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VIA EMAIL, RESS and COURIER

November 22, 2019

Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Re: EB-2019-0194 Enbridge Gas Inc. ("Enbridge Gas")
2020 Rates – Undertaking Responses

Please find enclosed undertaking responses from the technical conference held on November 21, 2019 in the above noted proceeding.

Further, Enbridge Gas has reviewed the technical conference transcript and notes the following corrections:

As Stated	Correction
Page 7, line 27: "decision in EB 170306 ..."	"decision in EB-2017-0306 ..."
Page 17, line 14: "...of \$7.07 "	"...of \$75.07 "
Page 67, line 23: "MS. MIKHAILA: There is circuit plus capacity..."	".....there is surplus capacity.."
Page 67, line 27: "MS. MIKHAILA: 30,339 GJs a day."	".... 30,393 GJs..."

Please contact the undersigned if you have any questions.

Yours truly,

(Original Signed)

Rakesh Torul
Technical Manager,
Regulatory Applications

cc: David Stevens, Aird and Berlis LLP
EB-2019-0194 Intervenor

ENBRIDGE GAS INC.

Undertaking Response to FRPO

To provide the historical 30-year average degree days for Union South and Union North Rate zones

Response:

Attached is an updated version of Exhibit KT1.4. It includes data for 30 year average as well as the 20 year declining trend corrected.

Union South Rate Zone

Year	Annual Htg. Deg.Days	Rolling 30 Year Average	Rolling 20 Year Trend
	(1)	(2)	(3)
1969	3,964.5		
1970	3,942.2		
1971	3,884.3		
1972	4,282.0		
1973	3,738.0		
1974	4,035.9		
1975	3,821.1		
1976	4,255.7		
1977	4,013.9		
1978	4,370.0		
1979	4,143.0		
1980	4,264.9		
1981	3,998.1		
1982	4,010.9		
1983	3,908.1		
1984	3,997.2		
1985	3,926.2		
1986	3,881.8		
1987	3,683.6		
1988	3,986.4		
1989	4,153.9		
1990	3,571.5		3,950.3
1991	3,631.2		3,976.7
1992	4,030.7		3,872.1
1993	4,104.9		3,779.2
1994	4,054.8		3,828.5
1995	3,987.0		3,826.5
1996	4,152.5		3,846.6
1997	4,005.1		3,823.6
1998	3,174.9		3,890.4
1999	3,553.5		3,895.5
2000	3,791.6	3,965.8	3,769.8
2001	3,468.6	3,952.1	3,716.0
2002	3,652.1	3,947.1	3,739.4
2003	3,988.1	3,933.2	3,666.8
2004	3,806.6	3,912.2	3,644.2
2005	3,837.5	3,920.6	3,686.4
2006	3,407.4	3,912.9	3,700.0
2007	3,699.9	3,913.5	3,714.2
2008	3,869.1	3,885.2	3,631.9
2009	3,824.1	3,874.7	3,594.4
2010	3,573.6	3,858.0	3,632.7
2011	3,695.1	3,847.4	3,685.5
2012	3,274.2	3,824.4	3,613.6
2013	3,874.6	3,814.3	3,575.6
2014	4,221.1	3,789.7	3,498.9
2015	3,834.2	3,788.6	3,573.7
2016	3,509.8	3,796.1	3,720.1
2017	3,562.4	3,793.0	3,771.8
2018	3,839.0	3,780.6	3,778.4
2019		3,776.5	3,788.0
2020		3,771.6	3,755.3

Union North Rate Zone

Year	Annual Htg. Deg.Days	Rolling 30 Year Average	Rolling 20 Year Trend
	(1)	(2)	(3)
1969	5,120.5		
1970	5,414.3		
1971	5,274.1		
1972	5,741.8		
1973	4,941.0		
1974	5,445.9		
1975	5,134.0		
1976	5,643.3		
1977	5,188.1		
1978	5,639.5		
1979	5,457.9		
1980	5,558.7		
1981	5,092.3		
1982	5,429.7		
1983	5,195.3		
1984	5,174.7		
1985	5,437.8		
1986	5,175.2		
1987	4,722.4		
1988	5,316.7		
1989	5,654.2		
1990	4,993.8		5,193.5
1991	5,018.5		5,244.0
1992	5,488.9		5,182.4
1993	5,460.3		5,115.0
1994	5,293.6		5,214.3
1995	5,357.8		5,206.4
1996	5,550.0		5,220.3
1997	5,384.1		5,209.6
1998	4,457.4		5,303.1
1999	4,754.0		5,302.9
2000	5,065.1	5,292.1	5,160.1
2001	4,612.9	5,279.8	5,077.3
2002	5,006.5	5,268.2	5,086.7
2003	5,146.5	5,246.2	4,946.4
2004	5,216.2	5,221.7	4,943.0
2005	4,865.8	5,228.5	4,946.2
2006	4,472.7	5,220.8	4,962.4
2007	4,887.8	5,211.9	4,937.4
2008	5,039.7	5,172.9	4,803.6
2009	5,049.0	5,162.9	4,711.2
2010	4,461.5	5,142.9	4,726.8
2011	4,741.0	5,129.3	4,793.5
2012	4,367.3	5,092.7	4,657.9
2013	5,130.6	5,081.0	4,594.7
2014	5,360.7	5,045.6	4,518.1
2015	4,912.0	5,043.4	4,620.6
2016	4,627.9	5,049.6	4,756.3
2017	4,828.3	5,032.1	4,803.1
2018	5,072.0	5,013.8	4,822.0
2019		5,017.4	4,877.9
2020		5,009.2	4,873.8

Note - the average and trend calculations are lagged two years

ENBRIDGE GAS INC.

Undertaking to Energy Probe

To provide the calculation of capital pass-through incremental project revenue for Dawn-Parkway projects.

Response:

Please see Attachment 1.

