101.7 million, and a decrease in interest costs of approximately \$115.1 million. These amounts are comparable to the amounts sought for confirmation.

The Company notes that amounts shown in Attachment 1 are indicative of what would be reflected in rates/revenues, excluding the impact of price cap escalation, and only illustrate the potential incremental return on equity, tax and interest impacts, on the assumption that rate base remains fixed at the 2024 level, and that as equity is increased in 2025 to 2028, debt can be reduced at the same weighted effective rate that would be forecasted to occur in 2024. As seen in Attachment 1, amounts calculated also leverage the 2022 Board Formula ROE of 8.66%, which has been utilized within the application as a placeholder but is proposed to be updated with the 2024 Board formula ROE once released.

c-d) Please see Attachment 2 to this response, which provides the same tables as provided in response to part a) and b) of this interrogatory but reflects an ROE rate of 9.36%. As seen in Table 4 of Attachment 2, utilizing an ROE rate of 9.36%, over the 2024 to 2028 term the incremental revenue (or Revenue Requirement) impact of the proposed phased equity thickness increase is an increase of approximately \$299.6 million, an increase in return on equity of approximately \$304.8 million, an increase in taxes on the return on equity of approximately \$109.9 million, and a decrease in interest costs of approximately \$115.1 million.

TABLE 1

Exhibit 5, Tab 3, Schedule 1, Table 2
2024 Equity Thickness Impacts on Cost of Capital and Revenue Requirement

Line No.	Particulars (\$ millions)	Principal (a)	Component (b)	Cost Rate (c)	Cost (d)	Gross-up for taxes (e)	Rev. Req. Impact (f)
<u>Equity thickness - 36%</u>							
1	Medium and Long Term Debt	10,206.0	62.69%	4.17%	425.6	0.0	425.6 /u
2	Short Term Debt	213.9	1.31%	3.00%	6.4	0.0	6.4 /u
3	Common Equity	<u>5,861.2</u>	36.00%	8.66%	<u>507.6</u>	183.0	<u>690.6</u> /u
4	Cost of Capital component of Revenue Requirement	16,281.1			939.6		1,122.6 /u
<u>Equity thickness - 38% (included in 2024 rev. req.)</u>							
5	Medium and Long Term Debt	10,028.1	61.59%	4.17%	418.0	0.0	418.0 /u
6	Short Term Debt	66.2	0.41%	3.00%	2.0	0.0	2.0 /u
7	Common Equity	<u>6,186.8</u>	38.00%	8.66%	<u>535.8</u>	193.2	<u>729.0</u> /u
8	Cost of Capital component of Revenue Requirement	16,281.1			955.7		1,148.9 /u
<u>Equity thickness - 42%</u>							
9	Medium and Long Term Debt	9,852.2	60.51%	4.17%	410.4	0.0	410.4 /u
10	Short Term Debt	(409.1)	(2.51%)	3.00%	(12.3)	0.0	(12.3) /u
11	Common Equity	<u>6,838.1</u>	42.00%	8.66%	<u>592.2</u>	213.5	<u>805.7</u> /u
12	Cost of Capital component of Revenue Requirement	16,281.1			990.3		1,203.8 /u
13	2024 Revenue requirement impact of moving to 38% deemed equity thickness (from 36%)						26.3 /u
14	2024 Revenue requirement impact of moving to 42% deemed equity thickness (from 36%)						81.2 /u
15	42% versus 38% revenue requirement variance to be captured through base rate adjustments in 2025 - 2028						54.9 /u
16	Proposed annual base rate adjustment in each of 2025 - 2028 (1/4 of \$54.9 million)						<u>13.7</u> /u

TABLE 2

Line No. Breakdown of Revenue Requirement Impact of Moving from 36% to 38% Equity Thickness to be Implemented in 2024

		2024 (a)
1	Reduction in Interest on Debt	(12.1)
2	Increase in ROE	28.2
3	Increase in Taxes on ROE	<u>10.2</u>
4	Revenue / Revenue Requirement	<u>26.3</u>

TABLE 3

Line No. Breakdown of the Total Revenue Requirement Impact of Moving from 38% to 42% Equity Thickness and the Apportionment into Four Equal Base Rate Adjustments to be Implemented in 2025 - 2028

		Total (a)	2025 (b)	2026 (c)	2027 (d)	2028 (e)
1	Reduction in Interest on Debt	(21.8)	(5.5)	(5.5)	(5.5)	(5.5)
2	Increase in ROE	56.4	14.1	14.1	14.1	14.1
3	Increase in Taxes on ROE	<u>20.3</u>	<u>5.1</u>	<u>5.1</u>	<u>5.1</u>	<u>5.1</u>
4	Revenue / Revenue Requirement	<u>54.9</u>	<u>13.7</u>	<u>13.7</u>	<u>13.7</u>	<u>13.7</u>

TABLE 4

Line No. Combined and Cumulative Impact of the Company's Equity Thickness Increase Proposal Over the 2024 - 2028 Term

		2024 (a)	2025 (b)	2026 (c)	2027 (d)	2028 (e)	Total (f)
1	Reduction in Interest on Debt	(12.1)	(17.6)	(23.0)	(28.5)	(33.9)	(115.1)
2	Increase in ROE	28.2	42.3	56.4	70.5	84.6	282.0
3	Increase in Taxes on ROE	<u>10.2</u>	<u>15.3</u>	<u>20.3</u>	<u>25.4</u>	<u>30.5</u>	<u>101.7</u>
4	Revenue / Revenue Requirement	<u>26.3</u>	<u>40.0</u>	<u>53.7</u>	<u>67.4</u>	<u>81.2</u>	<u>268.6</u>

TABLE 1

Exhibit 5, Tab 3, Schedule 1, Table 2 - Updated to Reflect an ROE of 9.36%
2024 Equity Thickness Impacts on Cost of Capital and Revenue Requirement

Line No.	Particulars (\$ millions)	Principal (a)	Component (b)	Cost Rate (c)	Cost (d)	Gross-up for taxes (e)	Rev. Req. Impact (f)
<u>Equity thickness - 36%</u>							
1	Medium and Long Term Debt	10,206.0	62.69%	4.17%	425.6	0.0	425.6 /u
2	Short Term Debt	213.9	1.31%	3.00%	6.4	0.0	6.4 /u
3	Common Equity	<u>5,861.2</u>	36.00%	9.36%	<u>548.6</u>	197.8	<u>746.4</u> /u
4	Cost of Capital component of Revenue Requirement	16,281.1			980.7		1,178.5 /u
<u>Equity thickness - 38% (included in 2024 rev. req.)</u>							
5	Medium and Long Term Debt	10,028.1	61.59%	4.17%	418.0	0.0	418.0 /u
6	Short Term Debt	66.2	0.41%	3.00%	2.0	0.0	2.0 /u
7	Common Equity	<u>6,186.8</u>	38.00%	9.36%	<u>579.1</u>	208.8	<u>787.9</u> /u
8	Cost of Capital component of Revenue Requirement	16,281.1			999.0		1,207.8 /u
<u>Equity thickness - 42%</u>							
9	Medium and Long Term Debt	9,852.2	60.51%	4.17%	410.4	0.0	410.4 /u
10	Short Term Debt	(409.1)	(2.51%)	3.00%	(12.3)	0.0	(12.3) /u
11	Common Equity	<u>6,838.1</u>	42.00%	9.36%	<u>640.0</u>	230.8	<u>870.8</u> /u
12	Cost of Capital component of Revenue Requirement	16,281.1			1,038.2		1,268.9 /u
13	2024 Revenue requirement impact of moving to 38% deemed equity thickness (from 36%)						29.4 /u
14	2024 Revenue requirement impact of moving to 42% deemed equity thickness (from 36%)						90.5 /u
15	42% versus 38% revenue requirement variance to be captured through base rate adjustments in 2025 - 2028						61.1 /u
16	Proposed annual base rate adjustment in each of 2025 - 2028 (1/4 of \$61.1 million)						<u>15.3</u> /u

TABLE 2

Line No. Breakdown of Revenue Requirement Impact of Moving from 36% to 38% Equity Thickness to be Implemented in 2024

		2024 (a)
1	Reduction in Interest on Debt	(12.1)
2	Increase in ROE	30.5
3	Increase in Taxes on ROE	<u>11.0</u>
4	Revenue / Revenue Requirement	<u>29.4</u>

TABLE 3

Line No. Breakdown of the Total Revenue Requirement Impact of Moving from 38% to 42% Equity Thickness and the Apportionment into Four Equal Base Rate Adjustments to be Implemented in 2025 - 2028

		Total (a)	2025 (b)	2026 (c)	2027 (d)	2028 (e)
1	Reduction in Interest on Debt	(21.8)	(5.5)	(5.5)	(5.5)	(5.5)
2	Increase in ROE	61.0	15.2	15.2	15.2	15.2
3	Increase in Taxes on ROE	<u>22.0</u>	<u>5.5</u>	<u>5.5</u>	<u>5.5</u>	<u>5.5</u>
4	Revenue / Revenue Requirement	<u>61.1</u>	<u>15.3</u>	<u>15.3</u>	<u>15.3</u>	<u>15.3</u>

TABLE 4

Line No. Combined and Cumulative Impact of the Company's Equity Thickness Increase Proposal Over the 2024 - 2028 Term

		2024 (a)	2025 (b)	2026 (c)	2027 (d)	2028 (e)	Total (f)
1	Reduction in Interest on Debt	(12.1)	(17.6)	(23.0)	(28.5)	(33.9)	(115.1)
2	Increase in ROE	30.5	45.7	61.0	76.2	91.4	304.8
3	Increase in Taxes on ROE	<u>11.0</u>	<u>16.5</u>	<u>22.0</u>	<u>27.5</u>	<u>33.0</u>	<u>109.9</u>
4	Revenue / Revenue Requirement	<u>29.4</u>	<u>44.6</u>	<u>59.9</u>	<u>75.2</u>	<u>90.5</u>	<u>299.6</u>

ENBRIDGE GAS INC.

Answer to Interrogatory from
Three Fires Group Inc. (Three Fires)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1
Exhibit 5, Tab 3, Schedule 1, Attachment 1

Preamble:

Enbridge submits that significant changes in the environment in which it operates have occurred since the time of the 2013 Rates proceedings. Enbridge has produced a report by Concentric Energy Advisors Inc., which considers changes in Enbridge's business and financial risk pictures, concluding Enbridge's risk has significantly increased since 2012.

Among other things, Concentric concludes that the energy transition began in earnest in the last five years, substantially affecting the risk profile of North American gas distribution utilities. It also concludes that a weaker economic outlook, the introduction of competition from alternative gas suppliers, and increased competition from electricity have combined to increase Enbridge's risk, particularly in the long term.

Among other things, Concentric notes the risk of a "death spiral" scenario, whereby declines in customer base produce increased per capita costs for those who remain, creating a negative loop of rate increases and customer departures.

Question(s):

- a) Please confirm whether the reports by Posterity Group produced in this Application account for the risk of Concentric's "death spiral" scenario. If so, please provide a brief description as to how it is addressed in their analysis.
- b) Given Concentric's comments that regulated entities operate in an integrated North American market for capital, please ask Concentric to provide summary comment on the following:
 1. What would the implications on Concentric's risk analysis be, if any, if other jurisdictions in North America begin to electrify at a faster rate than Ontario; and

2. What would the implications on Concentric's risk analysis be, if any, if a trend of border carbon adjustments begins to emerge globally?¹
- c) In the event a "death spiral" scenario materializes, what is the likelihood that certain customers or groups will suffer a disproportional impact? In your answer, please provide specific comment on the impact Indigenous groups and communities could expect, as well as the impact on any groups or communities that do not have ready access to energy alternatives at the time any such scenario begins.
- d) Will certain customers, groups and/or communities be less able to exit from a "death spiral" scenario due to a lack of viable alternatives, geography, or other considerations?

Response:

- a) The following response was provided by Posterity Group:

Posterity Group has not reviewed the report prepared by Concentric Energy Advisors Inc.

While the scenarios in our reports include assumptions about how fuel switching could impact customer account trajectories (see response at Exhibit 1.10-SEC-39), we did not conduct rate impact analysis for the scenarios.

- b) The following response was provided by Concentric Energy Advisors, Inc.:

1. As discussed in Concentric's report, at page 93, Concentric concludes that the Company faces Energy Transition risk that is greater than the proxy groups on average, and both the Company and the proxy companies face substantial Energy Transition risk because they engage in the provision of regulated natural gas distribution service. Concentric's conclusion is based on three primary factors: (1) the Company's assets are, on average, much less depreciated than the assets of any of the proxy groups (indicating greater cost recovery risk); (2) the relatively high percentage of residents that use natural gas for space heating (indicating higher risk than other Canadian gas utilities due to its exposure to customers that could leave its system via conversions to alternative fuels, including electrification); and (3) the fact that, unlike certain other Canadian utilities, Enbridge Gas operates exclusively as a gas distribution utility and does not provide electric utility services. If other jurisdictions in North America begin to electrify at a faster rate than Ontario, that could increase (or at least accelerate)

¹ See, for example, recent developments in Europe: <https://www.akingump.com/en/news-insights/eu-reaches-provisional-agreement-on-carbon-import-charge.html>.

Energy Transition risk for those jurisdictions relative to Ontario. Concentric does not expect, however, that this would materially affect our overall opinion and recommendations, because Energy Transition risk would remain elevated for the Company, and our recommended deemed equity ratio is already below those of many of Enbridge Gas's peer utilities.

2. In a hypothetical scenario where a trend of border carbon adjustments begins to emerge globally, that would likely increase the price of natural gas, which would increase risks related to fuel conversions and electrification. Concentric does not anticipate that would materially affect our relative risk analysis, however, as our study is focused on local distribution companies that largely face similar commodity-related recovery risk, and Concentric does not anticipate this would change in the scenario described in the question.

The following response was provided by Enbridge Gas:

- c-d) Enbridge Gas agrees that in the event a death spiral occurs in an energy system, certain groups of customers might be less able to exit the system and, therefore, could bear a disproportional impact. Enbridge Gas applies postage stamp rating making in the derivation of rates and is, therefore, unable to speak to the specific impact on indigenous groups and communities. Enbridge Gas also notes that its assets provide unparalleled resiliency and reliability relative to the electricity system due to the cost effectiveness and resiliency of its underground storage, transmission and distribution assets. It is Enbridge Gas's view that the province of Ontario will be best served by keeping Ontarians connected to the gas grid while reducing the emissions associated with combusting natural gas through energy efficiency, pairing with non-emitting electricity and introduction of low carbon fuels.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1

Question(s):

- a) What precipitated the request to Concentric to study the issue of capital structure?
- b) Please provide all correspondence, emails, presentations that occurred between EGI and its corporate parent with respect to the change in capital structure.
- c) Other than the Concentric Report what evidence is EGI relying upon that would suggest recent events (or otherwise) would suggest a need to change capital structure.
- d) Please provide any public market based research which suggests that without a change in its capital structure EGI or its parent would suffer a downgrade of its debt capital.

Response:

- a) Enbridge Gas initiated a review of its capital structure because it was of the belief that there had been material changes in business and financial risk since the capital structure was last reviewed by the OEB for each of the legacy utilities in 2013. The 2024 Rebasing proceeding is the appropriate forum to address changes in capital structure.
- b) Please see the following most recent and relevant presentations provided to Enbridge with respect to the Enbridge Gas proposed changes in capital structure:
 - Exhibit I.1.2-CCC-1, Attachment 1 – Rebasing Application Update presentation to the Enbridge Inc. And Enbridge Gas Inc. Board of Directors
 - Exhibit I.1.2-SEC-76, Attachment 2 – Rebasing Proposal Approval presentation

c-d) Enbridge Gas relies on a strong investment grade credit rating to attract debt and bank financing at reasonable rates. To the extent that credit rating agencies change their assessment of Enbridge Gas credit risk as a result of impacts resulting from changes to financial, business or other risks, it will negatively impact the competitiveness of Enbridge Gas as an investment.

