Elson Advocacy

March 9, 2020

BY COURIER (2 COPIES) AND RESS

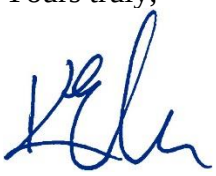
Ms. Christine Long
Board Secretary
Ontario Energy Board
2300 Yonge Street, Suite 2700, P.O. Box 2319
Toronto, Ontario M4P 1E4

Dear Ms. Long:

Re: EB-2019-0159 – Enbridge Gas Inc. – Kirkwall-Hamilton Pipeline Project

Enclosed please find the interrogatories of Environmental Defence in the above matter.

Yours truly,



Kent Elson

cc: Parties in the above proceeding

Elson Advocacy Professional Corporation
Kent@ElsonAdvocacy.ca
1062 College St., Toronto, ON M6H 1A9
tel: 416 906-7305
fax: 416 763-5435

EB-2019-0159
Enbridge – Hamilton Pipeline – Leave to Construct

Interrogatories of Environmental Defence

Issue 1 – Need

Interrogatory 1-ED-1

Reference: Exhibit A, Tab 7

Question:

(a) Please complete the below table over the period covered by Enbridge's 5 Year Gas Supply Plan. Please explain if any of the figures in the response have been updated since the 5 Year Gas Supply Plan.

(b) Please complete the below table over 40 years (i.e. the "project time horizon" per Exhibit A, Tab 8, Schedule 2, p 1). If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If 40 years is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the table cannot be estimated, please explain why and complete as much of the table as possible. Please make assumptions as necessary and state all assumptions.

(c) Please provide these tables in electronic excel format.

Forecast Ontario Natural Gas Demand				
	Year 1	Year 2	…	Year n
Annual Demand (TJ)				
Union North				
Union South				
Enbridge CDA				
Enbridge EDA				
Total (All Zones)				
Average Day Demand (TJ/d)				
Union North				
Union South				
Enbridge CDA				
Enbridge EDA				
Total (All Zones)				
Design Day Demand (TJ/d)				
Union North				
Union South				
Enbridge CDA				
Enbridge EDA				
Total (All Zones)				

Interrogatory 1-ED-2

Reference: Exhibit A, Tab 7

Question:

(a) Please recreate the tables requested in 1-ED-1 on the hypothetical assumption that all achievable cost-effective DSM is implemented going forward. Please base your answer on the 2019 Achievable Potential Study commissioned by the OEB and the IESO. You may wish to refer to Tab 08a of Appendix X1 of the Potential Study, which provides the potential by rate zone. Please answer the question on a best-efforts basis and with any caveats as necessary. Please make assumptions as necessary and state all assumptions. For example, please make and state assumptions as necessary to address the fact that the potential study figures begin in 2019, which is now in the past.

(b) Please complete the following table. When estimating the gas demand for the scenario consistent with Environment Plan targets, please do so on a best-efforts basis, state any necessary caveats, and make and state all assumptions as necessary.[1] We suggest the following assumptions for the Environment Plan scenario: (i) a CO2e to m3 conversion rate of 0.001966 tonnes CO2e/m3 natural gas; and (ii) a straight-line increase in gas savings leading to the 2030 3.2 Mt target (note that the figures on page 23 of the Environment Plan and 142 of the Auditor General report appear to show a straight-line increase). Please use different assumptions if Enbridge believes those to be more appropriate, but explain the choice. Please explain in particular detail the assumptions used to generate the average and design day demands from the forecast DSM savings.

Forecast Ontario Demand – Status Quo vs. Meeting Environment Plan Targets				
	2019	2020	…	2035
Status Quo Demand (consistent with figures in pipeline application)				
Annual Demand (TJ)				
Average Day Demand (TJ/d)				
Design Day Demand (TJ/d)				
Environment Plan Demand (consistent with 3.2 Mt CO2e reduction by 2030)				
Annual Demand (TJ)				
Average Day Demand (TJ/d)				
Design Day Demand (TJ/d)				

(c) Please recreate the above table, but limit the data only to the zones that would rely on the proposed pipeline to meet peak gas demand. The closest approximation may be to include all rate zones except for Union South, which is predominantly upstream from the project. If this can only be done with a simple proxy percentage (e.g. X % of the figures for all of Ontario), please do so and state appropriate caveats.

(d) The Environment Plan targets require declining carbon emissions from gas and thus declining gas use. (i) If this comes to pass, will the pipeline continue to be necessary to

[1] Government of Ontario, *A Made-in-Ontario Environment Plan*, November, 2018

meet Ontario customers' gas needs? Please explain. (ii) If gas usage declines in accordance with the Environment Plan, at what point will the propose pipeline be unnecessary to meet Ontario customers' needs? Please explain.

(e) For ease of reference via an exhibit number, please file a copy of the Ontario Government's Environment Plan[2] and the Auditor General's recent review of the plan (2019 Annual Report, volume 2, chapter 3), which provides further details regarding the calculations underlying the natural gas DSM portions of the Environment Plan. Filing these materials will ensure that these important policy documents are on the record and can be efficiently referred to.

(f) Please complete the following table comparing demand as currently forecasted with a scenario with a carbon price aimed at achieving Canada's 2030 greenhouse gas reduction targets as per the Canada's Ecofiscal Commission's estimates.[3] Please assume the relationship between price and gas demand consistent with the Ecofiscal Commission's report or explain why different relationship was assumed.

Forecast Ontario Demand – Status Quo vs. Ecofiscal Carbon Tax				
	2019	2020	…	2035
Status Quo Demand (consistent with figures in pipeline application)				
Annual Demand (TJ)				
Average Day Demand (TJ/d)				
Design Day Demand (TJ/d)				
Ecofiscal Commission Carbon Tax Scenario				
Annual Demand (TJ)				
Average Day Demand (TJ/d)				
Design Day Demand (TJ/d)				

(g) Please complete the following table comparing demand as currently forecasted with a scenario with a carbon price aimed at achieving Canada's 2030 greenhouse gas reduction targets as per the Parliamentary Budget Officer report on this topic.[4] Please assume the relationship between price and gas demand consistent with the Parliamentary Budget Officer's report or explain why different relationship was assumed.

Forecast Ontario Demand – Status Quo vs. PBO Carbon Tax				
	2019	2020	…	2035
Status Quo Demand (consistent with figures in pipeline application)				
Annual Demand (TJ)				
Average Day Demand (TJ/d)				
Design Day Demand (TJ/d)				
Parliamentary Budget Officer Carbon Tax Scenario				
Annual Demand (TJ)				

[2] Government of Ontario, *A Made-in-Ontario Environment Plan*, November, 2018

[3] Canada's Ecofiscal Commission, *Bridging the Gap: Real Options for Meeting Canada's 2030 GHG Target*, November 2019, https://ecofiscal.ca/wp-content/uploads/2019/11/Ecofiscal-Commission-Bridging-the-Gap-November-27-2019-FINAL.pdf.

[4] Parliamentary Budget Officer, *Closing the Gap: Carbon pricing for the Paris target*, June 13 2019, https://www.pbo-dpb.gc.ca/web/default/files/Documents/Reports/2019/Paris_Target/Paris_Target_EN.pdf.

Average Day Demand (TJ/d)				
Design Day Demand (TJ/d)				

(a) Canada's 2030 climate change targets require declining carbon emissions from gas and thus declining gas use. (i) If this comes to pass, will the pipeline continue to be necessary to meet Ontario customers' gas needs? Please explain. (ii) If gas usage declines in accordance with the Canada's 2030 targets, at what point will the propose pipeline be unnecessary to meet Ontario customers' needs? Please explain.

(b) What percent of the design day demand for all Ontario customers is the design day demand for Union South?

For the above questions, if forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If the length of the time period is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the table or answer cannot be estimated, please explain why and complete as much of the table or answer as possible. Please make assumptions as necessary and state all assumptions. The references to Ontario customers is meant to exclude export contracts.

Interrogatory 1-ED-3

Reference: Exhibit A, Tab 7; Exhibit A, Tab 5, Attachment 1, Page 27-28

Question:

(a) Please complete the below table over the period covered by Enbridge's 5 Year Gas Supply Plan. Please explain if any of the figures are inconsistent with the 5 Year Gas Supply Plan.

(b) Please complete the below table over 40 years (i.e. the "project time horizon" per Exhibit A, Tab 8, Schedule 2, p 1). If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If 40 years is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the table cannot be estimated, please explain why and complete as much of the table as possible. Please make assumptions as necessary and state all assumptions.

(a) Please provide another version of the tables referred to in (a) and (b) focusing only on the zones that would rely on the proposed pipeline to meet peak gas demand. The closest approximation may be to include all rate zones except for Union South, which is predominantly upstream from the project. If this can only be done with a simple proxy percentage (e.g. X % of the figures for all of Ontario), please do so and state appropriate caveats.

(c) Please provide these tables in electronic excel format.

Forecast Ontario Natural Gas Demand by End Use				
	Year 1	Year 2	…	Year n
Annual Demand (TJ)				
Power Generation				

All Non-Power Generation End Uses				
Total (All End Uses)				
Average Day Demand (TJ/d)				
Power Generation				
All Non-Power Generation End Uses				
Total (All End Uses)				
Design Day Demand (TJ/d)				
Power Generation				
All Non-Power Generation End Uses				
Total (All End Uses)				

Interrogatory 1-ED-4

Reference: Exhibit A, Tab 5, Attachment 1, Page 27-28

Preamble: The Minister of Energy stated that Ontario is developing an energy plan to avoid burning more natural gas when the nuclear plants go offline for refurbishment. The Globe and Mail reported as follows on November 21, 2019:

> "Asked if Ontario will have to burn more natural gas – boosting greenhouse emissions – when nuclear plants go offline for refurbishing in the coming years, Mr. Rickford said his government is developing an energy plan that would avoid that outcome."[5]

Page 27 of the ICF report states that:

> "Natural gas consumption in Ontario is expected to experience modest growth, led by expanding use in the power sector (see Figure 16). Demand growth in the power sector is primarily due to nuclear retirements and refurbishments as well as the Output Based Pricing System (OBPS) for carbon pricing in Ontario. Higher utilization of existing power plants in Ontario will be driven by modest demand growth and retirements of nuclear capacity."

Question:

(a) Please recreate the Dawn-Parkway System Design Day Demands and Capacity schedule (Exhibit A, Tab 7, Schedule 5) and tables 7-1 and 7-2 based on the assumption that Ontario is able to avoid increasing gas power generation in relation to nuclear retirements and refurbishments.

(b) Please recreate the tables requested in 1-ED-1 and 1-ED-3 based on the assumption that Ontario is able to avoid increasing gas power generation in relation to nuclear retirements and refurbishments.

(c) Please contact the Ministry of Energy and IESO to obtain the latest information regarding the plan the Ministry is developing to avoid burning more natural gas for power

[5] https://www.theglobeandmail.com/canada/article-ontario-premier-doug-ford-defends-231-million-cost-of-killing-green/

generation when the nuclear plants go offline, including the latest forecasts for gas consumption by power plants in the latest plans developed by the Ministry. Please provide all the information obtained therein.

Interrogatory 1-ED-5

Reference: Exhibit A, Tab 5, Attachment 1, Page 27-28

Preamble: According to the ICF report in Exhibit A, Tab 5, Attachment 1, Page 27:

> "Natural gas consumption in Ontario is expected to experience modest growth, led by expanding use in the power sector (see Figure 16). Demand growth in the power sector is primarily due to nuclear retirements and refurbishments as well as the Output Based Pricing System (OBPS) for carbon pricing in Ontario. Higher utilization of existing power plants in Ontario will be driven by modest demand growth and retirements of nuclear capacity."

Question:

(a) Please recreate the Dawn-Parkway System Design Day Demands and Capacity schedule (Exhibit A, Tab 7, Schedule 5) and tables 7-1 and 7-2 based on the latest IESO forecasts of natural gas power generation that account for the latest information on nuclear retirements and refurbishments.