UNION RATE ZONES
Calculation of Capital Pass-through Projects 2020 Incremental Project Revenue

Line No.	Particulars	Rate M12		Rate C1	In-franchise (d)	Total (e) = (a+b+c+d)
		Dawn-Parkway	Kirkwall-Parkway	Dawn-Parkway		
		(a)	(b)	(c)		
<u>Ex-franchise Billing Unit Increase Reflected in Derivation of Rates (\$GJ/d)</u>						
1	Parkway West	-	-	-	-	-
2	Brantford-Kirkwall/Parkway D	363,000	-	-	-	363,000
3	Burlington to Oakville	-	-	-	-	-
4	2016 Dawn-Parkway Expansion	270,733	36,301	29,115	-	336,149
5	2017 Dawn-Parkway Expansion	362,082	84,854	5,975	-	452,911
6	Panhandle Reinforcement	-	-	-	-	-
7	Sudbury Replacement	-	-	-	-	-
8	Total Billing Unit Increase	995,815	121,155	35,090	-	1,152,060
9	2020 Demand Rate (\$/GJ) (1)	3.633	0.550	3.633	-	
<u>Incremental Project Revenue (\$000's) (2)</u>						
10	Parkway West	-	-	-	-	-
11	Brantford-Kirkwall/Parkway D	15,825	-	-	-	15,825
12	Burlington to Oakville	-	-	-	-	-
13	2016 Dawn-Parkway Expansion	11,803	240	1,269	-	13,312
14	2017 Dawn-Parkway Expansion	15,785	560	260	-	16,606
15	Panhandle Reinforcement (3)	-	-	-	5,415	5,415
16	Sudbury Replacement	-	-	-	-	-
17	Total Incremental Project Revenue	43,414	800	1,530	5,415	51,158

Notes:

- (1) Exhibit D, Tab 2, Rate Order, Appendix A.
- (2) Incremental Project Revenue by project calculated as lines 1 to 7 * line 9 * 12 / 1000
- (3) Panhandle Reinforcement project revenue per Exhibit D, Tab 2, Rate Order, Working Papers, Schedule 14, p. 9, line 14.

ENBRIDGE GAS INC.

Undertaking to the City of Kitchener

To provide a continuity of the Rate T1 and Rate T2 monthly charge.

Response:

Please see Attachment 1 for an update to Exhibit KT1.7 to include the Rate T1 and Rate T2 monthly charge continuity.

UNION RATE ZONES
Derivation of Rate T1, T2 and T3 2020 Monthly Charge and Transportation Fuel Ratio

Line No.	Particulars		2020 Rate Adjustments				2020 Rate (1) (e) = (a+b+c+d)	Increase/ (Decrease) (f) = (e-a)
			2019 Rate (1) (a)	1.36% PCI (2) (b)	2020 Capital Pass-through Change (3) (c)	2020 PDO Change (d)		
1	Monthly charge (\$/month)	Rate T1	1,964.32	27.61	7.35	-	1,999.28	34.96
2		Rate T2	5,976.36	88.46	87.11	-	6,151.93	175.57
3		Rate T3	20,622.21	291.57	93.19	-	21,006.97	384.76
4	Transportation fuel ratio	Rate T1	0.326%	0.004%	-	0.009%	0.338%	0.012%
5		Rate T2	0.291%	0.003%	-	-0.001%	0.294%	0.003%
6		Rate T3	0.402%	0.004%	-	-0.005%	0.401%	-0.001%

Notes:

- (1) Exhibit D, Tab 2, Rate Order, Appendix A.
- (2) Monthly charge PCI per Exhibit D, Tab 2, Rate Order, Working Papers, Schedule 5, p. 15-20, Monthly Charges line, column (g) divided by column (a).
- (3) Monthly charge capital pass-through per Exhibit D, Tab 2, Rate Order, Working Papers, Schedule 5, p. 15-20, Monthly Charges line, column (e) + (j) divided by column (n).
- (4) Transportation fuel ratio PDO per Exhibit D, Tab 2, Rate Order, Working Papers, Schedule 7, p. 1, column (b) + (i).

ENBRIDGE GAS INC.

Undertaking Response JT1.4 to VECC

Question:

For the EGD and Union Rate Zones confirm whether:



1. It remains the customer's option to enroll in e-billing.
2. The customer will only be enrolled in e-billing if the customer expressly agrees.
3. There have been no changes as of January 1, 2019 to require customers to move to e-billing.

Response:

As of January 1, 2019, Enbridge Gas began treating e-billing as the default option for its customers.

From that date, Enbridge Gas has instituted a process to enrol all new and existing customers who have provided an email address to the Company into e-billing. When Enbridge Gas moves a customer to e-billing, they will receive an email from Enbridge Gas informing them that they will receive their bills electronically. A sample copy of the email that is sent is attached.

As can be seen, the email explains how e-billing works, and informs the customer that they can contact Enbridge Gas should they prefer not to be enrolled in e-billing. When a customer contacts Enbridge Gas, they are given the option to switch back to paper bills. To date, around 10-15% of customers who have been switched to e-billing have contacted Enbridge Gas and have been switched back to paper billing.



Your bill.
Now, in your inbox.

Dear [REDACTED] -- To serve you better, you'll now receive your bill electronically instead of by mail starting this month. Your eBill will be automatically delivered to your inbox in the next few days, along with a convenient PDF version.

As an extra perk, you'll also be entered to win a biweekly prize of \$5,000* plus a \$5,000 donation to a charity of your choice!

ENJOY ALL NEW BENEFITS



Get your bill sooner

You'll receive an email when your monthly bill is ready, with the amount due and a PDF attachment of your bill for fast, easy viewing.



Text and email reminders

A week before payment is due, we'll send a quick note to remind you.



Reliable and convenient

With your eBill delivered right to your inbox every month, you'll always know where to find it.

We respect your preference

If you don't find eBill to be the most convenient option, you can contact us at any time.