S&P Global, in its most recent report on EGI dated July 21, 2022, see Exhibit I.1.8-STAFF-14 Attachment 6, calculated a Debt to EBITDA ratio of 6.2x for 2021 and a forecasted range of 6.0-6.5x for both 2022 and 2023. This key leverage metric is higher than that of EGI's similarly rated peers. As shown in Exhibit 5, Tab 3, Schedule 1, Attachment 1, Figure 15: S&P Financial Risk Criteria, a 6x Debt to EBITDA ratio indicates "highly leveraged". The other core ratio, FFO to debt of 11%-~13% correlates to a "significant" risk. S&P's current assessment of EGI's Business Risk as "excellent" helps enable S&P to arrive at a A- credit rating for EGI. Increasing the equity thickness would improve both core ratios.

Enbridge Gas has higher leverage, measured by debt to equity, than its peers across North America. Increased equity thickness at Enbridge Gas improves the financial risk assessment for both Enbridge Gas and its parent Enbridge Inc, as less debt will be held by Enbridge Gas.

Enbridge Gas monitors the methodology used by rating agencies and papers published by the agencies to anticipate potential changes to how the agencies assess Enbridge Gas' credit. The number of publications by rating agencies relating to energy transition and ESG has increased significantly over the past decade as stakeholders, policy makers and investors focus more on the energy transition.

Several recent rating agency publications highlight the growing risks faced by Enbridge Gas.

- Moody's Investor Service published a Sector In-Depth paper in November 2022 titled "Local Gas Distribution Utilities – North America Emissions reduction, electrification threaten long-term competitiveness". This paper highlights the risks facing gas LDCs along with some of the competitive advantages of natural gas. In the summary, Moody's highlights the link between regulatory support to facilitate the energy transition and LDC long-term credit quality: "Policy and regulatory support to facilitate the energy transition will be key for LDCs to maintain their long-term credit quality." (page 1 and page 7.). This document is available from Moody's Investor Service on a paid subscription basis. Enbridge Gas requested permission from Moody's Investor Service to file this document. That permission was not granted, even for filing on a confidential basis.

- S&P Global, in their “ESG Materiality Map Utilities Networks” published May 2022 notes that Climate Transition Risk to Utilities is “high” from both a credit materiality and stakeholder materiality perspective. Please see Attachment 1
- DBRS Morningstar publishes a “Methodology for Rating companies in the Regulated Electric, Natural Gas and Water Utilities Industry”. Please see Attachment 3. DBRS Morningstar also publishes “DBRS Morningstar Criteria: Approach to Environmental, Social, and Governance Risk Factors in Credit Ratings.” Last updated May 2022, this second document outlines DBRS Morningstar’s approach to how ESG factors impact a company's credit rating. Please see Attachment 2

ESG Research

ESG Materiality Map

Utilities Networks

May 18, 2022

Climate physical and transition risks are the most material from both a credit and stakeholder perspective given the sector's critical role in the energy value chain, where decarbonization efforts from generators have knock-on effects for networks and where physical climate risks affect service delivery. Climate risks also have spillover effects that elevate the materiality of other factors, including access and affordability.

This report does not constitute a rating action



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ESG Materiality Map

Utilities Networks

In line with the research report “[Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#),” published on May 18, 2022, S&P Global Ratings is publishing research on the ESG materiality map for the utilities networks sector. We provide an illustration, at a point in time, of our findings on the relative materiality of certain environmental and social (E&S) factors, from both the stakeholder and credit perspectives, for the sector. The materiality map research does not represent any new analytical approach to the treatment of E&S factors in our credit ratings. See our ESG criteria for more information on how we incorporate the impact of ESG credit factors into our credit ratings analysis.

Utilities Networks Sector

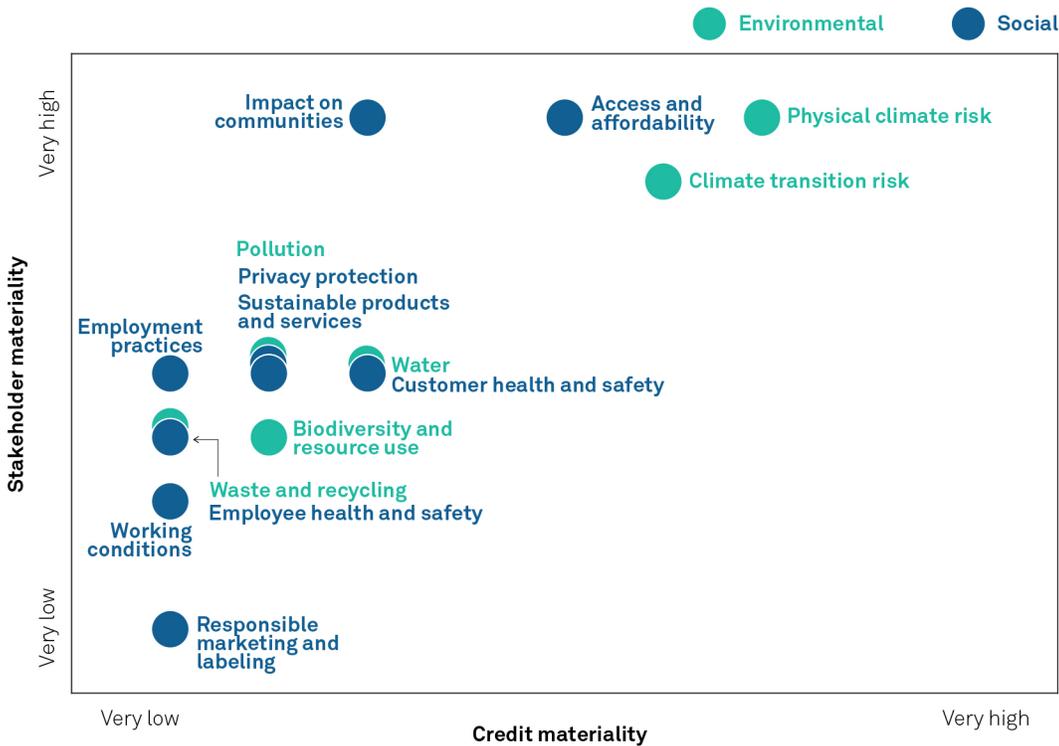
Utility networks include electric grids, gas utilities, and water utilities. The electric grid subsector comprises companies that operate regulated electricity transmission and distribution networks. Gas utilities deliver natural gas to residential, industrial, and commercial customers through a network of distribution and transmission pipelines. Water utilities deliver freshwater and provide sanitation services to residential, industrial, and commercial customers.

Key Takeaways

- Climate physical and transition risks are the most material from both a credit and stakeholder perspective given the sector’s critical role in the energy value chain, where decarbonization efforts from generators have knock-on effects for networks and where physical climate risks affect service delivery. Climate risks also have spillover effects that elevate the materiality of other factors, including access and affordability.
- The integration and essentiality of utility networks for customers and communities underpin the relatively higher stakeholder materiality across multiple factors, including impact on communities, whereas the credit impacts tend to be more muted due to regulatory protections and other mitigants, such as insurance, that help to preserve credit quality.
- Customer health and safety has moderate stakeholder and credit impacts. High-impact safety events can severely affect customers given how close network systems are to population centers. Power disruptions can also be life threatening, but these occur relatively infrequently and tend to be localized. For credit, we expect regulatory protections and cost recovery to continue to help bolster credit quality.

See materiality map on the following page.

ESG Materiality Map For The Utilities Networks Sector



The materiality map provides an illustration at a point in time, of our findings on the relative materiality of certain environmental and social (E&S) factors, from both the stakeholder and credit perspectives, for the sector. It does not represent any new analytical approach to the treatment of E&S factors in our credit ratings. See our ESG Criteria for more information on how we incorporate the impact of ESG credit factors into our credit ratings analysis. Source: S&P Global Ratings.

How To Read The ESG Materiality Map

For the purposes of this research paper:

The stakeholder materiality (Y axis) reflects our assessment of the relative level of impacts and dependencies of the sector on the environment, society, and economy.

The credit materiality (X axis) reflects our assessment of the relative level of potential and actual credit impact.

Assessing E&S factors' materiality: We consider both the likelihood of the impact from a given factor, as well as the magnitude of the impact. The materiality of the factors varies depending on the perspective (stakeholder or credit) as well as the evolving and dynamic interactions between these two dimensions.

The main areas of the map:

- The upper-right quadrant displays the most material, on a relative basis, E&S factors identified for the sector from both a stakeholder and credit perspective.
- The upper-left quadrant presents factors that are more material from a stakeholder than credit perspective. These factors have the potential to become more material from a credit perspective.
- The bottom-left quadrant shows factors that are less material for both stakeholders and credit. Their materiality may evolve over time and this dynamic may not be linear.

Examples Of Material Factors

Below we provide the rationale of some of the material factors to illustrate the above findings.

Physical climate risk

Physical climate risks is the most material factor for both stakeholders and credit. Networks operate fixed assets that span large service territories, making them highly exposed to physical climate risks. These events, which are becoming more frequent and severe, can cause network service disruptions for large populations, elevating stakeholder materiality. Credit quality has been impaired by wildfires, hurricanes, and winter storms. During these events, the utility incurs higher costs, which typically leads to higher leverage.

Climate transition risk

Climate transition risks are highly material to stakeholders and credit but tend to have more bearing on electricity and gas networks given their critical role in the energy delivery value chain and their direct exposure to upstream generators, which are a leading cause of climate change. These drivers make the sector highly susceptible to growing public, political, legal, and regulatory pressure to accelerate climate goals and are highly relevant for stakeholders globally. From a credit perspective, the ongoing decarbonization of the energy sector requires a tripling of renewable power, which comes with significant grid expansion. As such, network capital budgets are near record highs, leveraging their balance sheets and pressuring credit quality. In the gas network sector, continued focus on reducing reliance on methane-emitting natural gas could diminish growth prospects, making it more difficult to effectively manage regulatory risk.

Access and affordability

The affordability and reliability of networks are under pressure from climate-related risks, exacerbating the materiality for stakeholders. While these risks are also material for credit, we view them as more moderate. Energy and water are essential services supporting human health and well-being and global economic development. Service disruptions or steep price increases are likely to be amplified by the energy transition and physical climate risks. These dynamics can affect households' purchasing power and the competitive strengths of local industries, which make this highly material for stakeholders. Additionally, for water utilities, pollution in source water can affect the availability and useability of supply. However, the industry's reliability remains high, and we expect this to continue given that water utilities use long term-integrated resource planning, which accounts for these risks. Moreover, while utility bills are rising, regulators continue to allow utilities to use mechanisms to smooth volatility and to offer income assistance programs, which will underpin a more moderate credit impact.

Impact on communities

Community impacts are more acute for stakeholders given how close networks are to where people live and work and that energy and water services are essential for community health and well-being globally. Stakeholder impacts arise from the construction and siting of lines--especially in areas unaccustomed to industrial development and in indigenous territories--which is accelerating to meet climate goals and where eminent domain is granted by local governments. Moreover, service disruptions, fires, gas explosions, inadequate or contaminated drinking water, and untreated wastewater pose severe, and sometimes irreversible, community health and

safety hazards. Water utilities also manage shared water resources where drought conditions can introduce tough trade-offs among community stakeholders and wastewater treatment plants, which release unpleasant odors and are often located in disadvantaged communities. From a credit perspective, insurance and regulatory mechanisms such as cost recovery will continue to help to preserve credit quality, making it less material.

Pollution And Customer health and safety

These factors have a moderate impact on stakeholders, but less for credit. Globally, high quantities of untreated wastewater are released into the environment where it can contaminate water bodies, making pollution a material stakeholder concern for water utilities. They also manage toxic pollution from agricultural runoff and industrial discharge in water basins. Contaminated water and poor sanitation systems in turn contribute to long-term health conditions, and these customer health and safety events can, when severe, undermine public trust. Power service disruptions can also be life threatening, primarily for certain vulnerable groups, but utilities typically ensure adequate back-up power. The credit impact is low largely due to regulatory protections and cost recovery, which we expect will continue. Customer safety is slightly more credit material than pollution, as these impacts span all subsectors.

What is our approach to research on the ESG materiality map?

Referring to the research report "[Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#)," published on May 18, 2022, this research is built on the ESG materiality concept that considers ESG issues as material when they could affect stakeholders, potentially leading to material direct or indirect credit impact on entities. It considers that all businesses, through their activities and interactions, impact and depend, directly or indirectly, on stakeholders such as the environment (natural capital), society (human and social capital), and economy (financial capital). Using this ESG materiality concept, S&P Global Ratings has worked toward identifying a common, global, cross-sector set of E&S factors that we believe are material to stakeholders, and either are already, or have the potential to become, credit material for entities. The materiality map we propose provides an illustration at a point in time, of our findings on the relative materiality of those factors, from both the stakeholder and credit perspectives.

How does the sector ESG materiality map relate to credit ratings or ESG evaluations?

The sector materiality map is a visual representation of the factors that we consider impactful to the sector from a stakeholder and credit perspective for the purposes of this research. It does not represent any new analytical approach to the E&S factors in our credit ratings.

The relative materiality of the factors indicated on the materiality maps may inform the E&S Risk Atlas scores and the weights of the E&S factors used in ESG evaluations.

They may also inform our discussions with issuers on those factors' existing or potential credit materiality.

Related Research

- [Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#), May 18, 2022
- [Environmental, Social, And Governance Principles In Credit Ratings](#), Oct. 10, 2021
- [ESG Evaluation Analytical Approach](#), Dec. 15, 2020

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DBRS Morningstar

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Scope and Limitations

This criteria explains the environmental, social, and governance (ESG) risk factors that may affect DBRS Morningstar's credit ratings.

As the relative importance of any specific ESG consideration can vary by issuer, the items included herein are not intended to be exhaustive and are subject to regular updates. Furthermore, this criteria is meant to provide general guidance regarding DBRS Morningstar's evaluation methods and should not be interpreted with formulaic inflexibility, but understood in the context of the dynamic environment in which it is intended to be applied.

A methodology sets forth the key analytical considerations and applicable analytics that DBRS Morningstar uses to assign or monitor credit ratings or other opinions. DBRS Morningstar applies approved methodologies in its evaluation of a transaction or debt obligation. Quantitative and qualitative factors set forth in a methodology or in a combination of methodologies are evaluated by a DBRS Morningstar rating committee or discussion group that exercises analytical judgment and considers the regulatory environment, market standards, and customary practices in addition to other factors deemed relevant to the analysis.

As part of the evaluation process, DBRS Morningstar may opine on whether a sponsor's proposed capital structure, in conjunction with the ESG risk factors, supports the assignment of a given rating(s). Once completed, this process facilitates the assignment of a DBRS Morningstar rating at a given rating level.

In cases when an applicable methodology does not address one or more elements of a transaction or obligation, or such element(s) differs from the expectations contemplated when DBRS Morningstar approved an applicable methodology, DBRS Morningstar may apply analytical judgment to determine any related analytical factor, assumption, rating, or other opinion. When a rating committee determines a material deviation, DBRS Morningstar discloses the material deviation and its analytical judgment for the material deviation.

For structured finance methodologies that incorporate the use of a predictive model, DBRS Morningstar may also depart from the rating stress(es) implied by the predictive model. DBRS Morningstar typically expects there to be a substantial likelihood that a reasonable investor or other user of the credit rating(s) would consider a deviation of three notches or more from the rating stress(es) implied by the predictive model to be a significant factor in evaluating the rating(s).

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Introduction

Globally, investors are becoming increasingly aware of ESG risk factors and many are placing more importance on these factors to make their investment decisions. Regulators are also becoming increasingly interested in ESG risk factors and their potential impact on financial markets. The markets are moving toward greater transparency and better disclosures from issuers, investors, and rating agencies regarding ESG risks and their impact.

To this effect, DBRS Morningstar evaluates and incorporates ESG risks in the assessment of its credit ratings across Governments, Financial Institutions, Corporate Finance, and Structured Finance. DBRS Morningstar considers 17 ESG risk factors in its analysis (see Exhibit 1). DBRS Morningstar considers how ESG risks affect the issuer and transaction-specific ratings during the life of the transaction/rating. As with all of DBRS Morningstar’s credit analysis, evaluation of the factors’ impact is forward looking. The factor’s relevance to the rating analysis reflects the factors’ impact on the issuer in the future, which may not necessarily be the same as it might have been in the past.