(b) Please recreate the tables requested in 1-ED-1 and 1-ED-3 based on the latest IESO forecasts of natural gas power generation that account for the latest information on nuclear retirements and refurbishments.

(c) Please contact IESO to ensure that Enbridge has the latest information and provide the response that the IESO communicates to Enbridge.

Interrogatory 1-ED-6

Reference: Exhibit A, Tab 5, Attachment 1, Page 27-28

Preamble: According to the ICF report in Exhibit A, Tab 5, Attachment 1, Page 27:

> "Natural gas consumption in Ontario is expected to experience modest growth, led by expanding use in the power sector (see Figure 16). Demand growth in the power sector is primarily due to nuclear retirements and refurbishments as well as the Output Based Pricing System (OBPS) for carbon pricing in Ontario. Higher utilization of existing power plants in Ontario will be driven by modest demand growth and retirements of nuclear capacity."

Question:

(a) Please confirm that all gas plants with over 300 MW capacity are required to operate at full capacity if the IESO requests that they do so.

(b) Please confirm that all gas plants with over 300 MW capacity have contracts with Enbridge or other gas transmission companies to allow them to operate at full capacity.

(c) Please provide a table listing for each Ontario gas plant in Ontario over 300 MW, the terms of the relevant transmission/distribution contracts with Enbridge to ensure sufficient gas supply. Please include the firm gas volumes (GJ/d) guaranteed under each contract. If any supply is interruptible, please state the amount.

(d) Are transmission capacity needs based on the forecast utilization of gas plants or on the firm volumes (GJ/d) guarantees in contracts with the gas plants? Please explain.

Interrogatory 1-ED-7

Reference: Exhibit A, Tab 7; EB-2019-0159, Exhibit A; EB-2019-0137, 5 Year Gas Supply Plan, p. 51 & 88.

Preamble: Enbridge's 5 Year Gas Supply Plan shows declining annual and average daily demand but increasing design day demand.

Question:

(a) Based on the Enbridge 5 Year Supply Plan, as a total over all rate zones from 2020 to 2024, please provide the following three figures: (i) the forecast decline in annual demand, (ii) the forecast decline in average day demand 2020 to 2024, and (iii) the forecast increase design day demand.

(b) Please explain in detail why annual and average day demand is predicted to decrease and design day demand is predicted to increase.

(c) What percent of Enbridge's design day demand on average over the term of the 5 Year Gas Supply Plan is on account of natural gas power generation?

(d) Please describe how the design day methodology addresses demand from natural gas power generation.

(e) Please provide a table showing the average daily consumption from natural gas power generation over the past five years for the 10 coldest days of those years.

(f) Please identify the variables underlying the design day demand that are causing the design day demand to increase while the average day demand to decrease. Please also rank those variables by the magnitude of impact.

(g) Please provide the calculations underlying Enbridge's calculations of the design day demand in its 5 Year Gas Supply Plan. Please attach the most detailed internal document detailing the design day calculations underlying this application and the 5 Year Supply Plan.

(h) Please list and describe any ways in which Enbridge's methodology for calculating the design day demand is different from (i) New York's and (ii) Vermont's.

Interrogatory 1-ED-8

Reference: Exhibit A, Tab 7, Page 2; Exhibit A, Tab 7, Schedule 5

Preamble: Enbridge's design day assumptions include that "all ex-franchise customers require their full easterly firm contracted volumes."

Question:

(a) Please complete the below table. If the calculations are a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If a portion of the historic data or forecast is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the answer cannot be estimated, please explain why and provide as much of the table as possible. Please make assumptions as necessary and state all assumptions.

Ex-Franchise Easterly Customer Firm Contracts for Dawn Parkway Demand Over 2010-2025 (Historic and Forecast)				
	2010	2011 (historic)	…	2025 (forecast)
Firm contracted volumes (GJ/d)				
Average daily demand				
Demand/throughput (GJ/d) on day of peak system demand on Dawn Parkway[6]				
Demand/throughput (GJ/d) on second highest system demand day on Dawn Parkway[7]				

Interrogatory 1-ED-9

Reference: Exhibit A, Tab 6, Page 9-14

Question:

(a) Tables 6-3, 6-4, 6-7, and 6-8 show the forecast supply/demand for the relevant zones. Please reproduce these tables over 40 years (i.e. the "project time horizon" per Exhibit A, Tab 8, Schedule 2, p 1). If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If 40 years is impossible, please explain why and answer the question over as long a time period as possible. Please make assumptions as necessary and state all assumptions.

[6] The total demand/throughput (GJ/d) from the ex-franchise easterly customer firm contracts for dawn parkway on the day with the highest demand on the overall Dawn Parkway system in the relevant year.
[7] The total demand/throughput (GJ/d) from the ex-franchise easterly customer firm contracts for dawn parkway on the day with the second highest demand on the overall Dawn Parkway system in the relevant year.

Interrogatory 1-ED-10

Reference: Exhibit A, Tab 7, Page 8 & 17

Question:

(a) Tables 7-1 and 7-2 show the Dawn Parkway system demand summary. Please reproduce this table over 40 years (i.e. the "project time horizon" per Exhibit A, Tab 8, Schedule 2, p 1). If forecasting is a challenge, please answer the question on a best efforts basis and with any caveats as necessary. If 40 years is impossible, please explain why and answer the question over as long a time period as possible. Please make assumptions as necessary and state all assumptions.

Interrogatory 1-ED-11

Reference: Exhibit A, Tab 7, Schedule 5

Question:

(a) This schedule shows the Dawn-Parkway System Design Day Demands and Capacity. Please reproduce this schedule over 40 years (i.e. the "project time horizon" per Exhibit A, Tab 8, Schedule 2, p 1). If forecasting is a challenge, please answer the question on a best efforts basis and with any caveats as necessary. If 40 years is impossible, please explain why and answer the question over as long a time period as possible. Please make assumptions as necessary and state all assumptions.

Interrogatory 1-ED-12

Reference: Exhibit A, Tab 6, Page 4 and 12; Exhibit A, Tab 3, Page 4

Preamble: Enbridge's evidence describes a need of 184,671 GJ/d (Ex. A-6, p. 4), consisting in part of a shortfall of 40,000 GJ/d for the Union Rate Zone (Ex. A-6, p. 4), of which 3,000 GJ/d is the for Union North East and 37,000 GJ/d is Union South (Ex. A-6, p. 12).

Question:

(a) The summary of the need for the project (Exhibit A, Tab 3, Page 4) highlights that "40,000 GJ/d was allocated to customers in the Union rate zones." Please confirm that this consists of 3,000 GJ/d for Union North East and 37,000 GJ/d for Union South.

(b) Please confirm whether Enbridge asserts that the project is needed in part to serve an alleged need or shortfall of 37,000 GJ/d for Union South. Please explain the answer.

(c) Please explain how the Hamilton Pipeline could serve an alleged shortfall in Union South seeing as the project is mostly downstream of the Union South Zone.

(d) Please provide: (i) the forecast Union South demand (GJ/d) as of November 2021 and (ii) the portion of said demand (GJ/d and %) that would be served by pipe east of the Kirkwall Valve Site. If a precise figure cannot be provided, please provide a best efforts estimate with appropriate caveats.

(e) Please provide a copy of the system map in Exhibit A, Tab 4, Schedule 1 with additional annotations showing in as much detail as possible how the proposed pipeline would serve the alleged 37,000 GJ/d shortfall for the Union South Zone. Please include an annotation showing the location of the proposed pipeline.

(f) If the proposed project can only address a portion of the alleged 37,000 GJ/d shortfall for the Union South Zone, please estimate the portion of the alleged shortfall that the project could address (best efforts basis is sufficient).

Interrogatory 1-ED-13

Reference: EB-2019-0159, Exhibit A, Tab 6, Page 8

Preamble: Footnote 9 states: "As detailed at Exhibit A, Tab 7, Table 7-1, Union bid for 40,000 GJ/d of Dawn to Parkway capacity starting November 2021. This bid is composed of: 2020 demand of 19,953 GJ/d for Union South rate zone; 2021 demand of 16,366 GJ/d for the Union South rate zone; and 2021 demand of 2,990 GJ/d for the Union North rate zone. Enbridge Gas will manage its projected 2020 design day demand shortfall of 19,953 GJ/d until incremental Dawn Parkway System capacity comes into service in November 2021 as a result of the proposed Project.

Question: Please:

(a) Describe in detail how the Union demand day shortfall projected for 2020 will be managed prior to the Hamilton Pipeline being built, including the expected source to address the shortfall and cost.

(b) Explain whether this could or could not be a solution for 2021 and 2022.

Interrogatory 1-ED-14

Reference: EB-2019-0159, Exhibit A, Tab 6; EB-2019-0137, 5 Year Gas Supply Plan, p. 41-42

Preamble: In its 5 Year Gas Supply Plan, Enbridge states:

> "If the EGD rate zone has a forecasted design day asset shortfall of less than 2%, EGI will plan to balance design day demand with short-term market based solutions, such as peaking supply. These solutions are cost-effective and do not require long-term commitments, but are less reliable and lack the diversity and flexibility of service attributes associated with firm transportation. In the event the forecasted design day shortfall grows to an amount that is in excess of 2% of design day demand requirements, EGI will seek out firm transportation assets to address the forecasted shortfall."

Question:

(a) Enbridge proposes to manage forecast capacity shortfalls of less than 2% with short-term market-based solutions. Why does Enbridge believe that 2% is the appropriate threshold?

(b) Why not use 4% as the threshold?

(c) Please provide any internal studies or analyses that Enbridge has justifying the 2% capacity shortfall threshold for seeking firm transportation assets.

(d) What threshold is used in New York and Vermont?

Interrogatory 1-ED-15

Reference: Exhibit A, Tab 7, Page 14-15

Preamble: Even if the Hamilton Pipeline is built, "in winter 2021/2022, Enbridge Gas forecasts a Dawn Parkway System capacity shortfall of 28,602 GJ/d" and "in winter 2022/2023, Enbridge Gas forecasts a Dawn Parkway System capacity shortfall of 72,624 GJ/d."

Question:

(a) If the Hamilton Pipeline is built, how does Enbridge plan to manage the remaining shortfalls of 28,602 GJ/d in the winter of 2021/2022 and 72,624 GJ/d in the winder of 2022/2023?

(b) Does Enbridge believe that some amount of Dawn Parkway System capacity shortfall is acceptable? If yes, (i) please provide the approximate maximum amount of capacity shortfall that is acceptable and (ii) please discuss whether a shortfall is acceptable only for a certain period of time.

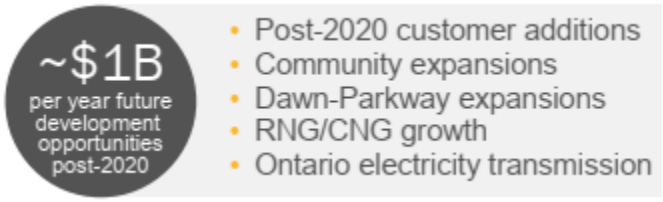
(c) Is Enbridge considering seeking leave to construct facilities in the next 3 years to address the remaining forecast shortfalls of 28,602 GJ/d in the winter of 2021/2022 and 72,624 GJ/d in the winter of 2022/2023? If yes, please provide preliminary information on these potential facilities. If no, please explain why not.

Interrogatory 1-ED-16

Reference: Exhibit A, Tab 7, Page 14-15

Preamble: Enbridge's August 2019 *Investment Community Presentation* include the following figures on page 27[8]:

[8] Enbridge, *Investment Community Presentation*, August 2019, https://www.enbridge.com/~/media/Enb/Documents/Investor%20Relations/2019/ENB%20Investment%20Community%20Presentation%20August%20vFINAL.pdf



Question:

(a) Please provide a breakdown of the "~$1B per year future development opportunities post-2020" for Ontario in Enbridge's August 2019 *Investment Community Presentation*.