***NO PURCHASE NECESSARY.** Contest is only available to active account holders of Enbridge Gas Inc.'s residential customers who are at least 19 years of age and who switch to paperless billing between Oct. 1, 2019 and Dec. 31, 2019 at 11:59 p.m. EDT and are on eBilling on the date of the draw. Only one entry per household. Residents of Quebec are not eligible. There are seven prizes, each consisting of \$5,000 cash and a donation from Enbridge Gas of \$5,000 to a charity of the winner's choice. Random draws will be held every two weeks on Oct. 16, 20, Nov. 13, 27, Dec. 11, 27, 2019 and Jan. 6, 2020. Winners will receive a \$5,000 cheque delivered by courier before February 2020 and Enbridge Gas will make a donation of \$5,000 to be presented to the winner's charity of choice in the form of a cheque. Only Canadian charities registered with the Canada Revenue Agency are eligible. For certainty, the donation is made by Enbridge Gas and the winner does not receive the tax receipt for this donation. Chances of winning depend on the number of eligible entries received. Value of each prize to the winner is \$5,000 and the warm feeling of helping your favourite charity. Selected entrant must correctly answer a mathematical skill testing question to be declared a winner. Full terms and conditions available here. © 2019 Enbridge Gas Inc. All rights reserved.

ENBRIDGE GAS INC.

Undertaking Response

Investigation of R squared on Regression results

Response:

The R squared of the linear trend model changes consistent with the variability of the data. The low R squared of the trend model shows the high variability in data. Since the weather is highly variable data, it is expected to have low R squared from those models.

To determine the most appropriate method to forecast the weather, legacy EGD uses the evaluation framework that involves the assessment of nine different methodologies used by North American utilities (Naïve, 10 yr MA, 20 yr MA, 30 yr MA, 20 yr Trend, De Bever, De Bever with Trend and Energy Probe and 50/50 (Average of 10 yr MA and 20 yr Trend)).

Some of these methodologies rely on regression equations (like 20 yr trend, De Bever and Energy Probe) while some of the popular methodologies doesn't have any statistics or R squared (like Naïve and moving average). So, the Company decided to evaluate the same nine methods using the evaluation criteria, namely: Accuracy, Symmetry and Stability (Refer to Budget Degree Day evidence at EB-2006-0034 and at EB-2011-0354). In the EB-2006-0034 hearing, EGD's witness explained why the evaluation criteria used are more appropriate than R-squared for comparing and choosing the best model. See attachment: EB-2006-0034, February 1st, 2007 Transcript Pages 10 to 17.

The methodology which generates the most accurate, symmetrical and stable results have been proposed to the Board to use and approved by the Board.

Even though the R squared of 20-yr trend model was low, it ranked best based on the selection criteria for Central zone during the Company's first IR period (2008-2012). Then for the Custom IR period, the 50/50 (average of 20 yr trend and 10 yr MA) ranked best methodology for Central zone.

The Company will re-evaluate the ranking to determine the best methodologies for each rate zone in its rebasing application for 2024.

1 Undertaking J3.3? Or would there be another response?

2 MR. LADANYI: Well, we were wondering whether it would
3 be acceptable because I think it covers really the same
4 area but we could look at it again if it is not acceptable.
5 That's why I asked that at the beginning.

6 MR. STEVENS: Mr. Vlahos, if it would be helpful we
7 would be happy to file it in the conventional undertaking
8 response format.

9 MR. KAISER: Thank you. Mr. Shepherd, before you
10 start, let me just go over a couple of these things with
11 the witness. I was reading the transcript last night, Mr.
12 Ladanyi, or maybe Mrs. Chan or Mr. Denomy, and you recall
13 we were having this discussion about the reliability of
14 this formula, of this variable, I suppose, as part of the
15 equation to predict the weather.

16 You recall that we were concerned - or at least I was
17 concerned - as to why the adjusted R-squared, which was
18 85.9 in the case of Toronto or the central region was so
19 dramatically different from the adjusted R-squareds which
20 were 0.15 in the case of Ottawa or the eastern region and
21 0.36 in the case of the Niagara region.

22 You told us that at least looking at the adjusted R-
23 squared, the models weren't very useful for the two regions
24 outside of Toronto, but they were, in your view, reliable
25 for estimating in Toronto where you said most of your
26 customers were, 80 percent. Then we went to the F-
27 statistic, which again was a little bit higher, 2.7 in the
28 case of Toronto; 0.71, I think it was, in the case of

1 eastern, 0.32 in the case of Niagara.

2 But as I read the transcript last night, you agreed
3 that even in the Toronto area that F-statistic showed us
4 that this model was unreliable at the 95 percent confidence
5 level.

6 MR. DENOMY: Yes.

7 MR. KAISER: Now, I then went back and looked at the
8 Union case, and you have said this, I think, but we can
9 confirm this. Union in their last case proposed exactly
10 the same methodology, the 20-year trend.

11 MR. DENOMY: Yes, they did.

12 MR. KAISER: You no doubt read the Board's decision in
13 that case?

14 MR. DENOMY: Yes.

15 MR. KAISER: And the Board rejected that largely
16 because they found it to be statistically unreliable. Do
17 you agree with that?

18 MR. DENOMY: Yes.

19 MR. KAISER: Now, I went back and looked at what
20 analysis Union did and I think I may have a copy of the
21 exhibit. Do we have N3.2? I just want to -- this was the
22 similar analysis that Union filed to the analysis that you
23 filed that we have just been discussing in Exhibit C2, tab
24 4, schedule 1. In the Union case it was Exhibit N3.2 filed
25 on October 15, 2003 and Allan Fogwill, QC, was the witness
26 at the time, it turns out.

27 I looked at the regression analysis Union did and put
28 before the Board at that time and, lo and behold - this is

1 on the first page, Mr. Denomy - I found an adjusted R-
2 squared of 22.89 and a F-statistic of 6.6. Those would
3 both be better results than you have. Would I be right?