As in core credit analysis, DBRS Morningstar’s evaluation of the factors depends on reliable data through official sources, management discussions, and/or audited filings corroborated by a competent authority or reputable news media.

Primary ESG Risk Factors Relevant to DBRS Morningstar’s Analysis

DBRS Morningstar has developed an ESG assessment framework that encompasses up to 17 ESG risk factors that DBRS Morningstar currently considers in its rating analysis. These factors (see Exhibit 1) are grouped into three categories—Environmental, Social, and Governance—representing the key considerations that DBRS Morningstar commonly analyzes within its ESG assessment framework. All ESG risk factors are generally consistent with those that global ESG stakeholders use to assess ESG factors for sustainable investing and financial risks.

In general, DBRS Morningstar’s Corporate Finance analytical group considers up to 15 of the 17 factors in its rating analysis; Financial Institutions considers 12 of the 17; Governments considers 10 of the 17; and Structured Finance considers eight of the 17 factors.

Exhibit 1 DBRS Morningstar ESG Risk Factors

Environmental	Social	Governance
• Emissions, Effluents, and Waste (G/F/C/S)	• Social Impact of Products and Services (F/C/S)	• Bribery, Corruption, and Political Risks (G/F/C)
• Carbon and Greenhouse Gas (GHG) Costs (G/F/C/S)*	• Human Capital and Human Rights (G/F/C/S)	• Business Ethics (F/C)
• Resource and Energy Management (G/C)	• Product Governance (F/C/S)	• Corporate/Transaction Governance (F/C/S)
• Land Impact and Biodiversity (G/C)	• Data Privacy and Security (F/C/S)	• Institutional Strength, Governance, and Transparency (G)**
• Climate and Weather Risks (G/F/C/S)	• Occupational Health and Safety (C)	• Peace and Security (G)**
	• Community Relations (F/C)	
	• Access to Basic Services (G/F/C)	

*Denotes applicability to rating groups:
 G = Governments, F = Financial Institutions, C = Corporate Finance, S = Structured Finance.
 **Exclusively Government risk factors.

Overview of ESG Framework by Sector

The following section provides a high-level overview of how DBRS Morningstar incorporates ESG risk factors and related considerations in its analytical framework when assigning credit ratings. See Appendix A for definitions and examples of each ESG risk factor and examples from each rating group. Each credit rating uses a sector-specific methodology and not all ESG risk factors apply to each methodology. See Appendix B for the ESG factors applicable to each DBRS Morningstar methodology. DBRS Morningstar considers an ESG risk factor to be relevant to a methodology if the specific factor could potentially affect (either positively or negatively) any rating covered by that methodology. In general, DBRS Morningstar assesses the impacts qualitatively.

DBRS Morningstar does not assess ESG from the viewpoint of how sustainable, ethical, or responsible the issuer's operations or policies are. DBRS Morningstar considers ESG risk factors in the context of an issuer's credit profile where they may have an impact on the issuer's financial aspects, such as its revenues, expenses, cash flows, asset value, refinancing flexibility, etc. Furthermore, individual ESG risk factors may not be applicable across all sectors and industries, and some factors may pose higher risks in certain areas but may be less important in others.

Climate-Related Financial Disclosures

With respect to disclosures, consistent climate-related financial disclosures and scenario analyses across companies (such as those recommend by the Task Force on Climate-related Financial Disclosures) would be beneficial for credit analysts to understand the material climate risks facing corporate borrowers and financial institutions. Ideally, such disclosures should detail the climate-related risks and opportunities facing the organizations in the short, medium and long term. It should describe the process upon which such issues are identified, assessed, and managed, and then the target outcome of such management or strategy.

Government disclosures regarding the benefits and costs of climate mitigation measures and other climate-related policies are not standardized internationally and may differ in quality. These disclosures and related analysis by multilateral institutions and other organizations can nonetheless aid in the evaluation of any credit impact on governments and on major sectors of the domestic economy.

While initiatives for consistent climate-related financial disclosures across companies are not targeted (and often not relevant) for structured finance issuers, such disclosures would nevertheless be beneficial for credit analysts to understand the material climate risks potentially faced by structured finance transactions.

Governments in the ESG Framework

Environmental

Governments may be exposed to long-term risks associated with their own policies toward the environment. Changes to environmental regulations that corporations and households are required to undertake can have both positive and negative effects on an economy and on public finances. Unless policy changes are particularly dramatic, however, the potential long-term consequences are unlikely to affect credit ratings. Policy adjustments often address unintended adverse consequences before they do permanent damage to government credit fundamentals. Governments are also

exposed to risks associated with the environmental policies of other governments depending on geographic location, topography, and climate of a government's territory. With regard to the climate impact of global greenhouse gas (GHG) emissions, the higher the percentage of a government's land mass that is vulnerable to flooding, extreme weather events, high temperatures, or drought, the greater the long-term costs will likely be.

Social

Governments are responsible for establishing social policies as well as the laws and regulations that govern corporations. As such, because they set these policies, several social factors are not applicable to governments. Nonetheless, the quality of governmental social policies and services may be observed in the overall level of labour productivity, labour participation, and productivity growth. A primary issue for governments is whether social policies are broadly acceptable to the majority of their populations. If not, social unrest or other conflicts will likely arise. If handled poorly, such conflicts may have a detrimental impact on economic performance, capital flows, public finances, and the overall stability of the political environment.

Governance

Many macroeconomic indicators that are relevant to the analysis of governments largely reflect the overall quality of governance. The quality and independence of government auditors, statistical organizations, and fiscal oversight bodies can affect the credibility of government financial reporting and projections. The governance and independence of central banks and other financial regulatory bodies is also paramount to macroeconomic stability and, therefore, will likely affect government credit ratings. Competitive elections and an independent media can help to hold government officials accountable, limiting opportunities for corruption and preventing or correcting policy errors. Corruption and a disregard for the rights of a territory's residents may ultimately undermine the degree of public confidence in a government and can leave governments vulnerable to unrest and major political upheavals.

Financial Institutions in the ESG Framework

Environmental

More attention is being paid to the impact of environmental risk on financial institutions' lending, investing and insuring activities. Large institutions, in particular, are facing pressure from external stakeholders to better manage their exposures and some regulators are introducing stress testing for environmental risks. Financial institutions are experiencing increasing scrutiny when lending to, investing in, or insuring businesses that face challenges adapting to stricter environmental requirements, including industries such as oil and gas (O&G) and mining. The assessment of environmental risks is a major component of DBRS Morningstar's analysis for the property and casualty (P&C) insurance business. This includes the potential impact of insured catastrophes on an insurance company's financial strength, as well as considerations regarding claims predictability, frequency, and severity.

Social

In the financial industry, social risk factors can potentially affect a financial institution's customer and employee base, as well as an institution's financial strength. Customers, regulators, and the market could view firms with failings in managing data privacy and security extremely negatively. In

a number of cases, financial institutions have paid substantial redress to customers with respect to product mis-selling. In general, financial institutions with retail-oriented operations face scrutiny from regulators to manage social risk factors fairly and can face fines and penalties for failure to do so.

Governance

Weak corporate governance, as well as inadequate business ethics, can have a detrimental impact on a financial institution, potentially resulting in fines, impaired financial performance, or even the withdrawal of an operating license. An institution's corporate governance framework includes the ownership structure, as well as the clarity of the institution's strategy and its execution; the track record and competence of the board and senior management; the organizational structure, reporting lines, and board committees; relationships with regulators; and organizational checks and balances.

Corporate Finance in the ESG Framework

Environmental

Environmental risks are becoming increasingly important to companies as new standards and regulations are imposed and stakeholders demand more transparency and consistency in reporting. Some industries are particularly vulnerable to environmental risk factors, including O&G, oilfield services, mining, and airlines. Continued emission of greenhouse gases is causing further warming of the planet, resulting in more extreme weather volatility, which can damage economic and social infrastructure. Although the exact timing and severity of physical effects are difficult to estimate, the extent of the potential damage from climate change is becoming increasingly apparent and nearer term. This has led government organizations to implement stricter financial measures to force companies and individuals to reduce their carbon footprint as soon as possible. Companies face costs not only to transform their operations to a low-carbon environment but also adaptation costs to improve the resilience of their infrastructure to in order to withstand greater climate volatility. Large remediation costs or carbon-offset efforts can be expensive and adversely affect short-term profitability. An assessment of corporate strategies' resilience to climate change risks may lead to capital expenditures for adaptation, which will help to protect future revenues but may have a negative financial impact in the near term.

Social

Several corporate industries may be subject to social factors, affecting companies' customer and employee bases and, if not effectively managed, can have knock-on effects on the sale of goods and services. Social factors can also affect a company's financial position in the form of litigation costs. The consumer products industry, for example, may be sensitive to changes in consumer behaviour and trends, such as increased health concerns or heightened awareness of certain materials in a company's products. The social impact of products and services, human capital, and related regulation may influence ratings in other sectors, including O&G, mining, industrial products, and automotives.

Governance

An analysis of governance includes the examination of board or governing-body composition, senior management, external auditors, company ownership and stock structure, history of legal or

regulatory actions, and the nature of any regulatory issues. Strong governance with positive employee relations and the balancing power of an able chief executive officer improves the likelihood of long-term financial health. Certain structures can also pose governance challenges; for example, those that are owned or controlled by a family, or by a limited number of private owners, often involve more complex ownership structures and potential conflicts of interest.

Structured Finance in the ESG Framework

Environmental

Structured finance transactions are typically delinked from the sponsor's/originator's corporate credit risk. Nevertheless, ESG environmental risk factors can affect the performance of the certain types of collateral that secure structured finance transactions. For example, transactions secured by commercial or residential properties, autos, equipment, and aircraft may experience higher defaults and/or lower recoveries due to environmental risk, such as weather or climate risks or equipment emissions. DBRS Morningstar can assess environmental factors that affect historical collateral default and recovery rates through quantitative analysis when estimating expected portfolio losses. For emergent environmental factors, qualitative analysis of available data can be used to address the potential effect of these risks on future pool losses.

Social

While structured finance transactions are typically insulated from the originator's ESG risks, servicers play an important ongoing role in structured finance transactions. Consequently, transactions may be exposed to social risk factors if these factors adversely affect or could affect the servicer's operations and ability to service the collateral through the life of the transaction. Other social factors, such as social impact of the securitized assets, product governance, or data security/privacy considerations can affect transaction performance. DBRS Morningstar can assess social factors that affect historical collateral default and recovery rates through quantitative analysis when estimating pool losses. When social factors are emergent and not yet reflected in historical performance data, the qualitative analysis will estimate the effect of these factors on portfolio credit performance.

Governance

Structured finance debt issuers are usually special-purpose vehicles (SPVs) or trusts that are established for the sole purpose of owning the assets and issuing the SPV debt. SPVs are not going concerns and are set up with stringent rules to ensure bankruptcy remoteness; restrictions on active management; and, typically, counterparty replacement mechanisms. Transaction governance considerations related to the independence of the issuer or trust, alignment of interest between transaction parties, and provisions for future events can affect transaction credit performance, whereas ongoing performance reporting affects the ability to monitor credit risk.

Impact of ESG Risk Factors on a Credit Rating

When ESG Risk Factors have discernable impact(s) on an issuer's creditworthiness, DBRS Morningstar includes such factors in its credit analysis. For an impact(s) that is material, the analytical team notes the impact of an ESG risk factor on an issuer's rating as either

1. Relevant factor: the ESG Factor may have some credit impact but the impact is not sufficient to change the rating or the trend on the rating;

2. Significant factor: the ESG Factor's presence changes the rating or the trend on the rating.

Although a Relevant factor may not be impactful enough in and of itself to change a rating or trend, it is possible that several Relevant factors, when present in a particular issuer's credit risk profile, may be sufficient to have the combined effect of a Significant factor, or potentially impactful enough to change a rating or trend. For the Corporates, FIG and Government sectors, typically the combination of at least two to three (2-3) Relevant factors could potentially change the rating or the trend of the rating. For Structured finance transactions, it is more difficult to make generalizations about the number of Relevant factors, when combined, that could potentially change a rating or trend. In multitranche Structured Finance transactions, the leverage for mezzanine and junior tranches is much greater than the leverage for senior tranches. Therefore, some tranches in a transaction, given their greater leverage, may be more affected by ESG factors than others.

Appendix A: Examples of ESG Risk Factors by Sector

The primary ESG risk factors listed in Exhibit 1 and their implications across the various sectors are discussed in the examples below. In some cases, investors in a given sector (Structured Finance, for example) may be exposed to passed-through ESG factors of guarantors, key counterparties, or the underlying financial obligations of entities in other sectors.

Environmental Factors

Emissions, Effluents, and Waste

Governments	Financial Institutions	Corporate Finance	Structured Finance
Do the costs or risks result in changes to a government's financial standing or relationship with other governments, and does this affect the assessment of credit risk?	Do we consider that the costs or risks for the issuer or its clients result, or could result, in changes to an issuer's financial, operational, and/or reputational standing?	Do we consider that the costs or risks for the issuer or its clients result, or could result, in changes to an issuer's financial, operational, and/or reputational standing?	Do the costs or risks result in a higher default risk or lower recoveries for the securitized assets?
<p>Example:</p> <ul style="list-style-type: none"> A municipal government may incur increasing costs associated with hazardous waste, cleanup, and disposal efforts. 	<p>Example:</p> <ul style="list-style-type: none"> A financial institution faces reputational risk for its lending practices to environmentally sensitive industries that are under increasing scrutiny from investors and regulators. 	<p>Examples:</p> <ul style="list-style-type: none"> A mining company incurs remediation costs or regulatory penalties for discharging processing waste into a local river. A manufacturing plant incurs increasing disposal costs for industrial waste as part of its production process. 	<p>Example:</p> <ul style="list-style-type: none"> A commercial real estate (CRE) environmental report shows contamination issues (e.g., mold after flooding) that would require investment to rectify, particularly if the magnitude or source of the investment has not been identified.

Carbon and GHG Costs

Governments	Financial Institutions	Corporate Finance	Structured Finance
Does a government face coordinated pressure from a higher-tier government or from numerous foreign governments as a result of its GHG emissions policies, and does this affect the assessment of credit risk?	Does the issuer face increased regulatory pressure relating to the carbon impact of its or its clients' operations resulting in additional costs and/or will such costs increase over time affecting the long-term credit profile?	Does the issuer face increased regulatory pressure relating to the carbon impact of its or its clients' operations resulting in additional costs and/or will such costs increase over time affecting the long-term credit profile?	Do the costs or risks related to GHG emissions result in higher default risk or lower recoveries of the securitized assets?
<p>Will recent regulatory changes have any adverse impact on economic resilience or public finances?</p> <p>Example:</p> <ul style="list-style-type: none"> A major industry struggles to adapt to new environmental regulations, particularly in the face of international competition from less-regulated economies, resulting in weaker economic growth and declining employment. 	<p>Examples:</p> <ul style="list-style-type: none"> Lending to companies with high GHG emissions could have a reputational impact on the financial institution. Aircraft leasing companies could incur asset impairments on older aircraft as airlines face increasing scrutiny for the high GHG emissions of flights leading airlines to accelerate the adoption of newer, more fuel-efficient aircraft. 	<p>Examples:</p> <ul style="list-style-type: none"> An airline faces increasing societal pressures about the high GHG emissions of its flights. A coal plant faces rising costs in buying carbon credits to offset emissions. 	<p>Are there potential benefits of GHG-efficient assets on affordability, financeability, or future values (recoveries)?</p> <p>Examples:</p> <ul style="list-style-type: none"> A mortgage portfolio from a "sustainable lender" that contains only loans backed by properties with top energy ratings may have less-volatile property values and higher recoveries. Regulatory restrictions for landlords related to meeting minimum energy-efficiency standards could result in higher default risk and lower recoveries in the short to medium term. In aircraft asset-backed securities, using more fuel-efficient engines and lighter airframes can reduce GHG emissions; this may negatively affect the values of older equipment.

