PUBLIC INTEREST ADVOCACY CENTRE
LE CENTRE POUR LA DEFENSE DE L'INTERET PUBLIC
ONE Nicholas Street, Suite 1204, Ottawa, Ontario, Canada K1N 7B7
Tel: (613) 562-4002. Fax: (613) 562-0007. e-mail: piac@piac.ca. http://www.piac.ca

Michael Buonaguro
Counsel for VECC
(416) 767-1666

August 21, 2012

VIA MAIL and E-MAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge St.
Toronto, ON
M4P 1E4

Dear Ms. Walli:

Re: EB-2011-0210
Union Gas Ltd. 2013 Rate Application

Please find enclosed the written submissions of VECC in the above noted proceeding.

Although I have filed written submissions on behalf of VECC, I can be available on either August 23 or 24, 2012 in the event the Board Panel has questions with respect to our written submissions, although my availability will be limited to between approximately 10:00 a.m. and 3:00 p.m. each day. Accordingly, I will plan to attend to speak to our submissions, unless the Board Panel advises that it has no questions such that my attendance is not necessary.

Thank you.

Yours truly,

Michael Buonaguro
Counsel for VECC
Encl.

Ontario Energy Board

EB-2011-0210 IN THE MATTER OF the Ontario Energy Board Act, 1998, S.O. 1998, c.15 (Schedule B);

AND IN THE MATTER OF an Application by Union Gas Limited, pursuant to section 36(1) of the Ontario Energy Board Act, 1998, for an order or orders approving or fixing just and reasonable rates and other charges for the sale, distribution, transmission and storage of gas as of January 1, 2013.

SUBMISSIONS OF THE VULNERABLE ENERGY CONSUMERS COALITION (VECC)

These are the submissions of VECC with respect to the unsettled issues, organized in accordance with the Approved Issues List. We have only included those issues on which VECC has substantive submissions in opposition to the proposals of Union in its application. We respectfully ask that the Board not presume that silence on an issue is necessarily an agreement with Union's proposal on that issue.

B. Rate Base

1. Is Union's forecast level of capital spending in 2013 appropriate?

It is VECC's understanding that the only live issue with respect to the proposed 2013 capital spending relates to the proposed Parkway West project, and that a) the project will not close to rate base in 2013, and b) Union will seek Leave to Construct with respect to that project in another, separate proceeding. Under these circumstances, in VECC's view, since the rate base impact of those projects Union has asserted will close to rate base in 2013 has been determined by way of settlement, there are no determinations that the Board can make with respect to the Parkway West project that can affect its determination of 2013 rates.

C. Operating Revenues

1. Is Union's general service demand forecast appropriate?

In VECC's view Union's general service demand forecast is inappropriate with respect to its forecast of the weather normalized average consumption. In VECC's view the Board should make two changes to the proposal advance by Union:

a) Union should only be allowed to implement a 50/50 blend between the 30-year average and the 20-year declining trend, pursuant to the Board's decision in RP-2003-0063. The related revenue deficiency impact of such a decision is $6.323M pursuant to Exhibit J2.2; and

b) Union should be required to adjust its forecasted 2012 and 2013 NAC to reflect actual 2011 results by increasing by 1.1% the NAC estimates for each of these two years. The related revenue deficiency impact of such a decision is approximately $3.5M.[1]

VECC's submissions on these two adjustments follow under issue C.2.

2. What is the appropriate methodology to be used to forecast degree days for the Test Year?

In VECC's view the appropriate methodology to be used to forecast degree days for the Test Year is a 50/50 blend between the 30-year average and the 20-year declining trend, pursuant to the Board's decision in RP-2003-0063. In VECC's view Union has not adequately justified the use of the 20 Year Declining Trend, particularly in view of the material impact on rates the use of that methodology represents for the general service classes.

Overall, for the first six months of 2012, Union's actual general service volumes have exceeded forecasted or budgeted volumes by 1.4%.[2] VECC submits that it is therefore reasonable to suspect that Union's methodology has under-forecasted these volumes.