4 MR. DENOMY: Yes, they would.

5 MR. KAISER: So am I putting too fine a point on it.
6 You are here arguing the same thing that the Board rejected
7 in the Union case, and in the Union case the model was even
8 stronger than the model that you are putting before us
9 today. Is that fair?

10 MR. DENOMY: To a certain extent. We are arguing that
11 the 20-year trend should be accepted based on its
12 forecasting ability.

13 MR. KAISER: Right.

14 MR. DENOMY: The regression diagnostic statistics that
15 you are currently looking at in terms of R-squared or the
16 F-statistic are just but one thing that you have to look at
17 when you are examining a model in terms of its predictive
18 ability.

19 MR. KAISER: That is what I wanted to understand. So
20 what else -- so what else should we be looking at that
21 would lead us to conclude that, in your case, it is more
22 reliable than the Board found in the Enbridge case? What's
23 the difference?

24 MR. DENOMY: If you turn to Exhibit C2, tab 4,
25 schedule 1, page 11. Table 6.

26 MR. KAISER: Okay.

27 MR. DENOMY: Degree days are a very difficult variable
28 to forecast and all of the models that we looked at tend to

1 have a very low R-squared, and the t statistics and F
2 statistics are also quite low.

3 If you are throwing away a model solely on the basis
4 of the regression diagnostics statistics, you may be
5 throwing away a model that in fact has good predictive
6 ability. So rather than just looking at the adjusted
7 R-squared and the t statistics and F statistics, we decided
8 to look at the predictive ability; in other words, the
9 forecasting accuracy of the models. And that is what is
10 shown in table 6.

11 We are concerned with getting an accurate forecast of
12 degree days, and in table 6 you can see that we've ranked
13 the models on the basis of accuracy, symmetry and
14 stability. And what we found was that despite the fact
15 that the 20-year trend does tend to have a lower R-squared
16 than some of the other models that we have examined and the
17 t statistics are somewhat lower than the other models that
18 we have examined, it actually produces the most accurate
19 forecasts of degree days.

20 And that is the basis upon which we are recommending
21 the 20-year trend.

22 MR. KAISER: Let me understand that, then, because I
23 think this is important.

24 First of all, these degree days that we are using, is
25 this Toronto data or --

26 MR. DENOMY: This is strictly Toronto data.

27 MR. KAISER: I think we had some discussion of this.
28 Is it -- are the results different if we start looking at

1 Ottawa?

2 MR. DENOMY: Yes, the results are different if we
3 start looking at Ottawa.

4 MR. KAISER: So we have that continuing problem. All
5 right. So when you go to the accuracy, is that simply what
6 the model predicted compared to the actual?

7 MR. DENOMY: Yes.

8 MR. KAISER: All right. So 20-year trend is closer
9 than any of the other models in that regard?

10 MR. DENOMY: That's correct.

11 MR. KAISER: Then we go to symmetry. What does
12 symmetry mean?

13 MR. DENOMY: Symmetry is whether or not the model
14 tends to over-forecast or under-forecast. There's two
15 different ways you can look at it. You can look at it by
16 examining the mean percentage error, which is just the
17 average of the percentage variance, and what you want to
18 see is a mean percentage error that is close to zero. It
19 means that on average, the overages and underages are
20 cancelling out.

21 You can also look at it with respect to the number of
22 times that it over-forecasts or under-forecasts, but that
23 doesn't give you an idea of the magnitude of the over- or
24 the under-forecast that is captured by the mean percentage
25 error.

26 MR. KAISER: All right. Then we go to stability.
27 What is the additional qualitative --

28 MR. DENOMY: Stability is -- as we've examined it, we

1 classify that as the standard deviation of the forecasts.
2 You simply take all of the forecast values and calculate
3 the standard deviation.

4 So the higher the standard deviation, the more
5 volatile the forecast. The lower the standard deviation,
6 the less volatile the forecast.

7 One of the things with stability, however, is you will
8 find that if you look at, for example, the 30-year moving
9 average, which is the one model below the 20-year trend in
10 table 6, you can see that it has a very stable forecast,
11 but when you rank it on the basis of symmetry or accuracy,
12 it doesn't even come close to the 20-year trend.

13 It is not as accurate. It tends to over-forecast; in
14 other words, have a biased forecast.

15 MR. KAISER: When you add it all up in the last
16 column --

17 MR. DENOMY: Yes.

18 MR. KAISER: -- how do you weight these three factors?
19 Are accuracy, symmetry and stability, as you define, them
20 the same weight?

21 MR. DENOMY: No, not in this table. If you look at
22 the accuracy statistics, we have used two. Symmetry, we
23 have used two, and stability or standard deviation, we have
24 only used one. So the weights implicit in our ranking are
25 40 percent accuracy, 40 percent symmetry, 20 percent
26 stability.

27 MR. KAISER: Now, I presume if we had different
28 weights, we would have a different result?

1 MR. DENOMY: Yes, you could.

2 MR. KAISER: And how would you justify 40/40/20?

3 MR. DENOMY: Well, we think that accuracy and symmetry
4 are more important than stability. From a rate-setting
5 perspective, the more stable the model, obviously that is
6 better. But as I previously discussed, we want to get an
7 accurate -- we want to get the right forecast of degree
8 days. You want to be closer to right than wrong on
9 average, so it is more important to have a higher weighting
10 to accuracy and symmetry.

11 MR. KAISER: Has anyone else done this kind of
12 analysis? Is this a type of analysis that is used in any
13 of the academic literature, or is this something that you
14 guys have come up with?

15 MR. DENOMY: All of these statistics that you see
16 here, the mean absolute percent error, or MAPE, route mean
17 squared percentage error, or RMSPE, they're all standard
18 forecast accuracy statistics that are used in the field of
19 forecasting, as are the mean percentage error, percent
20 over-forecast and standard deviation. They're all standard
21 statistical tests that you would apply to a model.