Resource and Energy Management

Governments	Financial Institutions	Corporate Finance	Structured Finance
Does the scarcity of key resources impose high costs on the public sector or make the private sector less competitive?	Unlikely to apply.	Does the scarcity of sourcing key resources hinder the production or operations of the issuer, resulting in lower productivity and therefore revenues?	Unlikely to apply.
Is the economy reliant on industries that are vulnerable to import or export price shocks?			
Example: <ul style="list-style-type: none"> Industrial production undergoes a structural decline due to rising prices for key inputs. 	Example: <ul style="list-style-type: none"> Not applicable. 	Example: <ul style="list-style-type: none"> A global shortage of lithium preventing a car manufacturer from meeting electric vehicle demand and meeting revenue forecasts. 	Example: <ul style="list-style-type: none"> Not applicable.

Land Impact and Biodiversity

Governments	Financial Institutions	Corporate Finance	Structured Finance
Is there a risk to a government's economic or tax base for failing to effectively regulate land impact and biodiversity activities?	Unlikely to apply.	Is there a financial risk to the issuer for failing to effectively manage land conversion, rehabilitation, land impact, or biodiversity activities?	Unlikely to apply.
Example: <ul style="list-style-type: none"> Natural resource exploitation without sufficient public savings results in a sustained gradual decline of national wealth. 	Example: <ul style="list-style-type: none"> Not applicable. 	Examples: <ul style="list-style-type: none"> The forestry industry overharvests old-growth forests, resulting in future shortages and price volatility. An oil exploration company is required to rehabilitate lands contaminated by its resource extraction. 	Example: <ul style="list-style-type: none"> Not applicable.

Climate and Weather Risks

Governments	Financial Institutions	Corporate Finance	Structured Finance
Will climate change and adverse weather events potentially destroy a material portion of national wealth, weaken the financial system, or disrupt the economy?	In the near term, will climate change and adverse weather events potentially disrupt issuer or client operations, causing a negative financial impact? In the long term, will the issuer's or client's business activities and infrastructure be materially affected financially by a 2°C rise in temperature?	In the near term, will climate change and adverse weather events potentially disrupt issuer or client operations, causing a negative financial impact? In the long term, will the issuer's or client's business activities and infrastructure be materially affected financially by a 2°C rise in temperature?	Are the securitized assets in regions exposed to climate change and adverse weather events affecting expected default rates, future valuations, and/or recoveries?
Example: <ul style="list-style-type: none"> Frequent droughts and extreme heat lead to more forest fires, resulting in infrastructure damage and increased public expenditure. 	Example: <ul style="list-style-type: none"> More frequent P&C claims because of extreme weather events. Potentially higher losses on mortgages secured by commercial or residential properties in regions that are affected by adverse climate or weather. 	Example: <ul style="list-style-type: none"> More frequent and volatile storm systems may adversely affect tropical tourism destinations and the industries that support them. 	Example: <ul style="list-style-type: none"> Potentially higher losses on mortgage portfolios secured by commercial or residential properties in regions that will likely be affected by adverse climate or weather.

Social Factors

Social Impact of Products and Services

Governments	Financial Institutions	Corporate Finance	Structured Finance
Not applicable.	Do we consider that the social impact of the issuer's products and services pose a financial or regulatory risk to the issuer?	Do we consider that the social impact of the issuer's products and services pose a financial or regulatory risk to the issuer?	Do the securitized assets have an extraordinarily positive or negative social impact on the borrowers and/or society, and do these characteristics of these assets result in different default rates and/or recovery expectations? Does the business model or the underlying borrower(s) have an extraordinarily positive or negative effect on their stakeholders and/or society, and does this result in different default rates and/or recovery expectations? Considering changes in consumer behavior or secular social trends: Does this affect the default and/or loss expectations for the securitized assets?
Example: • Not applicable.	Example: • Questionable or misleading marketing practices for financial products can lead to high-profile fines and negatively affect the financial institution's franchise value.	Example: • Digital streaming causes changes in the ways that society consumes entertainment, thereby cannibalizing revenues from other product lines of telecommunication and cable companies.	Examples: • Government schemes to promote home ownership (for example, by providing equity loans) can have a positive effect on a country's residential property values (recoveries), but negatively affect the borrowers' default risk amid higher indebtedness. • Trend toward e-commerce and online shopping may affect CRE values negatively (retail) or positively (industrial warehouses). • A CRE sponsor's strategy to modernize and convert social housing into free-market units negatively affects tenants' affordability, but could have positive effects on the community. If successful, it can increase the rental cash flow and value of its housing stock, reducing default risk and increasing recoveries.

Human Capital and Human Rights

Governments	Financial Institutions	Corporate Finance	Structured Finance
Compared with regional or global peers, how competitive, flexible, and productive is the domestic labour force? Are labour or social conflicts a key source of economic volatility? Are individual and human rights broadly respected and in line with the population's expectations? Is the government exposed to heavy, coordinated international pressure as a result of its respect for fundamental human rights?	Is the issuer exposed to staffing risks, such as the scarcity of skilled labour, uncompetitive wages, or frequent labour relations conflicts, that could result in a material financial or operational impact? Do violations of rights create a potential liability that can negatively affect the issuer's financial wellbeing or reputation?	Is the issuer exposed to staffing risks, such as the scarcity of skilled labour, uncompetitive wages, or frequent labour relations conflicts, that could result in a material financial or operational impact? Do violations of rights create a potential liability that can negatively affect the issuer's financial wellbeing or reputation?	Are the originator, servicer, or underlying borrower(s) exposed to staffing risks and could this have a financial or operational effect on the structured finance issuer? Is there unmitigated compliance risk due to mis-selling, lending practices, or work-out procedures that could result in higher default risk and/or lower recovery expectations for the securitized assets?
Examples: • Trade and investment significantly declines because of weak labour protections and human rights violations. • Inadequate investment in education and skills development limits job growth and results in net emigration from a region.	Examples: • Staff restructuring programs or striking employees can have an impact on customer relations. • Lending to or insuring companies that do not respect fundamental human rights could have a reputational impact on the financial institution.	Examples: • Striking employees can have an impact on customer relations. • Doing business with companies that do not respect fundamental human rights could have a substantial reputational impact on the company.	Examples: • A servicer may have difficulty attracting qualified employees and retaining talent, affecting its servicing ability.

Product Governance

Governments	Financial Institutions	Corporate Finance	Structured Finance
Not applicable.	Does failure in delivering quality products and services cause damage to customers and expose the issuer to financial and legal liability?	Does failure in delivering quality products and services cause damage to customers and expose the issuer to financial and legal liability?	Does the originator's, servicer's, or underlying borrower(s)' failure to deliver quality products and services cause damage that may result in higher default risk and/or lower recovery expectations for the securitized assets?
Example: • Not applicable.	Example: • Questionable marketing for consumer financial products can lead to high-profile fines and negatively affect the financial institution's franchise value.	Example: • Selling faulty products and services can lead to high-profile fines and negatively affect the company's franchise value.	Example: • Unmitigated risk of redress for mis-selling and/or regulatory changes can lead to fines and may negatively affect recoveries. • Lending practices that impose unfair or deceptive loan terms on a borrower that may negatively affect recoveries.

Data Privacy and Security

Governments	Financial Institutions	Corporate Finance	Structured Finance
Unlikely to apply.	Has misuse or negligence in maintaining private client or stakeholder data resulted, or could it result, in financial penalties or client attrition to the issuer?	Has misuse or negligence in maintaining private client or stakeholder data resulted, or could it result, in financial penalties or client attrition to the issuer?	Does the originator's, servicer's, or underlying borrower(s)' misuse or negligence in maintaining private client or stakeholder data result in financial penalties or losses to the issuer?
Example: • Not applicable.	Example: • Misuse or negligence in maintaining sensitive financial information can lead to high-profile fines and negatively affect the financial institution's franchise value.	Example: • Misuse or negligence in maintaining sensitive financial information can lead to high-profile fines and negatively affect the company's franchise value.	Example: • The issuer's or its agents' unmitigated misuse or negligence in maintaining sensitive financial information may result in operational disruptions and/or negatively affect recoveries.

Occupational Health and Safety

Governments	Financial Institutions	Corporate Finance	Structured Finance
Unlikely to apply.	Unlikely to apply.	Would the failure to address workplace hazards have a negative financial impact on the issuer?	Not applicable.
Example: • Not applicable.	Example: • Not applicable.	Example: • A construction company is exposed to risks of workplace hazards and litigation, which can negatively affect its franchise value.	Example: • Not applicable.

Community Relations

Governments	Financial Institutions	Corporate Finance	Structured Finance
See Institutional Strength, Governance, and Transparency factor below.	Does engagement, or lack of engagement, with local communities pose a financial or reputational risk to the issuer?	Does engagement, or lack of engagement, with local communities pose a financial or reputational risk to the issuer?	Not applicable.
Example: • Not applicable.	Example: • Any of the financial institution's activities seen to unfavourably affect the community in which it operates will likely have reputational consequences.	Example: • Any activities seen to unfavourably affect the community will likely have reputational consequences that may affect customer acceptance and therefore revenues.	Example: • Not applicable.

Access to Basic Services

Governments	Financial Institutions	Corporate Finance	Structure Finance
Does a failure to provide adequate basic services deter investment, migration, and income growth within the economy?	Does a failure to provide or protect with respect to essential products or services have the potential to result in any significant negative financial impact on the issuer?	Does a failure to provide or protect with respect to essential products or services have the potential to result in any significant negative financial impact on the issuer?	Not applicable.
Example: • Improvements in access to basic services generate increased migrant flows into a region, accompanied by enhancements in labour productivity.	Example: • Regulatory requirements to maintain branches and services in certain areas as well as to provide basic services can result in higher costs for the financial institution.	Example: • Regulatory requirements to provide basic services in certain areas may impose additional costs to the company.	Example: • Not applicable.

Factors

Bribery, Corruption, and Political Risks

Governments	Financial Institutions	Corporate Finance	Structured Finance
Does widespread evidence of official corruption and other weaknesses in the rule of law deter investment and contribute to fiscal or financial challenges?	Do alleged or actual illicit payments pose a financial or reputational risk to the issuer? Are there any political risks that could affect the issuer's financial position or its reputation?	Do alleged or actual illicit payments pose a financial or reputational risk to the issuer? Are there any political risks that could affect the issuer's financial position or its reputation?	Not applicable.
Example: • International creditors seek to reduce exposure to an emerging market because of increasing reputational risks associated with money laundering and corruption.	Example: • Financial institutions involved in bribery or corruption will likely become subject to regulatory sanctions, legal actions, and receive fines, resulting in franchise impairment.	Example: • Companies involved in bribery or corruption will likely become subject to regulatory sanctions, legal actions, and receive fines, resulting in franchise impairment.	Example: • Not applicable.

Business Ethics

Governments	Financial Institutions	Corporate Finance	Structured Finance
Unlikely to apply.	Do general professional ethics pose a financial or reputational risk to the issuer?	Do general professional ethics pose a financial or reputational risk to the issuer?	Not applicable.
Example: • Not applicable.	Example: • Financial institutions not adhering to taxation and accounting rules, or engaging in anti-competitive practices, will likely incur large fines or reputational damage. • Financial Institutions that have been involved in money laundering or other illegal activities will likely incur large fines and reputational damage.	Example: • Companies not adhering to taxation and accounting rules, or engaging in anti-competitive practices, will likely incur large fines or reputational damage.	Example: • Not applicable.

Corporate/Transaction Governance

Governments	Financial Institutions	Corporate Finance	Structured Finance
See Institutional Strength, Governance, and Transparency factor below.	Does the issuer's corporate structure allow for appropriate board and audit independence? Have there been significant governance failures that could negatively affect the issuer's financial wellbeing or reputation? Does the board and/or management have a formal framework to assess climate-related financial risks to the issuer?	Does the issuer's corporate structure allow for appropriate board and audit independence? Have there been significant governance failures that could negatively affect the issuer's financial wellbeing or reputation? Does the board and/or management have a formal framework to assess climate-related financial risks to the issuer?	Does the transaction structure affect the assessment of the credit risk posed to investors due to a lack of appropriate independence of the issuer from the originator and/or other transaction parties? Considering the alignment of interest between the transaction parties and noteholders: Does this affect the assessment of credit risk posed to investors because the alignment of interest is inferior or superior to comparable transactions in the sector? Does the lack of appropriately defined mechanisms in the structure on how to deal with future events affect the assessment of credit risk posed to investors? Considering how the transaction structure provides for timely and appropriate performance and asset reporting: Does this affect the assessment of credit risk posed to investors because it is inferior or superior to comparable transactions in the sector?
Example: • Not applicable.	Example: • Well-run financial institutions should have strong and independent boards, stable management, low key-person risk, and an independent audit and risk-management function.	Example: • Well-run companies should have strong and independent boards, stable management, low key-person risk, and an independent audit function.	Example: • Misalignment of interest between transaction parties and noteholders of different seniority may affect the credit risk for noteholders as a whole, or noteholders of different seniority within the issuer's capital structure.

Institutional Strength, Governance, and Transparency

Governments	Financial Institutions	Corporate Finance	Structure Finance
Compared with other governments, do institutional arrangements provide a similar degree of accountability, transparency, and effectiveness?	Not applicable.	Unlikely to apply.	Not applicable.
Are regulatory and oversight bodies protected from inappropriate political influence?			
Are government officials exposed to public scrutiny and held to high ethical standards of conduct?			
Example: <ul style="list-style-type: none"> • Replacement of central bank officials by a newly elected leader is followed by a substantial lowering of interest rates, despite rising inflationary pressures. 	Example: <ul style="list-style-type: none"> • Not applicable. 	Example: <ul style="list-style-type: none"> • Not applicable. 	Example: <ul style="list-style-type: none"> • Not applicable.

Peace and Security

Governments	Financial Institutions	Corporate Finance	Structure Finance
Is the government likely to initiate or respond to hostilities with neighbouring governments?	Not applicable.	Not applicable.	Not applicable.
Is the government's authority over certain regions contested by domestic or foreign militias?			
Is the risk of terrorism or violence sufficient to deter investment or to create contingent liabilities for the government?			
Example: <ul style="list-style-type: none"> • A border conflict with a neighbouring government leads to much more security spending and higher public debt burden. 	Example: <ul style="list-style-type: none"> • Not applicable. 	Example: <ul style="list-style-type: none"> • Not applicable. 	Example: <ul style="list-style-type: none"> • Not applicable.