(b) Enbridge's August *2019 Investment Community Presentation* refers to "Dawn-Parkway expansions" as part of a "~$1B per year future development opportunities post-2020" for Ontario. Please provide all available details of what this is referring to, including the potential Dawn-Parkway expansion projects, the approximate/preliminary in-service dates for each, and the approximate/preliminary cost.

Interrogatory 1-ED-17

Reference: Exhibit A, Tab 5, Attachment 1, Page 28, Figure 16

Preamble: Figure 16 provides a forecast of Ontario Natural Gas consumption by end use.

Question:

(a) Is this figure showing average day consumption, design day consumption, or some other measure of consumption?

(b) Please provide the electronic excel spreadsheet with the data underlying the chart.

(c) Please provide the assumptions used to estimate the forecast gas consumption by power generation.

(d) Does Enbridge believe those assumptions regarding power generation gas consumption are both accurate and based on the most up-to-date information as of the time of the interrogatory response?

(e) ICF created a similar figure in the Enbridge Supply Plan (5 Year Gas Supply Plan, EB-2019-0137, Appendix E, Page 20), which seems to forecast lower demand. Please provide a figure estimating the difference between the figures and explain the differences.

(f) Figure 16 is based on ICF's Gas Market Model ("GMM") and its June 2019 Base Case (Base Case) outlook. Please recreate the figure based on ICF's latest base case outlook.

Interrogatory 1-ED-18

Reference: Exhibit A, Tab 7, Page 7

Preamble: The evidence states that:

> "Enbridge Gas has elected to serve a portion of forecasted design day demand increases by acquiring incremental Dawn Parkway transportation capacity."

(a) Please indicate which portion of the demand increases (GJ/d) Enbridge is electing to serve (i) by acquiring incremental Dawn Parkway transportation capacity versus (ii) other means. Please provide the answer for each year from 2021/2022 to 2026/2027.

(b) Please explain in detail how Enbridge intends to serve the forecast design day demand increases that will ***not*** be served by acquiring incremental Dawn Parkway transportation capacity. If multiple methods will be used, please provide an approximate breakdown between each (GJ/d). Please provide the answer for each year from 2021/2022 to 2026/2027.

Interrogatory 1-ED-19

Reference: Exhibit A, Tab 6, Page 5-7

Question:

(a) If Enbridge does not build the proposed pipeline and cannot fulfill the contracts with the U.S. utilities (Bangor and Northern Utilities), will Enbridge be required to pay a contract penalty? If yes, how much and will Ontario ratepayers be obligated to reimburse Enbridge for the penalty?

(b) If Enbridge does not build the proposed pipeline and cannot fulfill the contracts with the U.S. utilities (Bangor and Northern Utilities), how will Ontario gas consumers be impacted? Please identify an explain each positive and negative impact.

(c) Does Enbridge believe that contracts with U.S. utilities make this project necessary? Please provide an answer only with respect to the issue of need. Although we understand that contracts with U.S. utilities could be relevant to cost-effectiveness, financial

considerations, and an overall consideration of costs and benefits, we are specifically seeking detail on why Ontario consumers it might be "necessary" for Ontario consumers to satisfy Enbridge's contracts with U.S. utilities.

Interrogatory 1-ED-20

Reference: Exhibit A, Tab 7

Question:

(a) Please list the pipelines running parallel to the proposed pipeline and the peak capacity for each (GJ/d).

(b) For the most recent ten years, please provide the load profile for these parallel pipelines, including, for each year, the throughput of each pipeline (GJ/d) on the coincident peak day, the average day throughput for each pipeline (GJ/d), and the annual throughput (GJ/yr).

Interrogatory 1-ED-21

Reference: Exhibit A, Tab 7

Question:

(a) Please provide an updated estimate of gas demand (GJ/d) and any capacity shortfall (GJ/d) in November 2021, 2022, and 2023 in light of the economic impact of COVID-19 and the recent plummet in the stock market. Please provide a response from Enbridge's perspective. Please also provide a response from Navigant as it relates to the report it prepared in the evidence.

Issue 3 – Alternatives

Interrogatory 3-ED-22

Reference: Exhibit A, Tab 7, Page 18 to 28

Question:

(a) Please complete the below table regarding the forecast throughput for the proposed pipeline. To isolate the incremental gas volumes that can be transported due to the proposed project, assume that any demand would first be met by capacity in pipes parallel to the new pipe first before relying on the new pipe.

Proposed Hamilton Pipeline – Forecast Incremental Throughput				
	Year 1	Year 2	…	Year 40
Forecast Throughput Volumes				

Average daily throughput (GJ/d)				
Annual throughput (GJ)				

(b) Please complete the below table regarding the forecast throughput volumes at the Hamilton Valve Site on the Dawn-Parkway system (i) with and (ii) without the proposed pipeline. Please also calculate the difference between each. If the difference varies from the values in the above table, please explain why.

Forecast Throughput Volumes at the Hamilton Valve Site				
	Year 1	Year 2	…	Year 40
(i) Status Quo – No Pipeline Built				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				
(ii) Proposed Pipeline is Built				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				
(iii) Difference between Status Quo and with Proposed Pipeline				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				

(c) What is the daily capacity (GJ/d) and annual capacity (GJ) of the proposed pipeline?

(d) What is the maximum annual throughput for the proposed pipeline?

For each item above, if forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If 40 years is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the table cannot be estimated, please explain why and complete as much of the table as possible. Please make assumptions as necessary and state all assumptions.

Interrogatory 3-ED-23

Reference: Exhibit A, Tab 7, Page 18 to 28

(a) For the purpose of considering the costs and risks associated with the project vs. alternatives, please complete the below table estimating the carbon costs associated with the forecast throughput for the proposed pipeline.

Proposed Hamilton Pipeline – Forecast Carbon Costs				
	Year 1	Year 2	… Year 40	Total
Forecast Throughput				
Carbon Emissions from Combustion (CO2e)				
Carbon Cost ($) - Combustion Only (per federal carbon price)				
Carbon Emissions from Unaccounted for Gas in Enbridge's System (CO2e)				
Carbon Emissions from Extraction (CO2e) Including Fugitive Emissions from Hydraulic Fracturing (per Enbridge best estimate)				
Carbon Cost ($) - Fugitive Emissions (scenario with a price on fugitive emissions)[9]				

(b) Please complete the above table estimating the carbon emissions from the same gas volumes assuming that they were sourced from Empress instead of Dawn.

(c) For the purpose of considering carbon cost implications, and potential future increased carbon cost implications, please provide the carbon intensity of natural gas (CO2e/m3) from (i) Dawn versus natural gas from (ii) Empress? Please account for the carbon emissions arising from different extraction methods on average.

(d) If Enbridge's best estimate of the carbon emissions from the extraction of the gas differ from those in Alvarez, et al., *Assessment of methane emissions from the U.S. oil and gas*

[9] For this scenario, calculate the carbon costs on all emissions, including fugitive emissions. This is intended to reflect a possible scenario where fugitive emissions are priced into the cost of gas in 2021.

supply chain, Science 361, 186-188 (July 13, 2018), please provide a table showing the difference and estimate the cost of the difference.[10] For ease of reference with an exhibit number, please also file a copy of this report.

For each item above, if forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If 40 years is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the table cannot be estimated, please explain why and complete as much of the table as possible. Please make assumptions as necessary and state all assumptions. Please state the assumption used to convert unaccounted gas (i.e. methane emissions) to CO2 equivalent.

Interrogatory 3-ED-24

Reference: Exhibit A, Tab 7, Page 2; Exhibit A, Tab 7, Schedule 5; Exhibit A, Tab 7, Page 18 to 28

Preamble: Enbridge's design day assumptions include that "all ex-franchise customers require their full easterly firm contracted volumes."

Question:

(a) Would it be illegal for Enbridge to give Ontario customers priority and/or the first opportunity to purchase capacity on the Dawn-Parkway before U.S. customers? If yes, please identify the specific legislation, identify the relevant sections, and provide excerpts of the relevant sections.

(b) Would it be contrary to any regulator's orders or rules applicable to Enbridge for Enbridge to give Ontario customers priority and/or the first opportunity to purchase capacity on the Dawn-Parkway before U.S. customers? If yes, please identify the specific orders/rules, identify the relevant sections, and provide excerpts of the relevant sections.

(c) Do any North American jurisdictions or specific utilities give in-franchise customers priority and/or the first opportunity to purchase capacity on in-franchise pipelines prior to ex-franchise customers out of jurisdiction? Please explain. If yes, please list them.

(d) Would it be illegal for Enbridge to renegotiate or decline to renew contracts to export gas to easterly ex-franchise U.S. customers on the Dawn Parkway System to free up capacity for Ontario customers as a way to avoid building the proposed project? If yes, please identify the specific legislation, identify the relevant sections, and provide excerpts of the relevant sections.

(e) Would it be contrary to any regulator's orders or rules applicable to Enbridge for Enbridge to renegotiate or decline to renew contracts to export gas to easterly ex-franchise U.S. customers on the Dawn Parkway System to free up capacity for Ontario customers as a way to avoid building the proposed project? If yes, please identify the

[10] https://science.sciencemag.org/content/sci/361/6398/186.full.pdf. Data supplement and databases available here: https://science.sciencemag.org/content/361/6398/186/tab-figures-data.

specific orders/rules, identify the relevant sections, and provide excerpts of the relevant sections.

(f) Has Enbridge made any efforts to renegotiate contracts to ex-franchise customers on the Dawn-Parkway system to free up capacity for Ontario customers? Please explain.

(g) Has Enbridge considered declining to renew contracts to ex-franchise customers on the Dawn-Parkway system to free up capacity for Ontario customers? Has it made any efforts to do so? Please explain.

(h) Please complete the following table showing all contracts to export natural gas via the Dawn Parkway System to ex-franchise U.S. customers. If certain parts of the table cannot be estimated, please explain why and complete as much of the table as possible. Please make assumptions as necessary and state all assumptions.

Contracts to Export to Ex-Franchise U.S. Customers via the Dawn Parkway System								
	Customer	Volume (GJ/d) Assumed in Ontario's Design Day	Firm or non-firm	Forecast Average Annual Demand (GJ/yr)	Forecast Average Daily Demand (GJ/d)	Forecast Annual Average Revenue ($)	Contract Expiry Date	Contract Penalty for Early Termination by Enbridge
Contract 1								
Contract 2								
…								
Contract n								
Total								

Interrogatory 3-ED-25

Reference: Exhibit A, Tab 7, Page 2; Exhibit A, Tab 7, Schedule 5; Exhibit A, Tab 7, Page 18 to 28

Preamble:

Enbridge's design day assumptions include that "all ex-franchise customers require their full easterly firm contracted volumes."

The following map from Enbridge's 5 Year Supply Plan (EB-2019-0159, Exhibit A Tab 5, Attachment 1, Page 38) show the gas flows in and out of Ontario:

Figure 23 2018 Ontario and Dawn Gas Flows (PJ/d)

Source: OPIS PointLogic Energy, an "IHS Markit "Company and U.S. EIA

Question:

(a) Please discuss the feasibility and the costs/benefits of renegotiating, declining to renew, and/or cancelling contracts to export gas to easterly ex-franchise U.S. customers on the Dawn Parkway System to free up capacity for Ontario customers as a way to avoid building the proposed project. Please separately discuss the feasibility and the potential costs/benefits and do not conflate feasibility with a discussion of the costs/benefits.

(b) Please provide a breakdown of the 1.43 PJ/d exported out of Ontario to the east between the volumes ultimately flowing to Canadian versus U.S. customers. Please make assumptions as necessary and state all assumptions.

(c) How much gas is exported from Ontario to the United States via the (i) Portland Natural Gas Transmission System Pipeline and (ii) the Iroquois Gas Transmission System Pipeline. Please provide a response as an annual average throughput (m3), average daily volume (GJ/d), and the total volume of firm contracts (GJ/d). Please provide a table showing the actuals over the past five years and a forecast over the next five years.