22 We have just taken a look at all of them and ranked
23 them on the basis of accuracy, symmetry and stability.

24 MR. KAISER: I understand that, but in terms of the
25 weighting -- for instance, let me tell you a concern I had.
26 I was wondering - and I thought this was probably the
27 weighting you were using - you've got 80 percent of this
28 falling into one category.

1 MR. DENOMY: Yes.

2 MR. KAISER: Which happens to be the category that
3 your proposal does well in, as opposed to stability.

4 Is there some overlap between accuracy and symmetry?
5 Are we measuring the same thing and, therefore, bumping the
6 weight from 40 to 80?

7 MR. DENOMY: Is there some overlap between accuracy
8 and symmetry?

9 MR. KAISER: Are we double counting in some sense? It
10 seemed to me, just intuitively, accuracy is the difference
11 between actual and what the model predicts. Symmetry is
12 how close you go -- you know, there seems to be a
13 similarity between those, between those two concepts.

14 In other words, a model that is high on accuracy is
15 going to be high on symmetry. No?

16 MR. DENOMY: Excuse me for just one minute, please.

17 [Witness panel confers]

18 MR. DENOMY: You can -- accuracy, I think, would be
19 the most important factor, and I think that you are correct
20 in saying that the symmetry part would, to a certain
21 extent, be captured by accuracy, yes.

22 MR. KAISER: I tried to actually do overnight a bit of
23 analysis similar to this and without really understanding
24 your analysis fully at C2, tab 4. But, again, what I was
25 trying to do was compare the results of these different
26 models.

27 MR. DENOMY: Okay.

28 MR. KAISER: I would like to put this table to you, if

ENBRIDGE GAS INC.

Undertaking Response JT1.6 to VECC

Question:

In relation to Enbridge Gas's e-billing, please advise:

1. Has Enbridge had any discussion with the OEB call center; is there any regulatory application made to the board that made reference to the change to e-bill?
2. Have customers been told as of January 2020, they are not allowed to go back to paper bills?
3. How has Enbridge treated LPP charges (including refunds) for customers who have been switched to e-bill?
4. Did we test if the customer email on file are current/monitored?
5. Provide estimated annual savings for moving customers to e-bill.

Response:

1. Enbridge Gas did not make any application or have discussions with the OEB or OEB Staff about making e-bill the default option for customers.
2. Enbridge Gas is not implementing any policy that would require e-bill customers to stay on e-bill (and not switch to paper bills). Enbridge Gas is not aware that customers have been told that this is the case.
3. Enbridge Gas addresses concerns about LPP charges on a case by case basis. In some cases, the Company has credited/cancelled LPP charges for customers who were switched to e-bill and were late in paying their account.
4. Enbridge Gas sends emails to all new e-bill customers (a sample of the type of email sent is attached to Exhibit JT1.5). Where the email "bounces back", then Enbridge Gas will keep that customer on paper bills.
5. Enbridge Gas estimates net savings of approximately \$2.0 million from moving customers to e-bill in 2019.

ENBRIDGE GAS INC.

Undertaking to FRPO

TO UPDATE PAGE 3 OF SCHED 14 TO PROVIDE A BREAKDOWN BY RATE TYPE.

Response:

Please see Attachment 1 for the updated demand allocators used in the cost allocation study for each capital pass-through project for 2020 Rates. The demand allocators were approved as part of each of the respective capital pass-through project applications. There is no change to the demand allocators used for the Burlington to Oakville or Sudbury Replacement capital pass-through projects.

Please see Attachment 2 for the allocation of Rate M12 and Rate C1 capital pass-through costs to the transportation paths.

Please see Attachment 3 for the forecast excess Dawn-Parkway capacity in each winter following the Dawn-Parkway capital pass-through projects. This information was previously provided in the MAADs proceeding as EB-2017-0305/EB-2017-0306, Exhibit J2.5.

Please see Attachment 4 for the forecast usage to derive Rate M12 unit rates by path from 2013 and updated to 2020 for incremental demands served by the capital pass-through projects. The forecast usage detail includes the EGD rate zone demands separate from other customer demands.

UNION RATE ZONES
Derivation of the Capital Pass-through Project Allocators - Parkway Projects

Line No.	Particulars	Union North In-Franchise (a)	Union South In-Franchise (b)	Ex-Franchise (c)	Total (d) = (a+b+c)
<u>Dawn-Parkway Distance Weighted Design Day Demands</u>					
2013 Board-Approved per EB-2011-0210					
1	Design Day Demands (10 ⁶ m ³ /d)	7	44	124	175
2	Weighted Average Distance (km)	229	82	214	182
3	Distance Weighted Demands (10 ⁶ m ³ /d x km) (1)	1,592	3,588	26,557	31,737
4	Distance Weighted Demands (%)	5.0%	11.3%	83.7%	100.0%
Parkway Projects (per EB-2012-0433 / EB-2013-0074)					
5	Project Demands (10 ⁶ m ³ /d)	2	-	10	11
6	Weighted Average Distance (km)	229	-	229	229
7	Project Distance Weighted Demands (10 ⁶ m ³ /d x km) (line 5 x line 6) (2)	425	-	2,201	2,626
Parkway Projects Allocator (per EB-2012-0433 / EB-2013-0074)					
8	Design Day Demands (10 ⁶ m ³ /d) (line 1 + line 5)	9	44	134	186
9	Weighted Average Distance (km)	229	82	215	185
10	Project Distance Weighted Demands (10 ⁶ m ³ /d x km) (line 8 x line 9)	2,017	3,588	28,758	34,363
11	Distance Weighted Demands (%)	5.9%	10.4%	83.7%	100.0%
<u>Design Day Demands requiring Dawn Compression</u>					
2013 Board-Approved per EB-2011-0210					
12	Design Day Demands requiring Dawn Compression (10 ⁶ m ³ /d) (3)	7	26	116	149
13	Dawn Compression Demands (%)	4.6%	17.4%	77.9%	100.0%
Parkway Projects (per EB-2012-0433 / EB-2013-0074)					
14	Project Demands requiring Dawn Compression (10 ⁶ m ³ /d)	2	-	10	11
Parkway Projects Allocator (per EB-2012-0433 / EB-2013-0074)					
15	Design Day Demands requiring Dawn Compression (10 ⁶ m ³ /d) (line 12 + line 14)	9	26	126	161
16	Dawn Compression Demands (%)	5.5%	16.2%	78.4%	100.0%