Financial Institutions ESG Factors in Credit Risk Analysis

✓ Factor has reasonable possibility to have a credit impact on at least some issuers in the sector

ENVIRONMENTAL			SOCIAL							GOVERNANCE		
Emissions, Effluents, and Waste	Carbon and GHG Costs	Climate and Weather Risks	Social Impact of Products and Services	Human Capital and Human Rights	Product Governance	Data Privacy Security	Community Relations	Access to Basic Services	Bribery, Corruption, and Political Risks	Business Ethics	Corporate/Transaction Governance	
Do we consider that the costs or risks result, or could result, in changes to an issuer's financial, operational, and/or reputational standing?	Does the issuer face increased regulatory pressure relating to the carbon impact of its operations resulting in additional costs and/or will such costs increase over time affecting the long-term credit profile?	In the near term, will climate change and adverse weather events potentially disrupt issuer or client operations, causing a negative financial impact? In the long term, will the issuer's or client's business activities and infrastructure be materially affected financially by a 2°C rise in temperature?	Do we consider that the social impact of the issuer's products and services pose a financial or regulatory risk to the issuer?	Is the issuer exposed to staffing risks, such as the scarcity of skilled labour, uncompetitive wages, or frequent labour relations conflicts, that could result in a material financial or operational impact? Do violations of rights create a potential liability that can negatively affect the issuer's financial wellbeing or reputation?	Does failure in delivering quality products and services cause damage to customers and expose the issuer to financial and legal liability?	Has misuse or negligence in maintaining private client or stakeholder data resulted, or could it result, in financial penalties or client attrition to the issuer?	Does engagement, or lack of engagement, with local communities pose a financial or reputational risk to the issuer?	Does a failure to provide or protect with respect to essential products or services have the potential to result in any significant negative financial impact on the issuer?	Do alleged or actual illicit payments pose a financial or reputational risk to the issuer? Are there any political risks that could affect the issuer's financial position or its reputation?	Do general professional ethics pose a financial or reputational risk to the issuer?	Does the issuer's corporate structure allow for appropriate board and audit independence? Have there been significant governance failures that could negatively affect the issuer's financial wellbeing or reputation? Does the board and/or management have a formal framework to assess climate-related financial risks to the issuer?	
Global Methodology for Rating Investment Management Companies		✓	✓	✓	✓	✓			✓	✓	✓	
Global Methodology for Rating Banks and Banking Organisations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Global Methodology for Rating Life and P&C Insurance Companies and Insurance Organizations			✓	✓	✓	✓			✓	✓	✓	
Rating Mortgage Insurance Companies		✓	✓	✓	✓	✓			✓	✓	✓	
Global Methodology for Rating Non-Bank Financial Institutions	✓	✓	✓	✓	✓	✓			✓	✓	✓	
Global Methodology for Rating Secured Debt Issued by Funds ³			✓	✓	✓	✓			✓	✓	✓	
General Corporate Methodology — Appendix 3: TMX Group Limited			✓		✓	✓		✓	✓	✓	✓	
Global Methodology for Rating Supranational Institutions									✓		✓	

Structured Finance ESG Factors in Credit Risk Analysis

✓ Factor has reasonable possibility to have a credit impact on at least some issuers in the sector

ENVIRONMENTAL			SOCIAL				GOVERNANCE
Emissions, Effluents, and Waste	Carbon and GHG Costs	Climate and Weather Risks	Social Impact of Products and Services	Human Capital and Human Rights	Product Governance	Data Privacy and Security	Corporate/ Transaction Governance
Do the costs or risks result in a higher default risk or lower recoveries for the securitized assets?	Do the costs or risks related to GHG emissions result in higher default risk or lower recoveries of the securitized assets? Are there potential benefits of GHG-efficient assets on affordability, financeability, or future values (recoveries)?	Are the securitized assets in regions exposed to climate change and adverse weather events affecting expected default rates, future valuations, and/or recoveries?	Do the securitized assets have an extraordinarily positive or negative social impact on the borrowers and/or society, and do these characteristics of these assets result in different default rates and/or recovery expectations? Does the business model or the underlying borrower(s) have an extraordinarily positive or negative effect on their stakeholders and/or society, and does this result in different default rates and/or recovery expectations? Considering changes in consumer behavior or secular social trends: Does this affect the default and/or loss expectations for the securitized assets?	Are the originator, servicer, or underlying borrower(s) exposed to staffing risks and could this have a financial or operational effect on the structured finance issuer? Is there unmitigated compliance risk due to mis-selling, lending practices, or work-out procedures that could result in higher default risk and/or lower recovery expectations for the securitized assets?	Does the originator's, servicer's, or underlying borrower(s)' failure to deliver quality products and services cause damage that may result in higher default risk and/or lower recovery expectations for the securitized assets?	Does the originator's, servicer's, or underlying borrower(s)' misuse or negligence in maintaining private client or stakeholder data result in financial penalties or losses to the issuer?	Does the transaction structure affect the assessment of the credit risk posed to investors due to a lack of appropriate independence of the issuer from the originator and/or other transaction parties? Considering the alignment of interest between the transaction parties and noteholders: Does this affect the assessment of credit risk posed to investors because the alignment of interest is inferior or superior to comparable transactions in the sector? Does the lack of appropriately defined mechanisms in the structure on how to deal with future events affect the assessment of credit risk posed to investors? Considering how the transaction structure provides for timely and appropriate performance and asset reporting: Does this affect the assessment of credit risk posed to investors because it is inferior or superior to comparable transactions in the sector?
RMBS & CMBS							
EUROPEAN STRUCTURED FINANCE							
RMBS							
Master European Residential Mortgage-Backed Securities Rating Methodology and Jurisdictional Addenda	✓	✓	✓	✓	✓	✓	✓
European RMBS Insight Methodology	✓	✓	✓	✓	✓	✓	✓
European RMBS Insight: UK Addendum	✓	✓	✓	✓	✓	✓	✓
European RMBS Insight: Greek Addendum	✓	✓	✓	✓	✓	✓	✓
European RMBS Insight: Dutch Addendum	✓	✓	✓	✓	✓	✓	✓
European RMBS Insight: Spanish Addendum	✓	✓	✓	✓	✓	✓	✓
Common RMBS Rating Methodology	✓	✓	✓	✓	✓	✓	✓
CMBS							
European CMBS Rating and Surveillance Methodology	✓	✓	✓	✓	✓	✓	✓
Covered Bonds							
Rating and Monitoring Covered Bonds ¹	✓	✓	✓	✓	✓	✓	✓
Rating European Non-Performing Loans Securitisations	✓	✓	✓	✓	✓	✓	✓

✓ Factor has reasonable possibility to have a credit impact on at least some issuers in the sector

	ENVIRONMENTAL		SOCIAL				GOVERNANCE
NORTH AMERICAN RMBS							
U.S. Single-Family Rental Securitization Ratings Methodology (MCR)	✓	✓	✓	✓	✓	✓	✓
RMBS Insight 1.3: U.S. Residential Mortgage-Backed Securities Model and Rating Methodology	✓	✓	✓	✓	✓	✓	✓
U.S. Reverse Mortgage Securitization Ratings Methodology (MCR)	✓	✓	✓	✓	✓	✓	✓
U.S. RMBS Surveillance Methodology	✓	✓	✓	✓	✓	✓	✓
NORTH AMERICAN CMBS							
North American Single-Asset/Single-Borrower Ratings Methodology	✓	✓	✓	✓	✓	✓	✓
North American CMBS Multi-Borrower Rating Methodology	✓	✓	✓	✓	✓	✓	✓
North American CMBS Surveillance Methodology	✓	✓	✓	✓	✓	✓	✓
Rating North American CMBS Interest-Only Certificates	✓	✓	✓	✓	✓	✓	✓
DBRS Morningstar North American Commercial Real Estate Property Analysis Criteria	✓	✓	✓	✓	✓	✓	✓
North American Commercial Mortgage Servicer Evaluations	✓	✓	✓	✓	✓	✓	✓
NORTH AMERICAN OPERATIONAL RISK							
Operational Risk Assessment for U.S. RMBS Originators	✓	✓	✓	✓	✓	✓	✓
Operational Risk Assessment for U.S. RMBS Servicers	✓	✓	✓	✓	✓	✓	✓
Operational Risk Assessment for Collateralized Loan Obligation (CLO) and Collateralized Debt Obligation (CDO) Managers of Large Corporate Credits	✓	✓	✓	✓	✓	✓	✓
Operational Risk Assessment for U.S. ABS Originators	✓	✓	✓	✓	✓	✓	✓
Operational Risk Assessment for U.S. ABS Servicers	✓	✓	✓	✓	✓	✓	✓
U.S. ABS							
Rating U.S. Rental Car Securitizations	✓	✓	✓	✓	✓	✓	✓
Rating Marine Container Securitizations	✓	✓	✓	✓	✓	✓	✓
Rating U.S. Equipment Lease and Loan Securitizations	✓	✓	✓	✓	✓	✓	✓
Rating U.S. Structured Settlements Asset-Backed Securitizations ²			✓	✓	✓	✓	✓
Rating U.S. Structured Finance Transactions – Appendix IV: U.S. Insurance Premium Finance ²			✓	✓	✓	✓	✓
Rating U.S. Structured Finance Transactions – Appendix V: Obligations Backed by Insurance Policy (Financial Guarantee) ²			✓	✓	✓	✓	✓
U.S. ABS General Ratings Methodology (MCR) – U.S. Venture Debt ³			✓	✓	✓	✓	✓
U.S. ABS General Ratings Methodology (MCR) – U.S. ABS Mixed Pool Structured Settlements ²			✓	✓	✓	✓	✓
Trade Receivables ³			✓	✓	✓	✓	✓
Rating Structured Aircraft Transactions	✓	✓	✓	✓	✓	✓	✓
Rating U.S. Property Assessed Clean Energy (PACE) Securitizations	✓	✓	✓	✓	✓	✓	✓
Rating U.S. Auto Fleet Lease Securitizations	✓	✓	✓	✓	✓	✓	✓
Rating U.S. Structured Finance Transactions – Appendix VI: U.S. Energy Savings Performance Contracts			✓	✓	✓	✓	✓
Rating U.S. Structured Finance Transactions – Appendix VII: Insurance Commission ABS ²			✓	✓	✓	✓	✓
Rating U.S. Structured Finance Transactions – Appendix II: U.S. Health-Care Receivables ABS ³			✓	✓	✓	✓	✓
U.S. ABS General Ratings Methodology (MCR) – U.S. Railroad Right-of-Way Licenses			✓	✓	✓	✓	✓
Rating U.S. Private Student Loan Securitizations			✓	✓	✓	✓	✓
Rating U.S. Federal Family Education Loan Program Securitizations			✓	✓	✓	✓	✓
U.S. ABS General Ratings Methodology (MCR) – U.S. Small Business Administration 7(a) Loans ³			✓	✓	✓	✓	✓
Rating U.S. Retail Auto Loan Securitizations	✓	✓	✓	✓	✓	✓	✓
Rating U.S. Auto Lease Securitizations	✓	✓	✓	✓	✓	✓	✓
U.S. ABS General Ratings Methodology (MCR) – U.S. Agricultural Production Lending			✓	✓	✓	✓	✓

✓ Factor has reasonable possibility to have a credit impact on at least some issuers in the sector

	ENVIRONMENTAL			SOCIAL				GOVERNANCE
Canadian Surveillance Methodology for CDOs of Large Corporate Credit ³				✓	✓	✓	✓	✓
Rating Canadian Public Pension Funds & Related Exclusive Asset Managers ^{3,6}	✓	✓	✓	✓	✓	✓	✓	✓
Rating Canadian Structured Finance Transactions – Appendix: Residential Rental Equipment Contract Receivables		✓	✓	✓	✓	✓	✓	✓
Rating Canadian Credit Card and Personal Line of Credit Securitizations				✓	✓	✓	✓	✓
Rating Canadian Auto Fleet Lease Transactions	✓	✓	✓	✓	✓	✓	✓	✓
Rating Canadian Wholesale Securitizations	✓	✓	✓	✓	✓	✓	✓	✓
Rating Canadian Auto Retail Loan and Lease Securitizations	✓	✓	✓	✓	✓	✓	✓	✓
Rating Canadian Rental Car Fleet Securitizations	✓	✓	✓	✓	✓	✓	✓	✓
Rating Canadian Equipment Finance Securitization Transactions	✓	✓	✓	✓	✓	✓	✓	✓
Rating Canadian Trade Receivables Securitization Transactions ³				✓	✓	✓	✓	✓
Rating Canadian Structured Finance Transactions – Appendix: Franchise Loans			✓	✓	✓	✓	✓	✓
Rating Canadian Structured Finance Transactions – Appendix: Legislated Utility Collections			✓	✓	✓	✓	✓	✓
Rating Canadian Residential Mortgages, Home Equity Lines of Credit and Reverse Mortgages		✓	✓	✓	✓	✓	✓	✓
Rating Canadian Structured Finance Transactions – Appendix: Consumer Loans				✓	✓	✓	✓	✓
Rating Canadian Structured Finance Transactions – Appendix: Insurance Premium Loans ²				✓	✓	✓	✓	✓
Rating Canadian Structured Finance Transactions	✓	✓	✓	✓	✓	✓	✓	✓
Structured Credit								
Rating Structured Finance CDO Restructurings	✓	✓	✓	✓	✓	✓	✓	✓
Rating U.S. Collateralized Fund Obligations Backed by Private Equity ³				✓	✓	✓	✓	✓
Rating CLOs and CDOs of Large Corporate Credit ³				✓	✓	✓	✓	✓
Rating and Monitoring Subscription Loans (Capital Call) ^{3,7}	✓	✓	✓	✓	✓	✓	✓	✓
Rating and Monitoring U.S. ABCP Conduits: U.S. ABCP Conduits	✓	✓	✓	✓	✓	✓	✓	✓
Rating Credit Funds ³				✓	✓	✓	✓	✓

1. In addition to the eight ESG factors that typically apply to structured finance transactions, investors are also exposed to ESG factors of the bank issuing or guaranteeing the covered bonds (see grid for bank industry methodologies in the Financial Institutions ESG Factors in Credit Risk Analysis section).

2. These transactions rely on cash flows from insurance companies. In addition to the eight ESG risk factors that typically apply to structured finance transactions, these transactions are also exposed to additional ESG risk factors applicable to insurance companies. However, since the transaction cash flows are from a pool of insurance companies, the ESG risks from any one insurer are typically diluted. Consequently, the ESG factors checked off in the grid reflect the Social risk factors that the servicers may pose to the transaction while Corporate/Transaction Governance factors apply to all Structured Finance transactions. See Appendix A for a list of ESG factors that apply to insurance companies, and for a list by methodology, see Financial Institutions ESG Factors in Credit Risk Analysis grid in Appendix B.

3. These transactions typically rely on cash flows from corporate issuers. In addition to the eight ESG risk factors that typically apply to structured finance transactions, these transactions are exposed to additional ESG risk factors applicable to corporate issuers. To the extent that the cash flows are from a pool of corporate issuers, ESG risks from any one issuer are diluted. Consequently, the ESG factors checked off in the grid reflect the Social risk factors that servicers may pose to the transaction while Corporate/Transaction Governance factors apply to all Structured Finance transactions. See Appendix A for a list of ESG factors applicable to the universe of corporate issuers, and for a list by methodology, see the Corporate ESG Factors In Credit Analysis grid in Appendix B.

4. Whole Business transactions rely on cash flows from corporate operating assets. In addition to the eight ESG risk factors that typically apply to structured finance transactions, these transactions are also exposed to ESG factors applicable to the corporate sector listed in Appendix A. See the grid for the respective methodologies included in the sector in Appendix B, Corporate ESG Factors in Credit Risk Analysis.

5. These transactions rely on cash flows from a reference obligor or guarantor or counterparty who may be a government, corporate, or financial institutions entity. In addition to the eight risk factors that typically apply to structured finance transactions, these transactions may be exposed to other ESG risk factors based on whether the reference obligor or guarantor or counterparty is a government, corporate, or financial institutions entity. For additional risk factors applicable to these sectors, see Appendix A for a list of ESG Factors by methodology used within sectors, see Appendix B.

6. In addition to the eight ESG risk factors that typically apply to structured finance transactions, these transactions are also exposed to ESG risk factors applicable to the Canadian government or quasigovernmental agencies. For additional risk factors applicable to the Government sector, see Appendix A for the list of ESG factors that apply to the Government, Financial Institutions and Corporate Finance sectors and for a list by Methodology, see Government ESG Factors in Credit Analysis grid in Appendix B.

7. Capital call In addition to the eight ESG risk factors that typically apply to structured finance transactions, the transactions are exposed to additional ESG risk factors that stem from either financial institutions or corporate.

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We rate more than 3,000 issuers and nearly 60,000 securities worldwide, providing independent credit ratings for financial institutions, corporate and sovereign entities, and structured finance products and instruments. Market innovators choose to work with us because of our agility, transparency, and tech-forward approach.

DBRS Morningstar is empowering investor success as the go-to source for independent credit ratings. And we are bringing transparency, responsiveness, and leading-edge technology to the industry.

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Methodology

Global Methodology for Rating Companies in the Regulated Electric, Natural Gas, and Water Utilities Industry

DBRS Morningstar

September 2022

Previous Release

September 2021

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Related Research

DBRS Morningstar is a full-service credit rating agency established in 1976. Spanning North America, Europe, and Asia, DBRS Morningstar is respected for its independent, third-party evaluations of corporate and government issues. DBRS Morningstar's extensive coverage of securitizations and structured finance transactions solidifies its standing as a leading provider of comprehensive, in-depth credit analysis.