Interrogatory 3-ED-26

Reference: Exhibit A, Tab 7, Page 18 to 28

Preamble:

The following map from Enbridge's 5 Year Supply Plan (EB-2019-0159, Exhibit A Tab 5, Attachment 1, Page 38) show the gas flows in and out of Ontario:

Figure 23 2018 Ontario and Dawn Gas Flows (PJ/d)

Source: OPIS PointLogic Energy, an "IHS Markit "Company and U.S. EIA

Question:

(a) Please reproduce this map for 2015.

(b) Please reproduce this map for each year from 2019 to 2026 (forecast) on the assumption that the pipeline is built.

(c) Please reproduce this map for each year from 2019 to 2026 (forecast) on the assumption that the pipeline is not built.

(d) How much of the Dawn-parkway capacity is held by or for customers outside of Ontario (GJ/d and percent of allocated capacity)?

If Enbridge cannot reproduce the map, please explain why and at least provide the data displayed in a table instead.

Interrogatory 3-ED-27

Reference: Exhibit A, Tab 3, Page 2-3

Preamble: Enbridge states:

> "Following the completion of the 2017 Dawn Parkway Project, a Dawn Parkway System capacity surplus existed. All surplus Dawn Parkway System capacity was subsequently contracted to serve the demands of EGD rate zone, Union rate zones and ex-franchise U.S. Northeast and Eastern Canadian utility customers for incremental Dawn to Parkway transportation services commencing in each of winter 2018/2019, winter 2019/2020 and winter 2020/2021. **These incremental demands are inextricably linked to the need to further expand the Dawn Parkway System** to serve new in-franchise and ex- franchise

demand growth beginning winter 2021/2022. **Had surplus Dawn Parkway System capacity not been contracted to serve those ex-franchise demands from 2018- 2020, it could have further served the needs of in-franchise customers in the EGD rate zone and Union rate zones** commencing in the winter 2021/2022 as detailed in Exhibit 4 A, Tab 6." (emphasis added)

Question:

(a) Please complete the following table for contracts with ex-franchise U.S. Northeast customers for new capacity arising from the 2017 Dawn-Parkway Project.

Contracts with Ex-Franchise U.S. Customers for Capacity from 2017 Expansion								
	Customer	Volume (GJ/d) Assumed in Ontario's Design Day	Firm or non-firm	Forecast Average Annual Demand (GJ/yr)	Forecast Average Daily Demand (GJ/d)	Forecast Annual Average Revenue ($)	Contract Expiry Date	Contract Penalty for Early Termination by Enbridge
Contract 1								
Contract 2								
…								
Contract n								
Total								

(b) Please provide a breakdown of the new capacity (GJ/d) from the 2017 Dawn-Parkway project contracted to meet the demands of (i) EGD rate zone, (ii) Union rate zones, (iii) ex-franchise U.S. Northeast customers, and (iv) ex-franchise Eastern Canadian utility customers.

(c) Did Enbridge receive approval from the OEB for the contracts with U.S. customers for capacity from the 2017 Dawn-Parkway Project? If yes, please provide the file numbers and relevant excepts.

(d) Did Enbridge notify the OEB that the contracts with U.S. customers for capacity from the 2017 Dawn-Parkway Project may necessitate a future expansion to meet demand from Ontario customers? If yes, please file the excerpts of said materials where notice was given.

(e) Did Enbridge receive approval from the Canadian Environmental Regulator or any other regulator for the contracts with U.S. customers for capacity from the 2017 Dawn-Parkway Project?

(f) Can Enbridge renegotiate, cancel, or decline to renew any of these contracts with U.S. customers? If not, why not. If yes, at what cost?

(g) Enbridge notes: "Following the completion of the 2017 Dawn Parkway Project, a Dawn Parkway System capacity surplus existed." How large was that capacity surplus (GJ/d)?

(h) Enbridge notes: "Following the completion of the 2017 Dawn Parkway Project, a Dawn Parkway System capacity surplus existed." Please provide a table reconciling that surplus with the demand and capacity forecasts in the materials provided to the OEB in the leave to construct application for the 2017 Dawn Parkway Project.

Interrogatory 3-ED-28

Reference: Exhibit A, Tab 7, Page 18 to 28; Enbridge Five-Year Supply Plan

Question: Please provide the below information relating to a potential alternative to the project involving supply via the TC Mainline in Northern Ontario.

(a) Please provide a table showing the available capacity (GJ/d) on the TC Mainline to transmit gas to Ontario via northern Ontario (i) for the past ten years and (ii) forecast over the next 40 years.

(b) Please provide a table showing the available capacity (GJ./d) on the TC Mainline to transmit gas *specifically from Empress* to Ontario via northern Ontario (i) for the past five years and (ii) forecast over the next 40 years (if the answer is different from (a)).

(c) Please provide the average daily volume of gas (avg. GJ/d) transmitted into Ontario via northern Ontario on the TC Mainline for each year for the past 15 years (i.e. the average daily volume over each year).

(d) Please provide the total capacity contracts (GJ/d) on the TC Mainline to deliver gas to Ontario via northern Ontario on the TC Mainline for each year over the past 15 years.

(e) How much natural gas does Enbridge plan to import into Ontario from Empress via Dawn in 2021/2022, 2022/2023, and 2023/2024 (GJ/d).

(f) Do any physical pipeline capacity constraints exist that would make it *impossible* to meet Ontario's forecast incremental design day demand from 2021/2022 to 2025/2026 without building the proposed pipeline by contracting for incremental supply via the TC Mainline? Please explain the answer. Please address each year separately (e.g. if it is feasible for 2021/2022 but not for 2025/2026).

(g) Aside from physical pipeline capacity constraints, is it feasible for Enbridge meet Ontario's forecast design day demand for 2021/2022 to 2025/2026 without building the proposed pipeline by contracting for supply via the TC Mainline? Please explain the answer in detail. Please address the issue of feasibility / capacity availability separately from the other issues such as cost-effectiveness. A subsequent interrogatory addresses other factors such as cost-effectiveness. Please address each year separately (e.g. if it is feasible for 2021/2022 but not for 2025/2026).

(h) Is it feasible for Enbridge to plan to secure incremental peaking service on the TC Mainline for 2021/2022 t 2025/2026? If not, why not.

(i) Please describe Enbridge's efforts to explore the option of meeting Ontario's demand via the TC Mainline without building the proposed pipeline. Please include (i) the month in which such exploration began, (ii) the entities Enbridge contacted, and (iii) the details of discussions with such entities

(j) Please disclose Enbridge's communications with TC Energy regarding an option whereby it could attempt to meet incremental Ontario demand via the TC Mainline instead of building the proposed project.

(k) Please provide a detailed comparison of the cost of meeting Ontario's forecast design day demand by contracting for supply via the TC Mainline instead of building the proposed pipeline. Please provide the answer over as long of a period as possible, but break out each year separately. Please explain the answer in detail. Please include all contracting options on the TC Mainline. If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If certain parts of the answer cannot be estimated, please answer as much as possible. Please make assumptions as necessary and state all assumptions.

(l) If the proposed pipeline is built, how much of the *incremental* supply on the Dawn Parkway system will be shipped from Empress in Alberta via the United States, if any? A best-efforts answer is sufficient.

For each item above, if forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If 40 years is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the answer cannot be estimated, please answer as much as possible. Please make assumptions as necessary and state all assumptions.

For further clarity, for each item above, the reference to "via northern Ontario" is meant to include only the gas imported into Ontario near Kenora and to exclude supplies of gas travelling on the mainline in provinces west of Ontario which might be imported into Ontario near Sarnia or Sault Ste. Marie.

Interrogatory 3-ED-29

Reference: Exhibit A, Tab 7, Page 18 to 28; Enbridge Five-Year Supply Plan

Question:

(a) Please confirm that securing gas supply from Dawn instead of the TC Mainline would likely increase TC Mainline tariffs ($/m3) for Ontario customers as the costs for the TC Mainline would be recouped over a lower throughput. Please explain.

(b) Please confirm that securing gas supply from Dawn instead of the TC Mainline would likely increase TC Mainline tariffs ($/m3) for customers outside of Ontario as the costs for the TC Mainline (i) would be borne by a greater proportion by out-of-province customers, and (ii) would be recouped over a lower throughput. Please explain.

(c) If Enbridge were to contract for capacity on the TC Mainline instead of building the project, please confirm that this would incrementally decrease TC Mainline tariffs over time, all other things held equal.

(d) Please estimate the foregone TC Mainline tariff revenues from Enbridge deciding to use the proposed pipeline instead of the TM Mainline. Please provide a total over as long of a period as possible on the assumption that the pipeline is fully utilized.

(e) If TC Energy does not earn the revenues referred to in (d), would it likely seek to make up for that shortfall by increasing TC Mainline tariffs?

Interrogatory 3-ED-30

Reference: Exhibit A, Tab 7, Page 18 to 28

Question:

(a) Is it feasible for Enbridge to meet Ontario's forecast design day demand over the next (i) five and/or (ii) ten years without building the proposed pipeline by contracting for incremental supply via Niagara? Please explain the answer in detail. Please address the issue of feasibility / capacity availability separately from the other issues such as cost-effectiveness. A subsequent interrogatory addresses other factors such as cost-effectiveness.

(b) Please provide a detailed comparison of the cost of meeting Ontario's forecast design day demand over the next (i) five and (ii) ten years without building the proposed pipeline by contracting for supply via Niagara. Please explain the answer in detail. Please include all contracting options. If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If certain parts of the answer cannot be estimated, please answer as much as possible. Please make assumptions as necessary and state all assumptions.

Interrogatory 3-ED-31

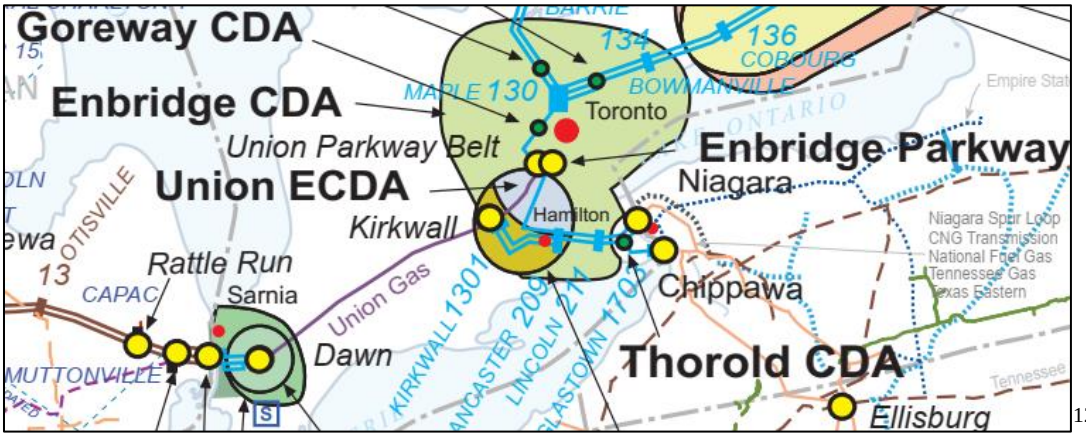
Reference: Exhibit A, Tab 7, Page 18 to 28; Exhibit A, Tab 4, Schedule 1

Preamble:

The system map shows at least one pipeline connecting Niagara to the Dawn-Parkway System east of Hamilton without flowing through Kirkwall to Hamilton. A closeup or the relevant portion is pasted here:

[11]

TC Energy's map of the TC Mainline shows this as well (see below excerpt).



[12]

Question:

(a) Please list the pipelines connecting Niagara to the Dawn-Parkway system east of the Hamilton valve that do not flow through Kirkwall to Hamilton.

(b) For ease of reference with an exhibit number, please file a high-resolution version of the system map appearing on page 12 of the Enbridge 5 Year Gas Supply Plan.

(c) Please provide a table showing the available capacity (GJ/d) on the pipelines linking Niagara to the Dawn-Parkway system east of the Hamilton valve that do not flow through Kirkwall to Hamilton for (i) the past 5 years and (ii) forecast for the next 5 years.