Notes:

- (1) EB-2011-0210, Exhibit G3, Tab 5, Schedule 23, Updated, pages 7-8, line 5.
(2) EB-2012-0451/EB-2012-0433/EB-2013-0074, Exhibit I.A3.UGL.FRPO.28, Attachment 1, column (c).
(3) EB-2011-0210, Exhibit G3, Tab 5, Schedule 23, Updated, pages 7-8, line 11.

UNION RATE ZONES
Derivation of the Capital Pass-through Project Allocators - 2016 Dawn-Parkway Expansion

Line No.	Particulars	Union North In-Franchise (a)	Union South In-Franchise (b)	Ex-Franchise (c)	Total (d) = (a+b+c)
<u>Dawn-Parkway Distance Weighted Design Day Demands</u>					
2013 Board-Approved per EB-2011-0210					
1	Design Day Demands ($10^6\text{m}^3/\text{d}$)	7	44	124	175
2	Weighted Average Distance (km)	229	82	214	182
3	Distance Weighted Demands ($10^6\text{m}^3/\text{d} \times \text{km}$) (1)	1,592	3,588	26,557	31,737
4	Distance Weighted Demands (%)	5.0%	11.3%	83.7%	100.0%
2016 Dawn-Parkway Expansion (per EB-2014-0261)					
5	Project Demands ($10^6\text{m}^3/\text{d}$)	1	2	9	13
6	Weighted Average Distance (km)	229	209	209	211
7	Project Distance Weighted Demands ($10^6\text{m}^3/\text{d} \times \text{km}$) (line 5 x line 6) (2)	285	509	1,857	2,651
2016 Dawn-Parkway Expansion Allocator (per EB-2014-0261)					
8	Design Day Demands ($10^6\text{m}^3/\text{d}$) (line 1 + line 5)	8	46	133	187
9	Weighted Average Distance (km)	229	89	214	184
10	Project Distance Weighted Demands ($10^6\text{m}^3/\text{d} \times \text{km}$) (line 8 x line 9)	1,878	4,097	28,414	34,388
11	Distance Weighted Demands (%)	5.5%	11.9%	82.6%	100.0%
<u>Design Day Demands requiring Dawn Compression</u>					
2013 Board-Approved per EB-2011-0210					
12	Design Day Demands requiring Dawn Compression ($10^6\text{m}^3/\text{d}$) (3)	7	26	116	149
13	Dawn Compression Demands (%)	4.6%	17.4%	77.9%	100.0%
2016 Dawn-Parkway Expansion (per EB-2014-0261)					
14	Project Demands requiring Dawn Compression ($10^6\text{m}^3/\text{d}$)	1	2	8	12
2016 Dawn-Parkway Expansion Allocator (per EB-2014-0261)					
15	Design Day Demands requiring Dawn Compression ($10^6\text{m}^3/\text{d}$) (line 12 + line 14)	8	28	124	161
16	Dawn Compression Demands (%)	5.1%	17.7%	77.2%	100.0%

Notes:

- (1) EB-2011-0210, Exhibit G3, Tab 5, Schedule 23, Updated, pages 7-8, line 5.
(2) EB-2014-0261, Exhibit A, Tab 10, Table 10-1, line 5. Union North T-service incremental Dawn-Parkway demands of $0.771 \times 10^6\text{m}^3/\text{d}$ included in Ex-franchise.
(3) EB-2011-0210, Exhibit G3, Tab 5, Schedule 23, Updated, pages 7-8, line 11.

UNION RATE ZONES
Derivation of the Capital Pass-through Project Allocators - 2017 Dawn-Parkway Expansion

Line No.	Particulars	Union North In-Franchise (a)	Union South In-Franchise (b)	Ex-Franchise (c)	Total (d) = (a+b+c)
<u>Dawn-Parkway Distance Weighted Design Day Demands</u>					
	2013 Board-Approved per EB-2011-0210				
1	Design Day Demands ($10^6\text{m}^3/\text{d}$)	7	44	124	175
2	Weighted Average Distance (km)	229	82	214	182
3	Distance Weighted Demands ($10^6\text{m}^3/\text{d} \times \text{km}$) (1)	1,592	3,588	26,557	31,737
4	Distance Weighted Demands (%)	5.0%	11.3%	83.7%	100.0%
	2017 Dawn-Parkway Expansion (per EB-2015-0200)				
5	Project Demands ($10^6\text{m}^3/\text{d}$)	-	-	12	12
6	Weighted Average Distance (km)	-	-	194	194
7	Project Distance Weighted Demands ($10^6\text{m}^3/\text{d} \times \text{km}$) (line 5 x line 6) (2)	-	-	2,323	2,323
	2017 Dawn-Parkway Expansion Allocator (per EB-2015-0200)				
8	Design Day Demands ($10^6\text{m}^3/\text{d}$) (line 1 + line 5)	7	44	136	187
9	Weighted Average Distance (km)	229	82	212	182
10	Project Distance Weighted Demands ($10^6\text{m}^3/\text{d} \times \text{km}$) (line 8 x line 9)	1,592	3,588	28,879	34,060
11	Distance Weighted Demands (%)	4.7%	10.5%	84.8%	100.0%
<u>Design Day Demands requiring Dawn Compression</u>					
	2013 Board-Approved per EB-2011-0210				
12	Design Day Demands requiring Dawn Compression ($10^6\text{m}^3/\text{d}$) (3)	7	26	116	149
13	Dawn Compression Demands (%)	4.6%	17.4%	77.9%	100.0%
	2017 Dawn-Parkway Expansion (per EB-2015-0200)				
14	Project Demands requiring Dawn Compression ($10^6\text{m}^3/\text{d}$) (4)	-	-	10	10
	2017 Dawn-Parkway Expansion Allocator (per EB-2015-0200)				
15	Design Day Demands requiring Dawn Compression ($10^6\text{m}^3/\text{d}$) (line 12 + line 14)	7	26	126	159
16	Dawn Compression Demands (%)	4.3%	16.4%	79.3%	100.0%