All DBRS Morningstar ratings and research are available in hard-copy format and electronically on Bloomberg and at dbbrsmorningstar.com, its lead delivery tool for organized, web-based, up-to-the-minute information. DBRS Morningstar remains committed to continuously refining its expertise in the analysis of credit quality and is dedicated to maintaining objective and credible opinions within the global financial marketplace.

Scope and Limitations

This methodology represents the current DBRS Morningstar approach for rating companies in the regulated electric, natural gas, and water utilities industry globally. It includes consideration of historical and expected business and financial risk factors as well as industry-specific issues, regional nuances, and other subjective factors and intangible considerations. DBRS Morningstar's approach incorporates a combination of both quantitative and qualitative factors. This methodology provides guidance regarding the DBRS Morningstar methods used in the sector and should not be interpreted with formulaic inflexibility but rather should be understood in the context of the dynamic environment in which it is intended to be applied. The methods described herein may not be applicable in all cases; the considerations outlined in DBRS Morningstar methodologies are not exhaustive and the relative importance of any specific consideration can vary by issuer. In certain cases, a major strength can compensate for a weakness and, conversely, a single weakness can override major strengths of the issuer in other areas. DBRS Morningstar may use, and appropriately weight, several methodologies when rating issuers that are involved in multiple business lines.

Introduction to DBRS Morningstar Methodologies

- DBRS Morningstar publishes rating methodologies to give issuers and investors insight into the rationale behind DBRS Morningstar's rating opinions.
- In general terms, DBRS Morningstar's ratings are opinions that reflect the creditworthiness of an issuer, a security, or an obligation. DBRS Morningstar's ratings assess an issuer's ability to make timely payments on outstanding obligations (whether principal, interest, or preferred share dividends),

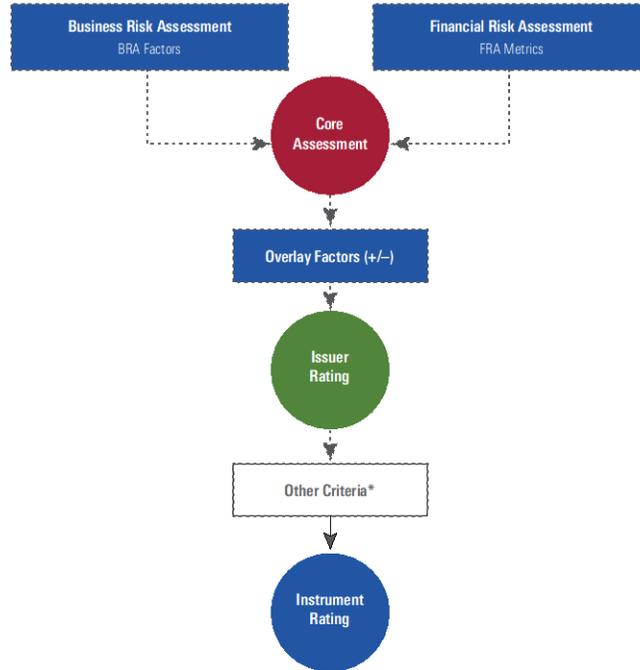
consistent with the terms of those obligations. In some cases (e.g., non-investment-grade corporate issuers), DBRS Morningstar's ratings may also address recovery prospects for a specific instrument given the assumption of an issuer default.

- DBRS Morningstar operates with a stable rating philosophy; in other words, DBRS Morningstar strives to factor the impact of a cyclical economic environment into its ratings wherever possible, which minimizes rating changes caused by economic cycles. Rating revisions do occur, however, when more structural changes, either positive or negative, have occurred or appear likely to occur in the foreseeable future.
- DBRS Morningstar also publishes criteria, which are an important part of the rating process. Criteria typically cover areas that apply to more than one industry. Both methodologies and criteria are publicly available on DBRS Morningstar's website.
- Four criteria are used in the ratings of virtually every corporate issuer and are incorporated by reference into this methodology: (1) *DBRS Morningstar Criteria: Approach to Environmental, Social, and Governance Risk Factors in Credit Ratings*; (2) *DBRS Morningstar Criteria: Evaluating Corporate Governance*; (3) *DBRS Morningstar Criteria: Common Adjustments for Calculating Financial Ratios*; and (4) *DBRS Morningstar Criteria: Rating Corporate Holding Companies and Parent/Subsidiary Rating Relationships*.

Overview of the DBRS Morningstar Rating Process

- As illustrated below, there are generally four key components to the DBRS Morningstar corporate rating process: (1) the Business Risk Assessment (BRA), (2) the Financial Risk Assessment (FRA), (3) overlay considerations, and (4) specific instrument considerations.
- The BRA captures the major business risk aspects of the issuer and is determined by assessing each of the BRA factors outlined in the industry-specific BRA grid. The FRA pertains to financial soundness and is determined by assessing each of the FRA factors. Throughout the FRA and BRA determination process, DBRS Morningstar performs a consistency check of these factors relative to the issuer's rated industry peers.
- The BRA and FRA are then combined to derive the issuer's core assessment. For investment-grade credits, the BRA will have greater weight than the FRA in determining the core assessment.
- The core assessment may then be adjusted up or down, as applicable, if any of the general or sector-specific overlay factors is deemed applicable and material to the credit profile in order to arrive at the issuer rating, which represents DBRS Morningstar's assessment of the issuer's likelihood of default.
- The issuer rating is then used as the basis for specific instrument ratings, which may differ from the issuer rating because of seniority or, in the case of non-investment-grade issuers, expected recovery considerations. (See the Rating the Specific Instrument and Other Criteria section below.)

DBRS Morningstar Rating Analysis Process Business



* Depending on the instrument, "other criteria" may include *DBRS Morningstar Criteria: Recovery Ratings for Non-Investment-Grade Corporate Issuers* or *DBRS Morningstar Criteria: Preferred Share and Hybrid Security Criteria for Corporate Issuers*, for example. Please refer to the section below entitled Rating the Specific Instrument and Other Criteria for a list of these criteria, as well as other criteria that may be applicable at any stage of the rating process.

Regulated Electric, Natural Gas, and Water Utilities Industry

- This methodology applies to rate-regulated utilities whose primary businesses typically operate within a monopoly franchise area and may include one or more of the following business lines: (1) regulated electric generation, transmission, and distribution; (2) natural gas transmission and distribution; and (3) water and waste-water utilities.
- For companies that have both material regulated and nonregulated operations in other related industry segments (e.g., nonregulated electricity generation, energy marketing, or trading), DBRS Morningstar applies both this and the *Rating Companies in the Independent Power Producer Industry* methodology. For pipeline or diversified energy companies, see *Rating Companies in the Pipeline and Midstream Energy Industry*. For energy-related project finance transactions, see *Rating Project Finance*, *Rating Wind Power Projects*, or *Rating Solar Power Projects*.
- DBRS Morningstar may also use this methodology for utilities that are nonregulated but effectively share many features with a regulated utility, such as operating as a natural monopoly, providing an essential service, and/or having strong market power (e.g., district energy). For these entities, the Regulation and Operating Efficiency factors are not applicable and are instead replaced by the Competitive/Contractual Position.

- Per the three-tier Industry Risk Assessment (IRA) system (i.e., “A,” BBB, or BB), described on the previous page, this industry’s IRA is “A.”¹
- For the electric-related utilities, there are three broad business areas: generation, transmission, and distribution. Some utilities are fully integrated and participate in all three, while others may be involved in only one or two segments.
- Regulated utilities are typically monopolistic. Because of the large number of fixed costs, one large utility firm can generally provide service at a lower cost than two or more firms serving the same customer base. Utilities are generally regulated by an administrative tribunal (i.e., a government agency) created by statute to assist ratepayers in obtaining reliable energy services on a cost-effective basis. Rate-setting mechanisms generally ensure that utilities receive adequate revenue to recover all costs prudently incurred to provide service and a return on capital.
- Utilities are typically regulated under either a traditional cost-of-service (COS) framework or some form of incentive regulation mechanism (IRM).
- The risks associated with environmental regulation are growing, particularly for the electric industry; however, for a regulated utility, future cost increases attributable to environmental regulation should be recoverable from ratepayers.
- Long-term threats include competition from new distributed energy resources (such as solar and geothermal power) and small-scale power generation sources located close to end users that provide an alternative to traditional electric power generation as well as the transmission and distribution grid.
- Water and waste-water utilities typically operate under similar regulatory frameworks to other regulated distribution utility operations; however, water and waste-water sector regulations can vary widely given that regulation may be at the municipal level rather than the national/state/provincial level. In addition, capital spending may be more volatile for water and waste-water utilities.

1. The IRA is a general indication of an industry’s business risk using just three categories of the DBRS Morningstar long-term rating scale (i.e., BB, BBB, and “A”). It results from a relative ranking of most industries that have a DBRS Morningstar methodology largely based on (A) profitability and cash flow, (B) competitive landscape, (C) stability, (D) regulation, and (E) other factors. An *industry*, for the purposes of the IRA, is defined as firms that are generally the larger, more established firms within the countries where the majority of DBRS Morningstar’s rated issuers are based. The BRA grid (see the Regulated Electric, Natural Gas, and Water Utilities BRA section) is calibrated with the assistance of the IRA, which positions an average firm in the industry onto the BRA grid in an approximate way.

Regulated Electric, Natural Gas, and Water Utilities BRA

The BRA grid below shows the primary factors DBRS Morningstar uses in determining the BRA. While these factors are shown in general order of importance, depending on a specific issuer’s business activities, this ranking can vary by issuer.

Regulated Electric, Natural Gas, and Water Utilities – Primary BRA Factors

Regulation (For Regulated Entities Only) – The quality of the regulatory regime is typically the most important BRA factor, as it lays the foundation for utilities’ earning capacity, cost recovery mechanisms, and capital structure. A supportive regulatory framework contributes to stable cash flow and earnings, underpinned by a fair rate of return and a full and timely recovery of costs. To determine the BRA for regulation, DBRS Morningstar reviews eight considerations (see Appendix 1) to assess the regulatory framework in which the utility conducts its business. The eight considerations include the following: (1) deemed equity ratio, (2) allowed return on equity (ROE), (3) energy cost recovery, (4) capital cost recovery (CCR) and operating cost recovery (OCR), (5) COS versus IRM, (6) political interference, (7) stranded cost recovery, and (8) rate freeze.

AA	A	BBB	BB/B
<ul style="list-style-type: none"> Highly supportive regulatory framework with the weighted-average relevant key regulatory risk factors in Appendix 1 considered to be “excellent.” 	<ul style="list-style-type: none"> Supportive regulatory framework with the weighted-average relevant key regulatory risk factors in Appendix 1 considered to be “good” or better. 	<ul style="list-style-type: none"> Reasonable regulatory framework with the weighted-average relevant key regulatory risk factors in Appendix 1 considered to be “satisfactory” or better. 	<ul style="list-style-type: none"> Poor regulatory framework with the weighted-average relevant key regulatory risk factors in Appendix 1 considered to be “below average” and/or “poor.”

Competitive/Contractual Position (For Nonregulated Entities Only) – For applicable nonregulated entities, DBRS Morningstar focuses on the contractual and market position. Contractual arrangements can mitigate a company’s business risk. Earnings and cash flows from companies that are contractually secured on a long-term basis by strong counterparties are generally more stable and predictable, and may eliminate volume and commodity risk while mitigating the risk of near-term recontracting. Nevertheless, companies with significant exposure to energy activities that result in exposure to price and/or volume carry higher earnings volatility and risk. DBRS Morningstar also takes into consideration the monopolistic nature of the market.

AA	A	BBB	BB/B
<ul style="list-style-type: none"> Not applicable. 	<ul style="list-style-type: none"> Largely contracted on a long-term basis. Minimal recontracting and early contract termination risk. Minimal merchant energy operations. Fuel and purchase energy costs are fully passed through with an automatic adjustment mechanism on a quarterly basis. Some volume risk exists but is mitigated by a high portion of rates being fixed. 	<ul style="list-style-type: none"> Partly contracted on a medium-term basis. Moderate recontracting and early contract termination risk. Modest exposure to merchant energy operations. Fuel and purchase energy costs are fully passed through, subject to review. Some volume risk exists but is mitigated by historically stable throughputs. 	<ul style="list-style-type: none"> Partly contracted on a short-term basis. High recontracting and early contract termination risk. Significant exposure to merchant energy operations. Fuel and purchase energy costs are not fully passed through. Volume risk exists because of a high portion of rates being variable.

Regulated Electric, Natural Gas, and Water Utilities – Primary BRA Factors

Diversification (Products/Markets) (For Both Regulated and Nonregulated Entities) – DBRS Morningstar views the electricity transmission segment as having the lowest risk, as the transmission grid forms the backbone of the industry and generally represents the smallest portion of the average residential electricity bill. As a result, there is strong political will to support the transmission owner to maintain safe, reliable operation of the system. The electricity distribution and gas transmission/distribution segments generally entail modestly higher risk, as the distribution segment accounts for a greater portion of the average residential bill, and the gas segment is exposed to integrity management risk. The generator segment has the highest risk, as it is exposed to fuel risk and higher operating risk than that of other segments; it also represents the highest portion of the electricity bill, which makes it more susceptible to political risk especially in a rising power cost environment. Diversification across low-risk multiline businesses is positive, limiting the impact of changes in one particular segment. DBRS Morningstar also views diversification across multiple regulatory regimes as positive, as this limits the impact of negative regulatory decisions in one jurisdiction. This is particularly true if a utility has sizable operations in multiple jurisdictions versus a utility with a significant portion of its operations in one area while having multiple smaller operations in others.

AA	A	BBB	BB/B
<ul style="list-style-type: none"> • Utility has operations in multiple regulatory jurisdictions. • Primarily electric transmission. • Well-diversified utilities with a range of businesses throughout the utility value chain (natural gas transmission and distribution, electricity transmission and distribution). 	<ul style="list-style-type: none"> • Electric or gas distribution, water or waste-water distribution/services, or an integrated utility or generator with a low-risk profile. 	<ul style="list-style-type: none"> • Integrated utility or generator with a moderate-risk profile. 	<ul style="list-style-type: none"> • Integrated utility or generator with a high-risk profile.

Franchise and Customer Mix (For Both Regulated and Nonregulated Entities) – Operating in stable and economically strong service areas generally results in revenue stability and low accounts-receivable write-offs, as well as minimizing political interference risk in a rising electricity rate environment. DBRS Morningstar considers both the economic strength of a utility’s customer base and the size of the customer base when assessing whether customers will be able to absorb rate increases. Customers in an economically strong service territory are more able to absorb higher rate increases, while a larger customer base would allow capital and operating costs to be spread out over a greater number of customers. Utilities with a higher proportion of residential and commercial customers and load also possess the ability to better weather economic downturns and demonstrate more stable operating performances than utilities with a greater exposure to industrial customers and load, which are more inclined to seek lower-cost or more reliable suppliers and are prone to economic cyclicality. However, utilities with a large residential customer base are generally more sensitive to weather conditions, exposing the utilities to greater volume risk.

AA	A	BBB	BB/B
<ul style="list-style-type: none"> • Economically vibrant service territory, with income that is significantly above the national average. • Utility has a significant customer base (i.e., large metropolitan area or province/state). • Customer and load mix predominantly residential and commercial. 	<ul style="list-style-type: none"> • Economically strong service territory, with income above the national average. • Utility has a sizable customer base. • Customer and load mix heavily weighted toward residential and commercial. 	<ul style="list-style-type: none"> • Economically stagnant service territory, with income that is in line with the national average. • Utility has a reasonably sized customer base. • Customer and load mix a balance of residential and commercial versus industrial. 	<ul style="list-style-type: none"> • Economically weak service territory, with income that is below the national average. • Utility has a shrinking customer base. • Customer and load mix weighted toward cyclical industrials.