(d) Please complete the following table with historic and forecast figures for Niagara to the Dawn-Parkway system east of the Hamilton valve, excluding flows and capacity through Kirkwall to Hamilton:

[11] Exhibit A, Tab 4, Schedule 1

[12] http://www.tccustomerexpress.com/docs/ml_system_maps/Canadian%20Mainline%20Tariff%20Map.pdf (a low resolution of this map also appears at page 12 of the 5 Year Gas Supply Plan).

Niagara to Dawn-Parkway System (Excl. via Kirkwall to Hamilton)					
	2016[13]	2017	…	2025	2026
Total Capacity (GJ/d)					
Available Capacity (GJ/d)					
Avg. Day Throughput (GJ/d)					
Throughput on Peak Day (GJ/d)					
Annual Throughput (GJ or m3)					

Interrogatory 3-ED-32

Reference: Exhibit A, Tab 7, Page 22

Preamble: Enbridge states that "Winter peaking transportation service was rejected as an alternative to firm Dawn Parkway System transmission capacity as in comparison it is not economically viable, provides limited price certainty and is not commercially available on a long-term basis."

Question:

(a) Enbridge states that winter peaking transportation service "is not commercially available on a long-term basis." What does Enbridge consider to be "a long-term basis"? On what length of term would such a service be available?

(b) Enbridge states that winter peaking transportation service "not economically viable." Please provide a detailed comparison of the cost of this service with the cost via the proposed pipeline.

(c) Enbridge states that winter peaking transportation service "not economically viable." Please provide a detailed comparison of the cost of this service with the cost via the proposed pipeline on the assumption by November 1, 2026 (5 years after the proposed in-service date) there is no longer a need for the incremental capacity on which the pipeline was justified. Although we understand that Enbridge does not agree with this assumption, its answer would not be taken as agreement and is needed to fully explore the issues.

[13] Years need not be calendar years. For example, Nov 1 to Oct 31 is fine. Please note the year used.

Interrogatory 3-ED-33

Reference: Exhibit A, Tab 6, Page 5-7, 16-17

Preamble: According the Canadian Energy Regulator:

> "The Board requires all pipelines to set aside funds to safely cease operation of a pipeline at the end of its useful life. In 2016, TCPL estimated it would cost $2.9 billion to do this for the Mainline. These funds will be collected over 25 years and are being set aside in a trust."[14]

Question:

(a) Will Enbridge be setting aside funds to safely cease operation of the proposed Hamilton Pipeline akin to the abandonment funds set aside by TCPL for the Mainline?

(b) Does Enbridge set aside abandonment funds for any of its natural gas pipelines in Ontario? If yes, please identify which one portions do and do not have abandonment funds set aside. If not, please explain (i) why not and (ii) why abandonment funding is appropriate for all pipelines regulated by the Canadian Energy Regulator but not for other natural gas pipelines in Ontario?

(c) How much would it cost to safely cease operations of the proposed pipeline if in the future the pipeline was no longer necessary and a decision was made to cease operations?

Interrogatory 3-ED-34

Reference: Exhibit A, Tab 7, Page 18 to 28; Exhibit A, Tab 6, Page 7

Preamble: The U.S. utilities were awarded 19,671 GJ/d in capacity (8,796 GJ/d for Bangor and 10,875 GJ/d for Northern Utilities). The proposed pipeline has a capacity of 92,174 GJ/d.

Question:

(a) How much (GJ/d) of the proposed pipeline's capacity (92,174 GJ/d) will be reserved for Ontario consumers? If the answer is not 72,503 GJ/d (92,174 GJ/d minus 19,671 GJ/d), please explain.

(b) Would alternatives to the project to meet Ontario demand need to provide capacity equivalent to approximately 72,503 GJ/d at most? If not, please explain.

Interrogatory 3-ED-35

Reference: Exhibit A, Tab 7,

[14] https://www.cer-rec.gc.ca/nrg/ntgrtd/pplnprtl/pplnprfls/ntrlgs/trnscndmnln-eng.html

Question:

(a) If there was a forecast capacity shortfall only for five years from 2021 to 2026, after which design day demand was expected to drop below pre-2021 levels, would Enbridge still purpose building the Hamilton Pipeline?

(b) If not, how would Enbridge propose to address the five-year capacity shortage?

(c) If there was a forecast capacity shortfall only for ten years from 2021 to 2031, after which design day demand was expected to drop below pre-2021 levels, would Enbridge still purpose building the Hamilton Pipeline?

(d) If not, how would Enbridge propose to address the ten-year capacity shortage?

Interrogatory 3-ED-36

Reference: Exhibit A, Tab 7, Page 23 to 25

Preamble: Enbridge's evidence does not consider DSM as a partial alternative combined with other measures or as a medium-term solution combined with interim measures.

Question: Please answer the following questions for the sake of assessing DSM as a partial alternative combined with other measures or as a medium-term solution combined with interim measures (e.g. interim supply solutions that could bridge the gap while DSM is ramped up, longer-term partial supply alternatives, demand response, etc.):

(a) Please complete the following table. Please base the answer on the 2019 joint OEB-IESO Potential Study.

Cost-Effective and Achievable DSM Potential – Area Served by Proposed Pipeline					
	2020	2022	…	2029	2030
Annual Savings (m3)					
Cumulative Savings (m3)					
Avg Day Demand Reduction (m3)					
Design Day Demand Reduction (m3/d)					

Please make assumptions as necessary and state all assumptions. Please provide particular detail on the assumptions used to derive the average day demand reductions and the demand day reductions. To the extent that calculations are challenging, please provide the answer on a best-efforts basis and state any necessary caveats.

Please focus only on the areas that can be served by the pipeline. If that area is hard to calculate with complete specificity, use an appropriate proxy (e.g. all service areas minus Union South) and provide details of said assumptions in the response.

(b) Please provide a copy of the above table in GJ (instead of m3).

Interrogatory 3-ED-37

Reference: Exhibit A, Tab 7, Page 23 to 25

Preamble: Enbridge states at page 25: "Given the need to evaluate the impacts of the IRPA, the program would need to be completed or demonstrating measurable results, at least three years prior to the date at which the additional capacity provided by the infrastructure project was initially projected to be required. Hence, a successful IRPA would need to be approved and put into motion no less than four years prior to the expected in-service date of the preferred facility alternative."

Question:

(a) Seeing as Enbridge bid for in-franchise demand in the November 2018 open season, it presumably was aware of a need for more capacity prior to November 2018. Please confirm that to be the case, or if not, please explain why not

(b) When did Enbridge first forecast a capacity shortfall on the Dawn Parkway system following the 2017 Dawn Parkway Expansion Project?

(c) When did Enbridge first contemplate this proposed project? Please explain.

(d) When did Enbridge retain the firm that completed the Environmental Assessment for the project? Please explain.

(e) When did Enbridge first notify the OEB that it was contemplating this project? Please provide the correspondence including said notice.

(f) For the sake of exploring the DSM that could or should have been implemented as an alternative to this project beginning in 2018, please complete the below table:

Cost-Effective and Achievable DSM Potential – Area Served by Proposed Pipeline					
	2018	2019	…	2029	2030
Annual Savings (m3)					
Cumulative Savings (m3)					

Avg Day Demand Reduction (m3)					
Design Day Demand Reduction (m3/d)					

Interrogatory 3-ED-38

Reference: Exhibit A, Tab 7, Page 20-21

Question: For the purpose of considering Parkway Delivery Obligations as an interim solution to address the alleged capacity shortfall, please provide the following information. Please provide the requested information even if Enbridge believes this option to be unfeasible or imprudent (in which case Enbridge may include any caveats it wishes).

(a) Please compare the cost of securing supply via Parkway Delivery Obligations versus the proposed pipeline. Please include a landed cost analysis. Please account for the full cost of the pipeline in the comparison. Please provide the cost comparison over five years starting in 2021/2022. Please provide underlying calculations.

(b) Enbridge notes that utilizing Parkway Delivery Obligations would "be inconsistent with the results of the Settlement Agreement to eliminate the PDO." Is the OEB bound by the Settlement Agreement?

(c) Enbridge notes that utilizing Parkway Delivery Obligations would "be inconsistent with the results of the Settlement Agreement to eliminate the PDO." Please provide the relevant excerpts stating so.

Interrogatory 3-ED-39

Reference: Exhibit A, Tab 7, Page 21

Question: For the purpose of considering an exchange service utilizing a Dawn Long Term Fixed Price service ("LTFP") as an interim solution to address the alleged capacity shortfall, please provide the following information. Please provide the requested information even if Enbridge believes this option to be unfeasible or imprudent (in which case Enbridge may include any caveats it wishes).

(a) Please compare the cost of securing supply via LTFP versus the proposed pipeline. Please include a landed cost analysis. Please account for the full cost of the pipeline in the comparison. Please provide the cost comparison over five years starting in 2021/2022. Please provide underlying calculations.

Interrogatory 3-ED-40

Reference: Exhibit A, Tab 7, Page 21

Question: For the purpose of considering a winter peaking transport service delivered at Parkway as an interim solution to address the alleged capacity shortfall, please provide the following information. Please provide the requested information even if Enbridge believes this option to be unfeasible or imprudent (in which case Enbridge may include any caveats it wishes).

(a) Please compare the cost of securing supply via a winter peaking transport service delivered at Parkway versus the proposed pipeline. Please include a landed cost analysis. Please account for the full cost of the pipeline in the comparison. Please provide the cost comparison over five years starting in 2021/2022. Please provide underlying calculations.

Interrogatory 3-ED-41

Reference: Exhibit A, Tab 7, Page 21; 5 Year Gas Supply Plan, EB-2019-0137, Appendix D

Question: Appendix D of the Supply Plan provides a landed cost analysis comparison between service via new capacity peaking service, SHFT, and LHFT.

(a) Appendix D indicates $62.1 million as the total term cost for the peaking service. Please confirm that this does not include the $120 million revenue deficit (NPV) forecast for the proposed pipeline (or explain).

(b) Please reproduce the tables in Appendix D with the following assumptions: (i) the capacity deficit only persists for 5 years, (ii) the pipeline is not needed 5 years after the in-service date, and (iii) the full cost of the pipeline is included in the analysis.

(c) Please reproduce the tables in Appendix D with the following assumptions: (i) the capacity deficit has been eliminated by 2030, (ii) the pipeline is not needed for 2030 onward, and (iii) the full cost of the pipeline is included in the analysis.

(d) For ease of reference, please attach Appendix D to this interrogatory response.

Interrogatory 3-ED-42

Reference: Exhibit A, Tab 7, Page 21; 5 Year Gas Supply Plan, EB-2019-0137, Appendix I

Preamble: Appendix I of the Supply Plan provides a landed cost analysis comparison for serving Union customers.

Question:

(a) The appendix indicates $5.15 $Cdn/G as the landed cost for Union Dawn to Parkway. Please confirm that this does not include the $120 million revenue deficit (NPV) forecast for the proposed pipeline (or explain).

(b) Please reproduce the tables in Appendix I with the following assumptions: (i) the capacity deficit only persists for 5 years, (ii) the pipeline is not needed 5 years after the in-service date, and (iii) the full cost of the pipeline is included in the analysis. Please add a column indicating the total term cost over 5 years.

(c) Please reproduce the tables in Appendix I with the following assumptions: (i) the capacity deficit has been eliminated by 2030, (ii) the pipeline is not needed for 2030 onward, and (iii) the full cost of the pipeline is included in the analysis. Please add a column indicating the total term cost over 5 years.

(d) For ease of reference, please attach Appendix I to this interrogatory response.

Interrogatory 3-ED-43

Reference: Exhibit A, Tab 7, Page 21; 5 Year Gas Supply Plan, EB-2019-0137, Appendix D & I

Preamble: Appendix D & I of the Supply Plan provides a landed cost analysis comparison for serving Enbridge and Union customers.

Question:

(a) Please provide all the calculations, assumptions, and spreadsheets underlying Appendix D and I (landed cost analysis).