Notes:

- (1) EB-2011-0210, Exhibit G3, Tab 5, Schedule 23, Updated, pages 7-8, line 5.
- (2) EB-2015-0200, Exhibit A, Tab 10, Table 10-1, line 5.
- (3) EB-2011-0210, Exhibit G3, Tab 5, Schedule 23, Updated, pages 7-8, line 11.
- (4) EB-2015-0200, Exhibit A, Tab 10, Table 10-2, line 5.

UNION RATE ZONES
Derivation of the Capital Pass-through Project Allocators - Panhandle Reinforcement Project

Line No.	Particulars (10 ³ m ³ /d)	Capacity (a)	M1 (b)	M2 (c)	M4 (d)	M5 (e)	M7 (f)	T1 (g)	T2 (h)	Total In-Franchise (i) = (sum b-h)	C1 (j)	M16 (k)	Total Ex-Franchise (l) = (j+k)	Total (m) = (i+l)
2013 Board-Approved per EB-2011-0210														
1	Ojibway/St. Clair Design Maximum Capacity	15,188												
2	Less: C1 Transportation - Ojibway/St. Clair Firm Demand	(2,264)												
3	Less: M16 Firm Demand (West of Dawn)	(473)												
4	Remaining Pipe Capacity to be Allocated to In-Franchise	12,452 (2)												
5	2013 Panhandle Firm Design Day Demands	5,567	1,870	929	30	131	524	3,051	12,102	-	-	-	-	12,102
6	2013 Sarnia Industrial Line Firm Design Day Demands	764	257	12	-	-	1,047	9,541	11,620	-	-	-	-	11,620
7	Total Firm Design Day Demands	6,331	2,127	941	30	131	1,570	12,592	23,722	-	-	-	-	23,722
8	2013 Board-Approved Allocation Methodology	3,323	1,116	494	16	69	824	6,610	12,452	2,264	473	2,737	15,188	(1)
2013 Board-Approved Allocation Methodology Updated for Project														
			22%	7%	3%	0%	0%	5%	44%	82%	15%	3%	18%	100%
9	2013 Approved Ojibway/St. Clair Demand Allocator	15,188												
10	Less: C1 Transportation - Ojibway/St. Clair Firm Demand	(2,264)												
11	Less: M16 Firm Demand (West of Dawn)	(473)												
12	Add: Incremental Capacity related to the Project	2,739 (3)												
13	Remaining Pipe Capacity to be Allocated to In-Franchise	15,191												
14	2013 Panhandle Firm Design Day Demands	5,567	1,870	929	30	131	524	3,051	12,102	-	-	-	-	12,102
15	2013 Sarnia Industrial Line Firm Design Day Demands	764	257	12	-	-	1,047	9,541	11,620	-	-	-	-	11,620
16	2017 Incremental Firm Design Day Demands for the Project	28	24	696	-	439	154	151	1,492	-	-	-	-	1,492
17	2018 Incremental Firm Design Day Demands for the Project	28	21	343	-	-	-	-	392	-	-	-	-	392
18	2019 Incremental Firm Design Day Demands for the Project	28	43	259	-	-	-	-	330	-	-	-	-	330
19	2020 Incremental Firm Design Day Demands for the Project	28	33	182	-	-	-	-	242	-	-	-	-	242
20	Total Firm Design Day Demands	6,443	2,247	2,421	30	570	1,725	12,743	26,179	-	-	-	-	26,179
21	2013 Board-Approved Allocator Updated for Panhandle Reinforcement Project	3,738	1,304	1,405	17	331	1,001	7,395	15,191	2,264	473	2,737	17,927	(4)
			21%	7%	8%	0%	2%	6%	41%	85%	13%	3%	15%	100%

Notes:

- (1) EB-2011-0210, Exhibit G3, Tab 5, Schedule 23, Updated, pages 7-8, line 5.
(2) In-franchise capacity (Line 4) allocated using total Panhandle and St. Clair Design Day Demands (Line 7) to in-franchise rate classes. Rate C1 demand (Line 2) and Rate M16 demand (Line 3) added to total in-franchise allocation.
(3) Incremental capacity of 2,739 10³m³/d equal to 106 TJ/d based on a heat value of 38.55 GJ/10³m³.
(4) In-franchise capacity (Line 13) allocated using total Panhandle, St. Clair, and Incremental Project Design Day Demands (Line 20) to in-franchise rate classes. Rate C1 demand (Line 10) plus Rate M16 demand (Line 11) added to total in-franchise allocation.