Regulated Electric, Natural Gas, and Water Utilities – Primary BRA Factors

Operating Efficiency (Inputs and Costs) (For Regulated Entities Only) – Utilities with a proven track record of superior operating efficiency generally sustain profitability above their respective regulatory return parameters (i.e., the allowed or deemed ROE as distinct from the actual ROE, which is the company’s reported ROE as presented in regulatory filings) and record above-average profitability relative to their peers. Improving operating efficiency also helps minimize political interference (e.g., in the form of the creation of stranded costs, a rate freeze or regulatory lag in the recoupment of costs) in recovering rising input costs and refurbishment costs for aging infrastructure. DBRS Morningstar notes that while a bigger utility (by asset or rate base) should possess a stronger ability to achieve economies of scale as well as raise funds and execute capital projects, it may be under extra scrutiny by the regulator to meet higher thresholds.

AA	A	BBB	BB/B
<ul style="list-style-type: none"> • Actual ROE has significantly exceeded the allowed ROE as a result of continued operating efficiency. • Strong ROE outperformance is expected to be well-sustained in the foreseeable future through incremental cost savings accruing to the company. • Utility is of large comparative size, allowing for significant economies of scale. 	<ul style="list-style-type: none"> • Actual ROE has been in line with the allowed ROE, or a difference between the allowed ROE and the actual ROE has not been material. • ROE performance is expected to remain in line with the allowed ROE for the foreseeable future. There is no expectation of material incremental cost savings arising in the foreseeable future. • Utility is of sufficiently large size to achieve economies of scale. 	<ul style="list-style-type: none"> • Actual ROE has been somewhat below the allowed ROE, and this negative ROE performance relative to allowed ROE is expected to continue for the foreseeable future with no expectation of any material incremental cost savings. • Utility is of reasonable size to achieve some economies of scale. 	<ul style="list-style-type: none"> • The utility has generated much lower actual ROE than the allowed ROE, and this negative ROE performance relative to allowed ROE is expected to continue for the foreseeable future with no expectation of any material incremental cost savings. • Small utility that can only achieve modest, if any, economies of scale.

Regulated Electric, Natural Gas, and Water Utilities FRA

FRA Metrics

The FRA grid below shows the metrics DBRS Morningstar uses to determine the FRA. While these FRA metrics are shown in general order of importance, depending on an issuer’s activities, the ranking can vary by issuer. This section also addresses financial considerations not directly captured by the FRA metrics but nonetheless important to the financial soundness of an issuer. When deemed deficient or, on rarer occasions, favourable to the credit profile, DBRS Morningstar would generally incorporate such considerations into the rating through one of the overlay factors outlined in the Overlay Factors section of this methodology.

- DBRS Morningstar ratings are primarily based on future performance expectations, so while past metrics are important, any final rating will incorporate DBRS Morningstar’s opinion on future metrics, a subjective but critical consideration.
- It is not unusual for a company’s metrics to move in and out of the ranges noted in the grid below, particularly for cyclical industries. In the application of this matrix, DBRS Morningstar looks beyond the point-in-time ratio.
- Financial metrics depend on accounting data whose governing principles vary by jurisdiction. DBRS Morningstar may adjust financial statements to permit comparisons with issuers using different accounting principles (e.g., U.S. GAAP versus IFRS).

- Appendix 3 to this methodology provides definitions for the FRA metrics in the table below as well as a discussion of common financial statement adjustments for this industry. Please refer to *DBRS Morningstar Criteria: Common Adjustments for Calculating Financial Ratios* for further information.
- Liquidity can be an important credit risk factor, especially for lower-rated, non-investment-grade issuers. While ratios such as the current or quick ratio can give an indication of certain short-term assets in comparison with short-term liabilities, DBRS Morningstar will typically review all material sources of liquidity (including cash on hand, cash flow from operations, availability of bank and capital market funding, etc.) in comparison with all material short- and medium-term uses of liquidity (such as operations, capital expenditure (capex), mandatory debt repayments, share buybacks, dividends, etc.).
- Profitability, particularly in the medium term, can be an important differentiator of credit risk. DBRS Morningstar may assess profitability through a variety of metrics, including return on capital.
- While free cash flow (i.e., net of changes in working capital, dividends, capex, etc.) can be volatile and, on occasion, negative, DBRS Morningstar may use this concept and/or other cash flow metrics, such as cash flow from operations, to assess a company’s ability to generate cash to repay debt.
- DBRS Morningstar considers an issuer’s financial policies, including factors such as its targeted financial leverage, its dividend policy and the likelihood of share buybacks, or other management actions that may favour equityholders over creditors.
- While market pricing information (such as market capitalization or credit spreads) may be of interest to DBRS Morningstar, particularly where the information suggests that an issuer may have difficulty in raising capital, it does not usually play a material role in DBRS Morningstar’s more fundamental approach to assessing credit risk.

The following table represents financial metrics related to fully regulated utilities with only modest exposure to nonregulated operations. Significant exposure to nonregulated operations would result in increasingly stringent financial metrics criteria at the various rating levels.

Regulated Electric, Natural Gas, and Water Utilities – Primary FRA Metrics				
Primary Metric	AA	A	BBB	BB/B
Cash flow-to-debt (%)	> 17.5	12.5 to 17.5	10.0 to 12.5	0.0 to 10.0
Debt-to-capital (%)	< 55	55 to 65	65 to 75	75 to 90
EBIT-to-interest (x)	> 2.8	1.8 to 2.8	1.5 to 1.8	1.0 to 1.5

Blending the BRA and FRA into a Core Assessment

- The core assessment is a blend of the BRA and FRA. In most cases, the BRA will have greater weight than the FRA in determining the issuer rating.
- At the low end of the rating scale, however, particularly in the B range and below, the FRA and liquidity factors play a much larger role, and the BRA would, therefore, typically receive a lower weighting than it would at higher rating levels.
- In addition, DBRS Morningstar also takes into consideration the volatility of a company’s FRA in arriving at the final rating. A company with more volatile credit metrics than its industry peers may be rated lower than it would otherwise be based on a blend of the BRA and FRA. The lower rating reflects the higher risk, especially in a downturn, associated with the increased volatility.

Overlay Factors

The overlay factors are the last consideration in the determination of the issuer rating. When deemed relevant and material to the analysis of an issuer, an overlay factor positively or negatively modifies the core assessment derived from the combination of the BRA and FRA, with the impact of a single factor potentially ranging from less than one notch to as much as several notches in the case of more significant factors. DBRS Morningstar considers both sector-specific and general overlay factors, which are outlined in the two sections that follow.

Sector-Specific Overlays

Capital Spending

- Utilities are capital-intensive businesses, especially when nuclear generation is involved. A utility might undertake large capital projects to either meet growing demand in a high-growth franchise area or replace significant aging assets. Particularly for multiyear capital spending programs, the risk of cost overruns and weaker financial metrics can be high.

Energy Supply Considerations

- The provision of utility services depends on the presence of adequate supplies of energy (e.g., natural gas and electricity) to meet end-user demand. DBRS Morningstar may penalize utilities (including distributors) that have a history of service interruptions because of inadequate or unreliable energy supply.

Ownership

- The existence of a highly rated parent typically does not result in a lift to a stand-alone utility's rating; however, DBRS Morningstar may impute some level of implicit support (see *DBRS Morningstar Criteria: Guarantees and Other Forms of Support*) in a utility's rating if it is owned by a highly rated city, despite no explicit guarantee being in place, given the potential unique circumstances of the city-utility relationship.

Retail Exposure and Other Business Exposure

- Distribution companies may be required to provide retail services to customers, such as electricity supply. Under this framework, utilities, depending on commercial arrangements, could be exposed to significant market risk. Key areas of analysis, therefore, include hedging policies, counterparty risk, and the size of the operation. Rates are, however, generally passed on to ratepayers, thereby reducing the risk to the utility.
- If the utility has other nonregulated businesses and these businesses are sizable but not sufficiently material to be assessed under a different methodology, DBRS Morningstar will also assess the risk profile of these businesses and will make an adjustment to the overall risk profile of the utility accordingly.

Competitive Environment

- DBRS Morningstar assesses the degree of competition from other forms of energy or any other potential threats to natural monopoly, including material development of new distributed energy resources and

small-scale power generation sources close to end users that could ultimately provide an alternative to the traditional electric power transmission and distribution grid.

Environmental Issues

- DBRS Morningstar assesses the extent to which utilities face environmental laws and regulations that can have an impact on a company's business and prospects, including issues related to safety (i.e., operating nuclear facilities and handling radioactive material). DBRS Morningstar also includes in its analysis the impact recurrent natural weather hazards (such as hurricanes or flood risk) have on a utility's service territory.

General Overlays

Strategic Advantage or Impediment

- Strategic advantage or impediments not otherwise captured by BRA factors may include an exceptional brand, a unique product or process, or unusually large or small operations.

Parent-Subsidiary Relationship

- Various aspects of an issuer's corporate structure have the potential to positively or negatively influence the rating of that issuer. This may include the potential presence of structural subordination when the issuer is a holding company or the possibility of implicit support from a strong parent when the issuer is an important subsidiary of a broader corporate group. For more details, refer to *DBRS Morningstar Criteria: Rating Corporate Holding Companies and Parent/Subsidiary Rating Relationships* and *DBRS Morningstar Criteria: Guarantees and Other Forms of Support*.

Other Financial Considerations

- Beyond the FRA metrics, many other financial factors reviewed as part of the rating process may point to material sources of credit risk. Such factors may include (1) a strained liquidity position; (2) unusually high cash flow volatility relative to peers; (3) considerable uncertainty in the issuer's financial outlook owing, for example, to a recent large acquisition, an aggressive acquisition strategy, or a rapidly changing competitive environment; (4) unduly large unfunded pension liabilities; or (5) weak financial policies as evidenced, for example, by a significant currency mismatch in the issuer's business or debt structure or significant refinancing risk. In contrast, substantial financial resources or other noncore valuable assets that can easily be monetized, if necessary, could potentially provide uplift to a rating.

Environmental, Social, and Governance (ESG) Considerations

- ESG factors may affect a credit rating and/or the related credit analysis. The impact of ESG factors may vary across industries, sectors, or asset classes and is described in the *DBRS Morningstar Criteria: Approach to Environmental, Social, and Governance Risk Factors in Credit Ratings*. Where an ESG factor is material to a corporate rating, but is not otherwise addressed in a BRA/FRA factor or other overlay, DBRS Morningstar will reflect the impact of the ESG factor on the rating through this general ESG overlay.

Sovereign Risk

- The issuer rating may, in some cases, be constrained by the credit quality of a sovereign. If the issuer operates in a lower-rated country or operates in multiple countries but a material amount of its business is conducted in that lower-rated country, DBRS Morningstar may reflect this risk by lowering the issuer rating. Please refer to Appendix C of the *Global Methodology for Rating Sovereign Governments* for further information.

Rating the Specific Instrument and Other Criteria

- The issuer rating is an indicator of the likelihood of default of an issuer's debt and forms the basis for rating specific instruments of an issuer, where applicable. DBRS Morningstar uses a hierarchy in rating long-term debt that affects issuers that have classes of debt that do not rank equally. In most cases, lower-ranking classes would receive a lower DBRS Morningstar rating. For more detail on this subject, please refer to the general rating information contained in DBRS Morningstar's *Credit Ratings Global Policy*.
- In addition to this methodology, the following criteria may be used from time to time in determining a rating.
- For non-investment-grade corporate issuers, DBRS Morningstar assigns a recovery rating that reflects the seniority and expected recovery of a specific instrument, under an assumed event of default scenario, by notching up or down from the issuer rating in accordance with the principles outlined in the *DBRS Morningstar Criteria: Recovery Ratings for Non-Investment-Grade Corporate Issuers*.
- Preferred share and hybrid considerations are discussed in *DBRS Morningstar Criteria: Preferred Share and Hybrid Security Criteria for Corporate Issuers*.
- For a discussion on the relationship between short- and long-term ratings and more detail on liquidity factors, please refer to the DBRS Morningstar policy *Short-Term and Long-Term Rating Relationships* and *DBRS Morningstar Criteria: Commercial Paper Liquidity Support for Nonbank Issuers*.
- Guarantees and other types of support are discussed in *DBRS Morningstar Criteria: Guarantees and Other Forms of Support*.

Appendix 1: Regulation

- To determine the BRA for regulation (see the Regulated Electric, Natural Gas, and Water Utilities BRA Factors section), DBRS Morningstar reviews the eight considerations found below, which assess the regulatory framework in which the utility conducts its business.
- The ranking of the factors is based on a five-point scale (excellent, good, satisfactory, below average, and poor).
- The first four factors are generally of greater importance than the others when assessing regulatory risk.
- While Considerations 1 to 5 can differ between utilities operating in the same jurisdiction, DBRS Morningstar typically views Considerations 6, 7, and 8 as the same for all utilities within the same jurisdiction.

Consideration 1: Deemed Equity Ratio

Definition

The deemed equity ratio is the percentage of equity investment in the rate base on which a utility could earn a return. In general, the higher the deemed equity ratio, the higher the earnings for a utility.

Score	Item (%)	Definition
Excellent	50.00+	<ul style="list-style-type: none"> • The deemed equity ratio represents 50.00% or more of the utility's rate base. • The treatment of the deemed equity ratio is consistent historically.
Good	45.00 to 49.99	<ul style="list-style-type: none"> • The deemed equity ratio represents 45.00% to 49.99% of the utility's capital structure. • The treatment of the deemed equity ratio is consistent historically.
Satisfactory	40.00 to 44.99	<ul style="list-style-type: none"> • The deemed equity ratio represents 40.00% to 44.99% of the utility's capital structure. • The treatment of the deemed equity ratio has not been consistent historically.
Below Average	35.00 to 39.99	<ul style="list-style-type: none"> • The deemed equity ratio represents 35.00% to 39.99% of the utility's capital structure. • The treatment of the deemed equity ratio has not been consistent historically.
Poor	Below 35.00	<ul style="list-style-type: none"> • The deemed equity ratio represents less than 35.00% of the utility's capital structure. • The treatment of the deemed equity ratio has not been consistent historically.

Consideration 2: Allowed ROE

Definition

Allowed ROE is a measurement of returns on the deemed equity portion of the rate base. The regulator assesses and sets an allowed ROE based on a utility’s business risk level. These allowed ROE levels assume a current North American or Western European inflationary environment.

Score	Item (%)	Definition
Excellent	10+	<ul style="list-style-type: none"> An allowed ROE is set at 10.00% or higher. The regulatory treatment of allowed ROE has been consistent historically.
Good	9.00 to 10.00	<ul style="list-style-type: none"> An allowed ROE is set at 9.00% to 10.00%. The regulatory treatment of allowed ROE has been consistent historically.
Satisfactory	8.00 to 8.99	<ul style="list-style-type: none"> An allowed ROE is set at 8.00% to 8.99%. The regulatory treatment of allowed ROE has been consistent historically.
Below Average	7.00 to 7.99	<ul style="list-style-type: none"> An allowed ROE is set at 7.00% to 7.99%. The regulatory treatment of allowed ROE has not been consistent historically.
Poor	Below 7.00	<ul style="list-style-type: none"> An allowed ROE is set at below 7.00%. The regulatory treatment of allowed ROE has not been consistent historically.

Consideration 3: Energy Cost Recovery

Definition

Fuel and purchased energy (F&PE) cost recovery certainty and the timing of recovery are critical in DBRS Morningstar’s assessment of a regulatory system within a certain jurisdiction. DBRS Morningstar looks at the following factors: (1) whether F&PE costs are fully passed through to the customers, (2) how often a utility is allowed to adjust the F&PE costs in retail rates charged to customers, and (3) if there is a mechanism within a jurisdiction to allow utilities to make F&PE cost adjustments with no or minimal regulatory review. In addition, DBRS Morningstar focuses on the generation mix within a certain market. A high power cost market could have an impact on the utility’s ability to recover the purchased power costs in a timely manner. DBRS Morningstar notes that this factor is not applicable for water and waste-water utilities.