(b) Please complete the following table with the volumes assumed in the landed cost analysis in Appendix D and I.

Volumes Assumed in Landed Cost Analysis				
	Year 1	Year 2	…	Year n
Volumes – Enbridge EDA				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				
Volumes – Enbridge CDA				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				

Volumes – Union North				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				
Volumes – Union South				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				
Volumes – Total				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				

Interrogatory 3-ED-44

Reference: EB-2019-0159, Exhibit A, Tab 7; EB-2019-0137, 5 Year Gas Supply Plan, p. 41-42

Preamble: In its 5 Year Gas Supply Plan, Enbridge states:

> "If the EGD rate zone has a forecasted design day asset shortfall of less than 2%, EGI will plan to balance design day demand with short-term market based solutions, such as peaking supply. These solutions are cost-effective and do not require long-term commitments, but are less reliable and lack the diversity and flexibility of service attributes associated with firm transportation. In the event the forecasted design day shortfall grows to an amount that is in excess of 2% of design day demand requirements, EGI will seek out firm transportation assets to address the forecasted shortfall."

Question:

(a) Please analyze and compare the price of securing short-term market based peaking supply to the price of securing supply with the proposed pipeline for 2021 to 2026. Please include all calculations. Please include a landed cost comparison.

(b) With respect to the above reference to "short-term market based solutions, such as peaking supply," can said supply be delivered without relying on additional capacity from Kirkwall to Hamilton from the proposed project (e.g. via the TC Mainline in the north or Niagara)?

Interrogatory 3-ED-45

Reference: EB-2019-0159, Exhibit A, Tab 7; EB-2019-0137, 5 Year Gas Supply Plan, p. 46

Preamble: Table 8 of Enbridge's 5 Year Supply Plan is as follows:

Table 8 – Enbridge CDA Design Day Supply/Demand Balance

Line No.	Particulars (TJ)	2020	2021	2022	2023	2024
	Design Day Demand					
1	Gross Design Day Demand	3,414	3,426	3,439	3,451	3,463
2	Curtailment	(79)	(79)	(79)	(79)	(79)
3	Net CDA Design Day Demand	3,335	3,347	3,360	3,372	3,384
	CDA Design Day Supply Assets					
4	In-Franchise Supply	88	88	88	88	88
5	Third-Party Services	40	-	-	-	-
6	TCPL Long Haul	5	5	5	5	5
7	TCPL Short Haul	668	668	768	768	768
8	TCPL STS	284	284	284	284	284
9	EGI D-P	2,194	2,194	2,194	2,194	2,194
10	CDA Design Day Supply Assets	3,279	3,239	3,339	3,339	3,339
11	**CDA Design Day Supply Assets Surplus/(Shortfall)**	**(56)**	**(108)**	**(21)**	**(33)**	**(45)**
12	*Shortfall % of Net Design Day Demand*	*2.9%*	*3.2%*	*0.6%*	*1.0%*	*1.3%*

Question:

(a) For each of the assets described in the above 5 Year Gas Supply Plan excerpt, please describe: (i) whether it could be an alternative to building new capacity, (ii) whether it would require additional capacity from Kirkwall to Hamilton, (iii) the cost in comparison to the proposed project, (iv) whether and where this alternative is discussed in Enbridge's application.

Interrogatory 3-ED-46

Reference: EB-2019-0159, Exhibit A, Tab 7; EB-2019-0137, 5 Year Gas Supply Plan, p. 46-49

Preamble: Table 8 of Enbridge's 5 Year Supply Plan shows 79 TJ/d of curtailment in the CDA and 30 TJ/d of curtailment in the EDA.

(a) Please complete the following table showing the historic and forecast interruptible/ curtailable demand in each rate zone from 2010 to 2030. If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If requested time period is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the table cannot be estimated, please explain why and complete as much of the table as possible. Please make assumptions as necessary and state all assumptions.

Ontario Interruptible/Curtailable Gas Demand by Rate Zone			
	2010	…	2030

Interruptible/Curtailable Demand (TJ/d)			
Enbridge CDA			
Enbridge EDA			
Union North			
Union South			
Total – All Zones			
Interruptible/Curtailable Demand as Percent of Design Day Demand			
Enbridge CDA			
Enbridge EDA			
Union North			
Union South			
Total – All Zones			

(b) Does Enbridge believe it could achieve a greater proportion of interruptible demand by promoting the potential benefits with certain customers and/or providing additional financial incentives? If yes, how much demand does Enbridge estimate it could convert from firm to interruptible for in each year from 2020 to 2030? If possible, please complete a copy of the above table showing how much incremental interruptible demand Enbridge believes it could achieve with additional efforts.

(c) Which customers has Enbridge approached to ask if they would be willing negotiate a interruptible/curtailable gas supply contract since 2018? Please list each along with their approximate demand on the design day.

(d) Please provide a list of Enbridge's interruptible customers and their demand (GJ/d). If the names of customers must be filed confidentially, please indicate the industry in the redacted public version.

(e) Please provide a list of Enbridge's 50 largest non-interruptible customers and their demand (GJ/d). If the names of customers must be filed confidentially, please indicate the industry in the redacted public version.

(f) What financial incentives are available for customers to enter into an interruptible contract?

(g) Has Enbridge compared its proportion of interruptible sales to those in other jurisdictions to examine whether a greater proportion of interruptible demand may be achievable? If not, why not. If yes, please file the analysis.

(h) Please complete this table comparing interruptible sales in Vermont and Ontario. If forecasting is a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If the requested time period is impossible, please explain why and answer the question over as long a time period as possible. If certain parts of the table cannot be estimated, please explain why and complete as much of the table as possible. Please make assumptions as necessary and state all assumptions. The Vermont data can be found on pages 3-14 to 3-16 of Vermont's 2012 Integrated Resource Plan.[15]

[15] http://docket7970.com/ANR/Attachment%20A.ANR.VGS.RTP.1-3%20(Teixeira)/REVISED%20IRP%202012%20-%20FINAL.pdf

Ontario vs. Vermont Interruptible Annual Gas Sales (GJ)			
	2008	…	2032
Ontario			
Interruptible sales			
Total sales			
Interruptible as percent of total sales			
Vermont			
Interruptible sales			
Total sales			
Interruptible as percent of total sales			

Interrogatory 3-ED-47

Reference: EB-2019-0159, Exhibit A, Tab 7; EB-2019-0137, 5 Year Gas Supply Plan, p. 46-49

Preamble: Environmental Defence is seeking the information in this interrogatory in part to be able to illustrate how peaky demand is in support of an examination of alternatives involving load shifting, curtailment, and/or reducing demand at the peak through energy efficiency.

Question:

Please provide an electronic Excel spreadsheet with the daily demand for each day of the year for 2015 (actual) through 2025 (forecast) for the following markets: (i) Ontario total demand; (ii) Ontario gas fired power plant demand; and (iii) Hamilton Pipeline.

Interrogatory 3-ED-48

Reference: Exhibit A, Tab 7, Page 1

Question:

(a) Natural Resources Canada provides the following Natural Gas Conversions:

Approximate Natural Gas Conversions

	‹- Multiply by -›			
	m^3	**cf**	**MMBtu**	**GJ**
Cubic Metres (m^3)		35.301	0.0353	0.0373
Cubic Feet (cf)	0.0283		0.001	0.001055

Million British thermal units (MMBtu)	28.3278	1000		1.0551
Gigajoules (GJ)	26.853	947.817	0.9478	

For example, to convert from 1 MMBtu to Gigajoules, multiply by 1.055.[16]

Please confirm whether Enbridge believes those conversion rates are (i) accurate and (ii) the same as the conversion rates used in its application. If not, please (i) reproduce the table with the rates that Enbridge used for its application and (ii) provide the rates that Enbridge believes are accurate.

(b) In EB-2017-0255, Exhibit 2, Page 11, Union Gas provided the following emission factor for Natural Gas: 0.001966 tonnes CO2e/m3 natural gas. Does Enbridge believe this is the most accurate emission factor? If not, please explain and provide what Enbridge believes is the accurate figure and explain why it is different from the evidence submitted in EB-2017-0255.

(c) Please provide the emission factor of natural gas in terms of tonnes of CO2e/GJ.

(d) Please provide the conversation rate from average day demand (GJ/d) to annual demand (GJ/yr).

Issue 5 – Impacts on Ratepayers

Interrogatory 5-ED-49

Reference: Exhibit A, Tab 8

Question:

(a) What profit (i.e. return) does Enbridge estimate it will earn on this project?

(b) Who bears the financial risk that the pipeline is no longer needed before the end of its economic life? Ontario ratepayers or Enbridge?

(c) Is Enbridge willing to assume the financial risk that the pipeline is no longer needed before the end of its economic life?

(d) Are there any mechanisms to review the prudency of this investment in (i) 5 years or (ii) 10 years?

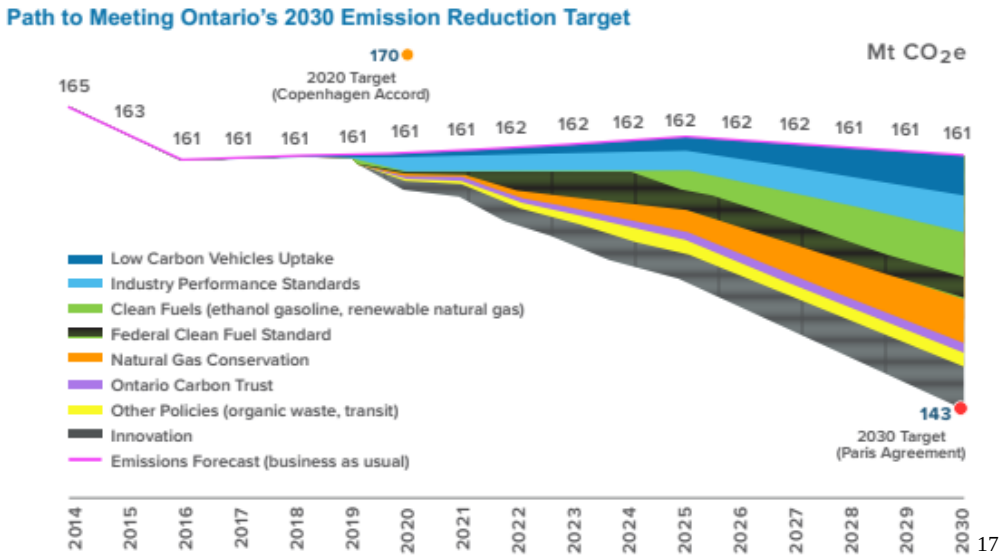
(e) Are there any mechanisms for customers to ask that Enbridge (i) be responsible for revenue shortfalls or (ii) forfeit its profit if the pipeline is not needed 5 years after it comes into service? Please explain.

[16] https://www.nrcan.gc.ca/energy/energy-sources-distribution/natural-gas/natural-gas-primer/5641

Interrogatory 5-ED-50

Reference: Exhibit A, Tab 8

Preamble: Ontario's Environment Plan includes targets for carbon emissions to decline from natural gas use over the coming decade and by 3.2 MT by 2030. The decline is illustrated in orange in the below excerpt from the Environment Plan:



[17]

Question:

(a) If the natural-gas-related emission reduction targets in the Environment Plan are met, what proportion, if any, of the capacity of the proposed pipeline will be needed: (i) five years after it comes in service and (ii) ten years after it comes in service? Please explain in detail. Please provide underlying assumptions and calculations. Please provide an answer on best-efforts basis with any necessary caveats.