UNION RATE ZONES
Recovery of Allocated Rate M12 and Rate C1 Capital Pass-through Costs by Transportation Path

Line No.	Particulars (\$000's)	Parkway Projects (a)	BOP (b)	2016 D-P Expansion (c)	2017 D-P Expansion (d)	Panhandle Reinforcement (e)	Sudbury Replacement (f)	Total (g) = sum(a - f)
Rate M12/C1								
1	Dawn to Parkway	26,796	(177)	17,393	36,757	(367)	(172)	80,230
2	Dawn to Kirkwall	3,495	(24)	2,262	5,206	(49)	(23)	10,867
3	Kirkwall to Parkway	246	(1)	162	202	(3)	(1)	604
4	M12-X	2,913	(19)	1,897	3,650	(39)	(18)	8,385
5	Parkway to Dawn	579	(3)	381	475	(7)	(3)	1,422
6	Rate C1 Dawn-Parkway	205	(1)	133	281	(3)	(1)	614
7	Total Rate M12/C1 (1)	34,234	(225)	22,227	46,572	(467)	(219)	102,122
Rate C1								
8	St.Clair & Dawn / Ojibway & Dawn	(12)	(1)	1,013	(32)	1,584	(1)	2,552
9	Short-term Transportation	(20)	(1)	(9)	(20)	162	(1)	111
10	Total Rate C1 (2)	(32)	(2)	1,005	(52)	1,746	(1)	2,664

Notes:

- (1) Exhibit D, Tab 2, Rate Order, Working Papers, Schedule 14, p. 3, line 19.
- (2) Exhibit D, Tab 2, Rate Order, Working Papers, Schedule 14, p. 3, line 22.

UNION RATE ZONES
Dawn to Parkway System Capacity and Demand, PDO Shift Details, and PDO Demand Revenue Difference

Line No.	Particulars (TJ/d)	2013 Forecast W13/14 (a)	W14/15 (b)	W15/16 (c)	W16/17 (d)	W17/18 (e)
	<u>Dawn-Parkway System</u>					
	Included in Rates					
1	2013 Cost of Service (EB-2011-0210) Capacity	6,803	6,803	6,803	6,803	6,803
2	Incremental Dawn-Parkway Capacity (1)	-	-	433	876	1,332
3	Total	6,803	6,803	7,236	7,678	8,135
	Other Changes (No Impact to Rates)					
4	Other Dawn-Parkway Capacity Changes	-	(2)	(222)	(170)	(246)
	Annual Forecast					
5	Total Forecasted Dawn-Parkway Capacity (line 3 + line 4)	6,803	6,801	7,014	7,508	7,889
6	Total Forecasted Dawn-Parkway Demands	6,593	6,643	7,049	7,443	7,783
7	Forecast Dawn-Parkway Excess/(Shortfall) (line 5 - line 6) (2)	210 (3)	158	(35)	65	106 (4)

Notes:

- (1) W15/16 - Incremental capacity resulting from the Brantford-Kirkwall / Parkway D Project of 433 TJ/d.
W16/17 - Incremental capacity resulting from the Dawn Parkway 2016 System Expansion Project of 443 TJ/d.
W17/18 - Incremental capacity resulting from the 2017 Dawn Parkway Project of 457 TJ/d.
- (2) The PDO shift was reflected in Dawn-Parkway excess/(shortfall) beginning W15/16.
- (3) The W13/14 forecast filed in Union's 2013 Cost of Service proceeding (EB-2010-0210) included 210 TJ/d of excess Dawn-Parkway capacity. In the EB-2011-0210 Decision, the Board accepted Union's forecast and regulatory treatment.
Union's 2013 cost allocation study allocates Dawn-Parkway demand costs in proportion to distance weighted design day demands. The 2013 allocation resulted in approximately 84% of costs allocated to Union's ex-franchise rate classes and 16% to Union's in-franchise rate classes.
- (4) As part of the 2017 Dawn-Parkway Project (EB-2015-0200), Union had forecast a surplus of 30,393 GJ/d on the Dawn-Parkway System following the completion of the project. As part of the EB-2015-0200 Settlement Agreement, Union agreed to market the surplus capacity in accordance with the Storage and Transportation Access Rule ("STAR") and credit the revenues to the project deferral account.

UNION RATE ZONES
Forecast Usage for Rate-Setting

Line No.	Particulars (GJ)	EGD Rate Zone (a)	Other Ex-Franchise (b)	Total (c)	EGD as % of Total (d) = (a/c)
<u>2013 Forecast Usage</u>					
Rate M12/C1					
1	Dawn to Parkway	23,486,076	19,566,524	43,052,600	54.6%
2	Dawn to Kirkwall	-	8,708,176	8,708,176	0.0%
3	Kirkwall to Parkway	-	1,411,468	1,411,468	0.0%
4	M12-X	2,400,000	2,292,132	4,692,132	51.1%
5	Parkway to Dawn	2,839,032	1,492,491	4,331,523	65.5%
6	Rate C1 Dawn-Parkway	-	84,780	84,780	0.0%
<u>Capital Pass-through Projects</u>					
Rate M12/C1					
7	Dawn to Parkway	6,650,319	5,299,461	11,949,780	55.7%
8	Dawn to Kirkwall	-	-	-	-
9	Kirkwall to Parkway	-	1,453,860	1,453,860	0.0%
10	M12-X	-	-	-	-
11	Parkway to Dawn	-	-	-	-
12	Rate C1 Dawn-Parkway	-	421,080	421,080	0.0%
<u>2020 Forecast Usage for Rate-Setting (2)</u>					
Rate M12/C1					
13	Dawn to Parkway	30,136,395	24,865,985	55,002,380	54.8%
14	Dawn to Kirkwall	-	8,708,176	8,708,176	0.0%
15	Kirkwall to Parkway	-	2,865,328	2,865,328	0.0%
16	M12-X	2,400,000	2,292,132	4,692,132	51.1%
17	Parkway to Dawn	2,839,032	1,492,491	4,331,523	65.5%
18	Rate C1 Dawn-Parkway	-	505,860	505,860	0.0%

Notes:

- (1) Total forecast usage per EB-2011-0210, Rate Order, Working Papers, Schedule 14, p. 11, column (a) expressed in GJ.
- (2) Total forecast usage per Exhibit D, Tab 2, Rate Order, Working Papers, Schedule 5, column (n) annualized.