Score	Item	Definition
Excellent	Monthly/bimonthly	<ul style="list-style-type: none"> F&PE costs are fully passed through. Adjustment is made on a monthly basis. There is an automatic adjustment mechanism. The jurisdiction is in a favourable generation mix market, resulting in low power cost.
Good	Quarterly	<ul style="list-style-type: none"> F&PE costs are fully passed through. Adjustment is made on a quarterly basis. There is an automatic adjustment mechanism. The jurisdiction is in a favourable generation mix market, resulting in low power cost.
Satisfactory	Quarterly with regulatory review	<ul style="list-style-type: none"> F&PE costs are fully passed through. Adjustment is made on a quarterly basis. F&PE cost deferrals are subject to some regulatory review. The jurisdiction is in a good generation mix market.
Below Average	Annually with automatic adjustment	<ul style="list-style-type: none"> F&PE costs are fully passed through, or utilities have minimal exposure to energy price volatility. Adjustment is made on an annual basis and is subject to minimal or some regulatory review. The jurisdiction is in a relatively high power cost market.
Poor	Annually with no automatic adjustment mechanism	<ul style="list-style-type: none"> F&PE costs are fully passed through or utilities have minimal exposure to energy price volatility. Adjustment is made on an annual basis. F&PE cost deferrals are subject to regulatory review. The jurisdiction is in a relatively high power cost market.

Consideration 4: Capital and Operating Cost Recoveries

Definition

In assessing CCR and OCR, DBRS Morningstar focuses on the likelihood of a utility’s capex being added to its rate base, along with the timing of such an addition. In addition, DBRS Morningstar focuses on cost-inflation adjustments that could affect the timing of the OCR. In particular, DBRS Morningstar looks at the following factors: (1) the utilization of future test periods for rate decisions, (2) whether the spending is allowed to be added to the rate base during the construction or will only be added when the project is completed, (3) the level of upfront capital spending required without regulatory approval, (4) the degree of regulatory lag and uncertainty with respect to the CCR, (5) whether or not there is a reasonable mechanism to deal with cost overruns, and (6) the degree of volume risk for the recovery of both capital and operating costs.

Score	Item	Definition
Excellent	Minimal CCR and OCR lag risk	<ul style="list-style-type: none"> • Work-in-progress costs can be added to the rate base if capex is significant. • Interim base-rate increases have been frequently authorized. • Future test periods are fully incorporated for rate-case decisions. • Rate cases are typically decided well within one year unless the rate cases are litigated or unusual circumstances occur. • There is a reasonable mechanism to deal with cost overruns. • No volume risk.
Good	Reasonable CCR and OCR lag risk	<ul style="list-style-type: none"> • Capital costs are added to the rate base after completion of work. • Interim base-rate increases have been authorized from time to time. • Future test periods are at least partially incorporated for rate-case decisions. • Rate cases are typically decided within one year unless the rate cases are litigated or unusual circumstances occur. • There is a reasonable mechanism to deal with cost overruns. • Some volume risk exists but is mitigated by either a high portion of rates being fixed or the use of deferral accounts.
Satisfactory	Modestly elevated CCR and OCR lag risk	<ul style="list-style-type: none"> • Capex is generally preapproved by the regulator, but there is some modest upfront capital spending before regulatory approval. • Interim base-rate increases have been rarely authorized. • Historical test periods are commonly incorporated for rate-case decisions. • Rate cases are typically decided within one year unless the rate cases are litigated or unusual circumstances occur. • There is a reasonable mechanism to deal with cost overruns. • Some volume risk exists but is mitigated by historically stable throughputs.
Below Average	Below-average CCR and OCR lag risk	<ul style="list-style-type: none"> • There is significant upfront capital spending before regulatory approval. • Interim base-rate increases have been rarely authorized. • Historical test periods are commonly incorporated for rate-case decisions. • Rate-case decisions typically take more than one year because of frequent court cases and other circumstances. • There are some mechanisms to deal with cost overruns. • Some volume risk exists due to a high portion of rates being variable.
Poor	Significant CCR and OCR lag risk	<ul style="list-style-type: none"> • Capex is generally not preapproved by the regulator. • Capital costs are added to the rate base after completion of work. • Utilities face significant regulatory lag risk with respect to the CCR and the OCR. • There is no meaningful mechanism to deal with cost overruns. • Rates are fully variable with no fixed components.

Consideration 5: COS Versus IRM

Definition

In general, under COS, regulated utilities are allowed to recover prudently incurred operating costs and earn a reasonable return on their investment. Under IRM, revenue requirements for the year are based on a COS base year, adjusted for inflation (using the CPI) and subtracting a productivity factor, which is set by the regulator. This forces utilities to maintain their operational efficiency to achieve allowed ROE. DBRS Morningstar views COS as lower risk than IRM. In addition, DBRS Morningstar also considers the length of an IRM period between COS years. DBRS Morningstar’s scoring system gives a higher score for a shorter IRM period.

Score	Item	Definition
Excellent	COS	<ul style="list-style-type: none"> The COS regime allows utilities to recover prudently and reasonably incurred operating costs.
Good	IRM (three years or shorter)	<ul style="list-style-type: none"> The IRM regime is a maximum of three years between COS years. For an IRM period of more than three years, there are reasonable mechanisms in place to mitigate unexpected capital investment and operating costs (i.e., downside protection). In addition, key IRM assumptions, including CPI and productivity factors, are reasonable.
Satisfactory	IRM (four- to five-year framework)	<ul style="list-style-type: none"> The IRM period is four to five years.
Below Average	IRM (six- to 10-year framework)	<ul style="list-style-type: none"> The IRM period is six to 10 years.
Poor	IRM (10-plus years)	<ul style="list-style-type: none"> The IRM period is more than 10 years.

Consideration 6: Political Interference

Definition

Political interference refers to political risk that could occur within a jurisdiction. Political interference could be in the following forms: (1) influence on the regulator’s ability to independently and impartially arrive at a decision, (2) passing legislation to override a decision made by the regulator, and (3) the regulator is elected instead of appointed.

Score	Definition
Excellent	<ul style="list-style-type: none"> There is no government influence on the regulatory decision-making process. There has been no adverse legislation in the regulated utility sector. The regulator is appointed.
Good	<ul style="list-style-type: none"> There is a low degree of government influence on the regulatory decision-making process. There has been no adverse legislation in the regulated utility sector. The regulator is appointed.
Satisfactory	<ul style="list-style-type: none"> There is a low degree of government influence on the regulatory decision-making process. There has been no adverse legislation in the regulated utility sector. The regulator is appointed or elected.
Below Average	<ul style="list-style-type: none"> There is a modest degree of government influence on the regulatory decision-making process. There has been no adverse legislation in the regulated utility sector. The regulator is appointed or elected.
Poor	<ul style="list-style-type: none"> There is a high degree of government influence on the regulatory decision-making process. There has been some adverse legislation in the regulated utility sector. The regulator is appointed or elected.

Consideration 7: Stranded Cost Recovery

Definition

Stranded costs occur when a utility has already incurred costs (F&PE, operating cost, or capital spending) and faces uncertainty as to when it can recover these costs. In some cases, stranded costs are written off if it is certain that these costs cannot be recovered. DBRS Morningstar looks at the following factors: (1) whether stranded costs exist and their magnitude, (2) the likelihood of recovering stranded costs, (3) the frequency and materiality of writedowns, and (4) the time it takes to recover these costs.

Score	Item	Definition
Excellent	No stranded cost	<ul style="list-style-type: none"> No stranded costs associated with legitimate or reasonable costs incurred by utilities.
Good	Full recovery	<ul style="list-style-type: none"> Some stranded costs exist. Stranded costs are fully recovered in a timely manner. No historical stranded cost writedowns.
Satisfactory	Occasional writedowns	<ul style="list-style-type: none"> Some stranded costs exist. Stranded costs are recovered but subject to some regulatory lag. Occasional writedowns.
Below Average	Frequent writedowns	<ul style="list-style-type: none"> Some stranded costs exist. Stranded costs are sometimes recovered. Frequent writedowns. Takes considerable time to recover costs.
Poor	Frequent significant writedowns	<ul style="list-style-type: none"> Significant stranded costs exist. Stranded costs are not fully recovered. Significant writedowns occur. Significant regulatory lag associated with the recovery.

Consideration 8: Rate Freeze

Definition

A rate freeze refers to a fixed retail rate that is charged to customers during a period of time (more than two years) set by a regulator. DBRS Morningstar does not typically penalize a utility for rate freezes that are part of an acquisition settlement agreement, as they are temporary in nature and only for a set period. During the rate-freeze period, utilities are exposed to increases in operating and energy costs. The longer the rate-freeze period or the more frequency with which a rate freeze occurs within a jurisdiction, the riskier it is for the utility.

Score	Item	Definition
Excellent	Never	<ul style="list-style-type: none"> Rates are never frozen.
Good	Potential	<ul style="list-style-type: none"> Rates have the potential to be frozen.
Satisfactory	Occasional	<ul style="list-style-type: none"> Rates are occasionally frozen. The frozen period is fewer than three years.
Below Average	Frequently	<ul style="list-style-type: none"> Rates are frequently frozen. The frozen period is fewer than three years.
Poor	Rate freeze	<ul style="list-style-type: none"> Rates are currently frozen. The frozen period is three years and longer.

Appendix 2: Independent System Operators

Independent System Operators (ISO) are typically not-for-profit organizations² responsible for managing the electricity market within a jurisdiction. The role of an ISO typically includes (1) balancing the demand and supply of electricity, (2) dispatching power from facility owners, and (3) planning for the system's future transmission and generation needs.

DBRS Morningstar considers ISOs to have two important similar characteristics as a regulated utility: (1) ISOs provide an essential service and (2) operating costs of an ISO are recovered through tariffs approved by a regulator and charged to participants in the electricity market. Unlike a regulated utility, however, the business of an ISO is not capital intensive and, as they are not-for-profit organizations, operate on a cost-recovery basis. As such, when assessing the FRA of an ISO, DBRS Morningstar does not focus on the primary FRA metrics.

DBRS Morningstar also takes into consideration the independence of the ISO from governmental and political interference. If DBRS Morningstar determines an ISO receives support from the government (i.e., financial support or major legislative directives), DBRS Morningstar will apply the *DBRS Morningstar Criteria: Guarantees and Other Forms of Support*, and the ratings of the ISO could then be uplifted to, or capped by, the ratings of the corresponding government.

When evaluating an ISO, DBRS Morningstar assesses, among other criteria, the major factors outlined below.

2. This appendix only applies to not-for-profit ISOs.

BRA Factors

Regulation/Legislation – In assessing the regulatory and legislative framework for an ISO, DBRS Morningstar focuses on the ability of the ISO to pass on all costs to market participants and the timeliness of the recovery. To determine the BRA for regulation/legislation, DBRS Morningstar reviews five considerations (see Appendix 1) to assess the regulatory/legislative framework in which the ISO conducts its business. The five considerations include the following: (1) CCR and OCR, (2) COS versus IRM, (3) political interference, (4) stranded cost recovery, and (5) rate freeze.

AA	A	BBB	BB/B
<ul style="list-style-type: none"> Highly supportive regulatory/legislative framework with the majority of relevant key regulatory risk factors in Appendix 1 considered to be “excellent.” 	<ul style="list-style-type: none"> Supportive regulatory/legislative framework with the majority of relevant key regulatory risk factors in Appendix 1 considered to be “good” or better. 	<ul style="list-style-type: none"> Reasonable regulatory/legislative framework with the majority of relevant key regulatory risk factors in Appendix 1 considered to be “satisfactory” or better. 	<ul style="list-style-type: none"> Poor regulatory/legislative framework with the majority of relevant key regulatory risk factors in Appendix 1 considered to be “below average” and/or “poor.”

Franchise and Customer Mix – As the operating costs of an ISO are recovered from market participants, DBRS Morningstar assesses the economic strength of an ISO’s jurisdiction as well as the number of customers in order to determine the likelihood of the ISO’s being able to recover its costs. Jurisdictions with a higher proportion of residential and commercial customers also possess the ability to better weather economic downturns than those with a greater number of industrial customers, which are more inclined to seek lower-cost or more reliable suppliers and are prone to economic cyclicity.

AA	A	BBB	BB/B
<ul style="list-style-type: none"> Economically vibrant service territory, with income that is significantly above the national average. ISO has a significant customer base (i.e., large metropolitan area or province/state). Customer and load mix predominantly residential and commercial. 	<ul style="list-style-type: none"> Economically strong service territory, with income above the national average. ISO has a sizable customer base. Customer and load mix heavily weighted toward residential and commercial. 	<ul style="list-style-type: none"> Economically stagnant service territory, with income that is in line with the national average. ISO has a reasonably sized customer base. Customer and load mix a balance of residential and commercial versus industrial. 	<ul style="list-style-type: none"> Economically weak service territory, with income that is below the national average. ISO has a shrinking customer base. Customer and load mix weighted toward cyclical industrials.

FRA Factors

In assessing the FRA of an ISO, DBRS Morningstar focuses on the liquidity in place for the ISO’s day-to-day operations. DBRS Morningstar also reviews the annual surplus and deficit of an ISO to determine if it is consistently under-collecting from market participants, as (1) costs are then not fully recovered from market participants and (2) the accumulated deficit may become stranded and will have to be absorbed by the ISO.

Appendix 3: FRA Ratio Definitions and Common Adjustments for the Regulated Electric, Natural Gas, and Water Utilities Industry

The primary FRA metrics cited in the table above are defined below, with a discussion of common adjustments that are made for the regulated electric, natural gas, and water utilities industry. For related definitions and a broader discussion of the common adjustments made to the accounting data to permit ratio comparability between issuers, please refer to *DBRS Morningstar Criteria: Common Adjustments for Calculating Financial Ratios*.

CASH FLOW-TO-DEBT = CASH FLOW FROM OPERATIONS/TOTAL DEBT

Cash flow from operations = core net income + depreciation + amortization + deferred taxes + other noncash items from income statement (before changes in noncash working capital items).

Total debt = short-term debt + long-term debt + hybrid debt portion + capital leases.

DEBT-TO-CAPITAL = TOTAL DEBT/TOTAL CAPITAL

Total capital = total debt (as defined above) + total preferred equity + total common equity + minority interest.

EBIT-TO-INTEREST = EBIT/GROSS INTEREST EXPENSE

EBIT = revenue – cost of goods sold – selling, general, and administrative expenses – depreciation – amortization.

Gross interest expense = all interest expense + debt hybrid interest expenses + capitalized interest.

DBRS Morningstar may adjust certain inputs used in the calculation of the primary FRAs in order to better assess such metrics relative to an issuer's peers. In the regulated electric, natural gas, and water utilities industry, DBRS Morningstar typically adjusts debt and interest expense amounts for operating leases, notwithstanding that these amounts are generally not material. Additionally, in rare cases, DBRS Morningstar also considers net debt amounts in the case of large companies with a long history of maintaining significant cash or equivalents on the balance sheet.

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ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1

Question(s):

- a) Were any other studies commissioned by EGI, its parent owner or any of its affiliates (including by its legal agents) with respect to changing EGI's capital structure?
- b) If yes please provide those reports.

Response:

a-b) No studies, other than the Concentric Energy Advisors study provided at Exhibit 5, Tab 3, Schedule 1, Attachment 1, were commissioned by Enbridge Gas, its parent, or affiliates in relation to changing Enbridge Gas's capital structure.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

Exhibit 5, Tab 3, Schedule 1, Attachment 1 - Concentric

Question(s):

- a) Please provide a list of all natural gas utilities Concentric has studied which apply a fixed charge to recover 100% of its gas delivery charge to residential customers. Please provide the year in which the utility changed to a fully fixed rate.
- b) For the above list of utilities please provide the any credit ratings that were made prior to and after moving to a 100% fixed rate.

Response:

The following response was provided by Concentric Energy Advisors, Inc.

- a) Concentric has not performed this research for its report. However, Concentric is aware that utility regulators in several states have approved the use of straight fixed variable rate design (SFV) for gas distribution utilities. For example, Georgia has approved SFV rates for Atlanta Gas Light; Missouri for Spire; North Dakota for Northern States Power's gas utility; and Ohio for all gas LDCs in the state including East Ohio Gas, Columbia Gas of Ohio, Vectren Energy Delivery of Ohio, and Duke Energy Ohio.
- b) Concentric has not done this research for its report.