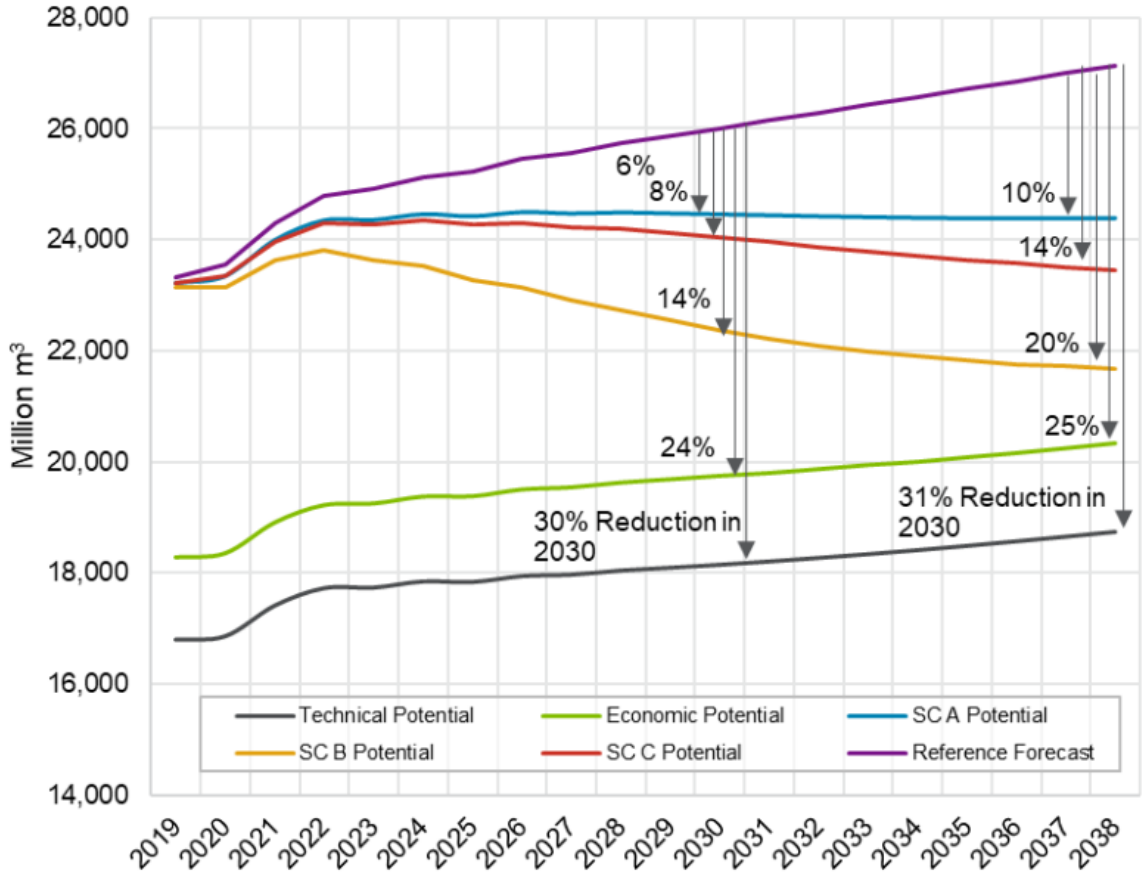
Interrogatory 5-ED-51

Reference: Exhibit A, Tab 8

Preamble: The joint OEB-IESO Achievable Potential Study shows declining gas demand from 2023 onward if all cost-effective energy efficiency measures are pursued. This is illustrated in the below figure excerpted from the Potential Study in the yellow line.

[17] Government of Ontario, *A Made-in-Ontario Environment Plan*, November, 2018, p. 23.

Figure ES-6. Natural Gas Potential – Compared with Reference Forecast



Source: Navigant analysis

[18]

Question:

(a) If all cost-effective DSM is implemented in accordance with the OEB-IESO Potential Study, what proportion, if any, of the capacity of the proposed pipeline will be needed: (i) five years after it comes in service and (ii) ten years after it comes in service? Please explain in detail. Please provide underlying assumptions and calculations. Please provide an answer on best-efforts basis with any necessary caveats.

(b) If 80% of the cost-effective DSM is implemented in accordance with the OEB-IESO Potential Study, what proportion, if any, of the capacity of the proposed pipeline will be needed: (i) five years after it comes in service and (ii) ten years after it comes in service? Please explain in detail. Please provide underlying assumptions and calculations. Please provide an answer on best-efforts basis with any necessary caveats.

[18] Navigant, *2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study*, September 13, 2019.

(c) For ease of reference in this hearing with an appropriate exhibit number, please file a copy of the OEB-IESO Integrated Ontario Electricity and Natural Gas Achievable Potential Study.

(d) Please confirm that, according to a binding Minister's Directive, the Board is required to establish a DSM Framework that "shall enable the achievement of all cost-effective DSM."[19] If Enbridge disagrees, please explain.

(e) Please confirm that, according to the March 20, 2019 Ministers' Directive, the all cost-effective DSM requirement "shall remain in full force and effect."[20] If Enbridge disagrees, please explain.

(f) Please file, for ease of reference in this hearing via an exhibit number, the Minister's Directives to the OEB dated March 26, 2014 and March 06, 2019.

Interrogatory 5-ED-52

Reference: Exhibit A, Tab 6; EB-2016-0300; Exhibit I.1.EGDI.SEC.4, Attachment 1

Preamble: Enbridge retained ICF to prepare materials entitled "Impacts of Ontario's Proposed Climate Policy" in 2012.[21] As one of the potential implications, the report indicated that "NG consumption will need to decline by 40% - 50% by 2030."[22]

(a) Has Enbridge or a consultant for Enbridge updated this research on the impacts of climate policy?

(b) Has Enbridge or a consultant for Enbridge prepared a report examining potential impacts on natural gas demand arising from government policy and market forces in relation to climate change? If yes, please file said report.

(c) Please estimate the impact on Ontario's natural gas demand of a carbon price that would achieve Canada's 2030 greenhouse gas reduction targets ($210/tonne by 2030).[23]

(d) Please estimate the impact on Ontario's natural gas demand of government policies and market forces which, combined, make electric heating significantly cheaper than gas as of 2021.

Interrogatory 5-ED-53

Reference: Exhibit A, Tab 8, Page 3

---

[19] Minister's Directive, March 26, 2014, para. 4(i).
[20] Minister's Directive, March 06, 2019, para. 5.
[21] EB-2016-0300; Exhibit I.1.EGDI.SEC.4, Attachment 1.
[22] EB-2016-0300; Exhibit I.1.EGDI.SEC.4, Attachment 1, p. 33
[23] Canada's Ecofiscal Commission, *Bridging the Gap: Real Options for Meeting Canada's 2030 GHG Target*, November 2019, https://ecofiscal.ca/wp-content/uploads/2019/11/Ecofiscal-Commission-Bridging-the-Gap-November-27-2019-FINAL.pdf.

Preamble: Enbridge states “the Project has a NPV of negative $120.3 million and a PI of 0.35.”

Question:

(a) Please recalculate the projected loss (NPV) and profitability index based on the assumption that the project is not required 5 years after its in-service date.

(b) Please recalculate the projected loss (NPV) and profitability index based on the assumption that the project is not required 10 years after its in-service date.

Interrogatory 5-ED-54

Reference: Exhibit A, Tab 8, Schedule 5

Preamble: This schedule provides the assumptions underlying the stage 2 cost/benefit analysis.

Question:

(a) What natural gas emission factor did Enbridge use for the stage 2 analysis with respect to carbon costs? If Enbridge used an emission factor different from the 0.001966 tonnes CO2e/m3 figure used in EB-2017-0255, Exhibit 2, Page 11, please explain in detail why.

(b) Please provide the assumptions made by Enbridge for the stage 2 analysis with respect to the carbon intensity for electricity, heating oil, and propane.

(c) Please provide the underlying excel spreadsheets the stage 2 analysis.

(d) Please complete the following table with the volumes assumed in the stage 2 benefit/cost analysis. Please complete as much of the table as possible.

Volumes Assumed in Stage 2 Cost/Benefit Analysis				
	Year 1	Year 2	…	Year n
Volumes – Enbridge EDA				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				
Volumes – Enbridge CDA				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				
Volumes – Union North				

Average daily throughput (GJ/d)				
Annual throughput (GJ)				
Volumes – Union South				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				
Volumes – Total				
Average daily throughput (GJ/d)				
Annual throughput (GJ)				

(e) Please confirm that the stage 2 analysis assumes that customers will convert to natural gas from other fuels if the pipeline is built or be forced to convert away from natural gas if the pipeline is *not* built. Please also discuss the accuracy of this assumption.

(f) If the pipeline is built, will this allow new customers to convert to natural gas from other fuels, who would otherwise be unable to do so? If yes, please provide a table indicating the estimated number of new customers per year and their average annual forecast demand. If possible, please also break down the table by customer type and rate zone.

(g) What percent of the Ontario demand growth is driven by increase natural gas power generation versus other end-uses in Ontario.

Interrogatory 5-ED-55

Reference: Exhibit A, Tab 6, Page 16

Preamble: Enbridge states that:

> "The proposed expansion of the Dawn Parkway System is partially dependent upon expansion of TC Energy's Mainline for takeaway capacity from Parkway beginning November 1, 2021 and upon expansion of PNGTS beginning November 1, 2022."

Question:

(a) It the dependant downstream expansion of the TC Mainline needed at least in part to serve Ontario customers?

(b) What is the full cost the dependent downstream expansion of the TC Mainline? Please provide and break out the construction cost, capital cost, and the estimated return to be paid to the proponent.

Interrogatory 5-ED-56

Reference: Exhibit A, Tab 6

Question:

(a) If the OEB declines to grant leave to build this project, what would Enbridge do to meet customer demand?

(b) Does Enbridge have a contingency plan to ensure demand from Ontario customers is met in the event that this project cannot be built by November 1, 2021? If yes, what is that plan?

(c) If Enbridge has internal documentation outlining contingency plans in the event that leave is not granted, please file said documentation.

(d) Please provide the cost of said contingency plans in comparison to the cost of implementing the project.

Interrogatory 5-ED-57

Reference: Exhibit A, Tab 6

Question:

(a) Please provide the tariffs that will be charged to U.S. customers for service on the proposed pipeline.

(b) Please provide the tariffs that would need to be charged to U.S. customers for service on the proposed pipeline to eliminate the forecast revenue shortfall and ensure a profitability index of 1.

(c) Please confirm that U.S. customers will not be responsible for funding the forecast $120 million revenue shortfall.

(d) Why is Enbridge proposing that Ontario ratepayers fund the entire forecast $120 million revenue shortfall?

(e) What percent of the overall capacity would be contracted with U.S. customers?

(f) Could Enbridge renegotiate the contracts with U.S. customers such that they (i) bear the entire $120 revenue shortfall or (ii) bear a portion of the shortfall equivalent to the proportion of the capacity they have contracted for?

(g) Please confirm that U.S. customers do not bear the financial risk that the pipeline will become redundant and stranded before the end of its economic life.

(h) Should the revenue shortfall be financed solely by gas fired power plants and U.S. customers? If not, why not?

(i) Should the revenue shortfall be financed solely by gas fired power plants and U.S. customers? If not, why not?

Interrogatory 5-ED-58

Reference: Exhibit A, Tab 6

Question:

(a) Please provide a monetized value for the risk that the proposed pipeline will become redundant before the end of its economic life.

(b) Please explore the cost to insure against the financial risk that the pipeline will become redundant before the end of its economic life. Please report back on these efforts, including which insurers where contacted and what prices they quoted.

(c) Please specifically contact Lloyds of London to ask for a quote of the cost to insure against the financial risk that the pipeline will become redundant before the end of its economic life.

Interrogatory 5-ED-59

Reference: Exhibit A, Tab 6

Preamble: A recent report by the Rocky Mountain Institute, entitled *Prospects for Gas Pipelines in the Era of Clean Energy* forecasts a high likelihood that gas pipelines built to serve gas power generation will become stranded assets due to the declining cost of clean energy.[24]

Question:

(a) The report concludes that "by 2035, approximately 86 percent of expected fuel use from new gas-fired generation will likely be avoided by competition from clean energy" (p. 40).

   i. Does Enbridge agree with this conclusion? If not, why not, and please indicate what Enbridge believes is the correct percentage.

   ii. Has Enbridge undertaken a study or analysis of forecast gas demand from power plants in 2035? If yes, please file the study or analysis and reconcile it with the Rocky Mountain Institute report.

(b) The report concludes on page 41 that:

"Lower-than-expected demand growth will significantly increase the

per-unit cost of gas from newly built pipelines

[24] https://rmi.org/insight/clean-energy-portfolios-pipelines-and-plants/

Declining throughput for newly built gas pipelines will force sunk costs, borne by shippers under precedent agreements based on peak demand, to be recovered over fewer units of delivered fuel than expected. Estimated declines of 20 to 60 percent of pipeline throughput across the five regions (Figure 14) correspond to increases of 30 to 140 percent in per-unit delivered cost of fuel (Figure 15)"

i. Does Enbridge agree with this conclusion? If not, why not, and please indicate what Enbridge believes is the correct percentage.

(c) The report concludes that clean energy portfolios "are lower cost than 81 percent of the proposed gas-fired power plant capacity in our focus regions" (p. 36).

i. Does Enbridge agree with this conclusion? If not, why not, and please indicate what Enbridge believes is the correct percentage.

ii. Has Enbridge compared the cost of clean energy versus gas-fired power plant capacity?

(d) The report concludes, "if proposed gas plants are built, the falling costs of clean energy will likely render over 70 percent of planned capacity uneconomic by 2035" (p. 38).

i. Does Enbridge agree with this conclusion? If not, why not, and please indicate what Enbridge believes is the correct percentage.

ii. Has Enbridge compared the cost of clean energy versus operating existing gas-fired power plans?

(e) For the proposed pipeline, who bears the (i) risk of sunk costs and (ii) exposure to throughput risk?

(f) The report proposes a number of questions for regulators of gas utilities on page 47, as follows. Please provide answers:

i. To what extent does a gas utility's proposed investment in, or contract for new pipeline capacity rely on secondary market sales to electric power customers to bolster project economics for gas customers?

ii. Does any expected revenue from secondary sales to the power market accurately reflect the declining economics of gas-fired generation relative to clean energy in the next 15 years?

iii. Are risks passed on to captive retail customers if expected secondary market sales to power plants do not materialize?

Interrogatory 5-ED-60

Reference: Exhibit A, Tab 6; Exhibit A, Tab 8, Page 3

Question:

(a) If the proposed pipeline project is no longer required 5 years after its in-service date:

i. Who, according to Enbridge's proposals, would bear the remaining costs?

ii. How much would those remaining costs amount to in total?

iii. What adjustment to rates or tariffs would Enbridge propose to make to recoup the remaining costs?

(b) If the proposed pipeline project is no longer required 10 years after its in-service date:

i. Who, according to Enbridge's proposals, would bear the remaining costs?

ii. How much would those remaining costs amount to in total?

iii. What adjustment to rates or tariffs would Enbridge propose to make to recoup the remaining costs?

Interrogatory 5-ED-61

Reference: Exhibit A, Tab 6, Page 2-7; Exhibit A, Tab 7, Page 20-22

Question:

(a) Please provide a map showing all of Enbridge's Natural Gas Transmission Pipelines in North America. Please include a label for each. Please include pipelines in which Enbridge has partial ownership (e.g. Alliance).

(b) Please provide a map showing all Natural Gas Transmission Pipelines in North America. Please include a label for each.

(c) Please provide a map showing all Natural Gas Transmission Pipelines regulated by the CER. Please include a label for each.

Interrogatory 5-ED-62

Reference: Exhibit A, Tab 6, Page 2-7; Exhibit A, Tab 7, Page 20-22

Question:

(a) Does Enbridge believe the Ontario Energy Board has the jurisdiction to consider the impacts of the proposed pipeline on Canadian natural gas customers outside of Ontario? Please explain.

(b) Does Enbridge believe the Ontario Energy Board is required to consider the impacts of the pipeline on Canadian natural gas customers outside of Ontario in coming to its decision? Please explain.

(c) Why does Enbridge believe this proposed pipeline is under provincial and not federal jurisdiction? Please explain.

(d) Why does Enbridge believe the Dawn-Parkway system is under provincial and not federal jurisdiction? Please explain.

(e) If this project were to be considered to be under federal jurisdiction and require approval from the Canadian Energy Regulator:

a. How would the test and conditions for approval differ, if any?

b. Would a broader range of consideration be relevant (e.g. impacts on consumers outside of Ontario)?

c. What different environmental assessment requirements would apply?

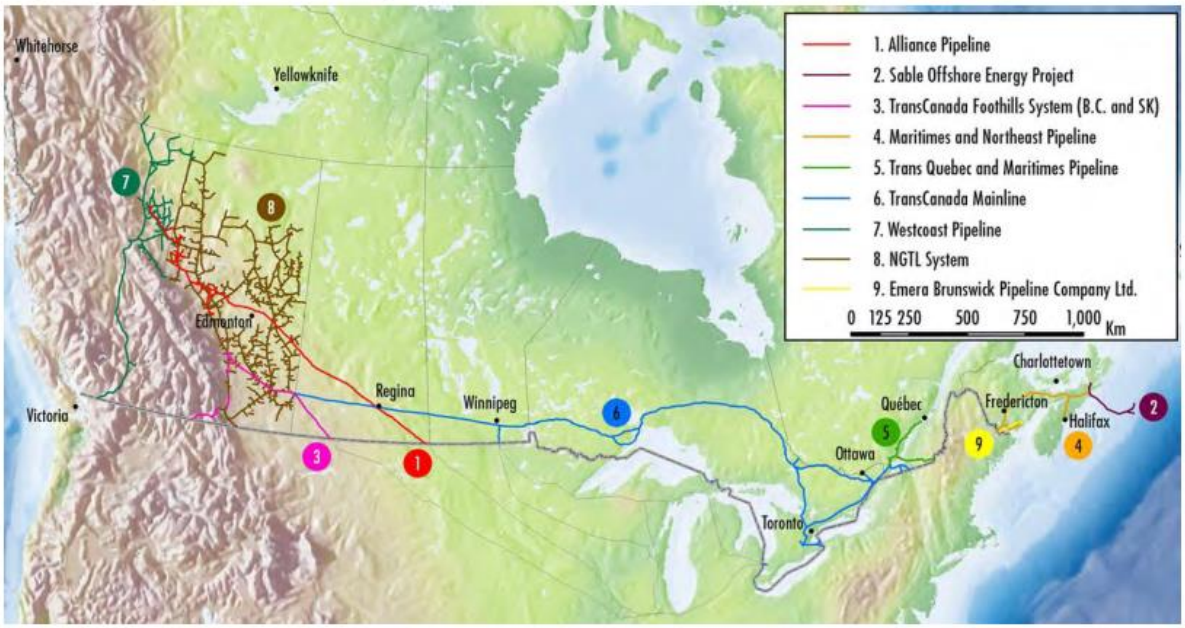
d. Would federal carbon emission reduction targets be relevant?

Interrogatory 5-ED-63

Reference: Exhibit A, Tab 6, Page 2-7; Exhibit A, Tab 7, Page 20-22

Preamble: The following map from the Canadian Environmental Regulatory (CER) shows the natural gas pipelines it regulates:

Larger NEB-Regulated Natural Gas Pipelines



[25]

Question:

(a) What percent of the gas serving the Dawn-Parkway Pipeline flows from the Vector Pipeline?

(b) Please confirm that the Dawn-Parkway Pipeline requires the Vector Pipeline to operate.

(c) What percent of the gas serving the Dawn-Parkway Pipeline flows from the TC Mainline?

(d) Please confirm that the Dawn-Parkway Pipeline is requires the TC Mainline to operate.

(e) Please confirm that 100% of the gas serving the Dawn-Parkway Pipeline flows from either a TC Energy Pipeline or the Vector Pipeline (or provide a percentage)?

[25] National Energy Board, *Canada's Pipeline Transportation System 2016*, p. 5

For the figures provided in this answer, please use annual figures in the most recent year that data is available or an average over the past five years if that is more representative. Please indicate the year(s) in the answer.

Issue 6 – OEB Environmental Guidelines

Interrogatory 6-ED-64

Reference: Exhibit A, Tab 9, Page 6; Exhibit A, Tab 10

Preamble: Enbridge asserts that: "All necessary permits, approvals and authorizations will be obtained by Enbridge Gas at the earliest appropriate opportunity."

Question:

(a) Please list each permit, approval, and authorization that Enbridge is required to obtain.

(b) Please list the criteria for obtaining each permit, approval, and authorization.

(c) Please provide excerpts from the legislation, regulation, or guideline on outlining said criteria.

(d) Please provide a description of whether, why, and how the pipeline will meet said criteria.

(e) Please indicate, for each permit or approval, whether the relevant agency has discretion to deny the permit even if the OEB has approved the project.

(f) If the OEB approves the proposed pipeline, is it possible that other agencies could prohibit Enbridge from building the pipeline if the permit is not provided?

(g) Does Enbridge require any approvals from the Canadian Environmental Regulatory (CER) for this project? If yes, please identify each and the underlying legislative basis and/or regulatory instrument.

Interrogatory 6-ED-65

Reference: Exhibit A, Tab 9

Questions:

(a) Please provide a map showing the proposed pipelines and ecological features such as wetlands.

(b) How many kms of the proposed pipeline runs through a wetland?

(c) How will Enbridge restore wetlands and other ecological features?

(d) Please file the full Environmental Assessment Report.

Issue 8 – Safety Requirements

Interrogatory 8-ED-66

Reference: Exhibit A, Tab 9

Preamble: The following image is of an October 2018 Enbridge pipeline explosion near Lheidli T'enneh First Nation.

 [26]

Questions:

(a) If a similar explosion occurred on the proposed pipeline, what does Enbridge believe the potential range of impacts would be in terms of (i) number of deaths, (ii) number of injuries, and (iii) property damage for a best and worst-case scenario.

(b) Please explain whether a similar explosion is possible on the proposed pipeline and what steps Enbridge is taking to avoid that.

(c) Do different safety criteria apply to the pipeline that exploded versus the proposed pipeline? If yes, please list the differences in a table, indicating which is more stringent.

(d) Please file the Transportation Safety Board of Canada report regarding this explosion.

(e) Is the above image an accurate depiction of the explosion?

(f) To give stakeholders an illustration of the extend of the explosion, please file images of the explosion at the height of the resulting fires and in the immediate aftermath.

(g) Please confirm whether the following image of the burned area and crater is accurate:

[26] https://theenergymix.com/2020/03/06/2018-pipeline-explosion-near-prince-george-revealed-shocking-safety-breaches/

[27]

Issue 9 – Indigenous Consultation and Accommodation

Interrogatory 9-ED-67

Reference: Exhibit A, Tab 9

Preamble: The following image is of an October 2018 Enbridge pipeline explosion near Lheidli T'enneh First Nation.


[28]

[27] https://www.cbc.ca/news/canada/british-columbia/pipeline-explosion-prince-george-bc-investigation-stress-cracks-1.5485082
[28] https://www.cbc.ca/news/canada/british-columbia/pipeline-explosion-prince-george-bc-investigation-stress-cracks-1.5485082

Questions:

(a) Please confirm the number of people required to evacuate Lheidli T'enneh First Nation as a result of the explosion.

(b) What compensation has Enbridge provided Lheidli T'enneh First Nation and its members as a result of the explosion?

(c) The Chief of Lheidli T'enneh First Nation is quoted as saying Enbridge "turned it back on without answers and without our consent."[29] Is that true?

(d) In its consultation with First Nations regarding the proposed pipeline, did Enbridge advise the First Nations of this explosion?

    a. If not, does Enbridge commit to do so now?

(e) In its consultation with First Nations regarding the proposed pipeline, did Enbridge advise First Nations of the concerns expressed by Lheidli T'enneh First Nation?

    a. If not, does Enbridge commit to do so now?

[29] https://theenergymix.com/2020/03/06/2018-pipeline-explosion-near-prince-george-revealed-shocking-safety-breaches/