VECC makes submissions hereunder with respect to two important components of Union's General Service 2013 forecasts: the Normalized Average Consumption (NAC) and the proposed 20-year trend weather normalization methodology.

NAC

VECC notes that the **actual** NAC values for residential customers in Rate M1 were 2,392 m^3 and 2,260 m^3 in 2007 and 2011 (respectively) while comparable figures for residential Rate 01 customers were 2,384 and 2,277 for these two years[3]: the corresponding rate of annual decrease in the NAC over the period 2007-2011 is 1.4% per year for M1 residential customers and 1.1% per year for residential rate 01 customers.

[1] Oral Hearing, Volume 2, July 12, 2012, page 136
[2] Oral Hearing, Volume 2, July 12, 2012, page 124
[3] Exhibit J.C-1-2-2, page 2

However, Union's **forecasted** NAC for the Test Year, 2013, is 2,144 m^3 for residential M1 and 2,160 m^3 for residential Rate 01 customers.[4] For the two-year period 2011-2013, this implies an annual rate of decrease in the NAC of 2.6% per year for both residential M1 and residential Rate 01 customers.[5] These results are summarized in the table below:

NAC per Customer (m^3)[6]					
Rate Class	**2007 Actual**	**2011 Actual**	**% Change/yr 2007-2011**	**2013 Forecast**	**% Change/yr 2011-2013**
Residential M1	2,392	2,260	-1.4	2,144	-2.6
Residential Rate 01	2,384	2,277	-1.1	2,160	-2.6
All GS	3,975	3,830	-0.9	3,610	-2.9

In VECC's view, Union has not been able to adequately explain the acceleration in annual percentage decreases in the period 2011-2013 versus those in the period 2007-2011.[7]

Further, VECC notes that Union admitted that had it updated its forecasted 2012 and 2013 NACs to reflect actual 2011 experience, the 2012 and 2013 NAC forecasts would have been about 1.1% higher than as provided in Union's evidence.[8] In this respect VECC notes that Union has confirmed that if the 2013 NAC forecast were to reflect a 1% increase for 2012 and for 2013, the impact on forecasted general service revenues in 2013 being an increase of approximately $3.5M.[9]

VECC submits that it would be appropriate to adjust Union's forecasted 2012 and 2013 NAC to reflect actual 2011 results by increasing by 1.1% the NAC estimates for each of these two years.

Weather Normalization Background: Previous Unsuccessful Attempts to Implement the 20-year Trend

Until fairly recently, Union had used the 30-year average methodology for forecasting heating degree days (HDDs) in its weather normalization exercise.

Union first proposed to deviate from the 30-year average methodology in its RP-2002-0130 proceeding for 2003 rates, proposing that it use a 20-year trend

[4] Ibid.
[5] For the General Service Classes as a whole, the corresponding figures are 3,975 (2007), 3,830 (2011) and 3,610 (2013) implying an overall annual reduction in the NAC of 0.9% per year from 2007-2011 and of 2.91% per year from 2011-2013.
[6] Exhibit J.C-1-2-2, page 2.
[7] For example, see Oral Hearing, Volume 1, July 10, 2012, pages123-124.
[8] Oral Hearing, Volume 2, July 12, 2012, page 134.
[9] Ibid, page 136.

methodology instead. The impact of the proposed change would have been to increase the revenue requirement to be captured in rates by $13.7M.[10]

As Union was in the middle of a three-year PBR plan at the time, Union proposed that this significant methodological change be implemented as a non-routine adjustment to rates. The Board's decision on this proposal was summarized as follows:

The PBR plan had been established on the basis of the existing weather normalization methodology. The Board denied Union's application on the basis that the weather risk was to be managed by Union as part of its PBR plan, and it was not appropriate to effect a change of this magnitude in the course of the PBR period.[11]

Union again applied to change to the 20-year trend in its application for 2004 rates in the RP-2003-0063 proceeding.

In support of its proposal in the RP-2003-0063 proceeding, Union considered seven different methodologies for weather normalization: 20-year trend with forecast information, 20-year trend, 30-year trend, 38-year trend, 20-year average, 10-year average, and 30-year average.

These seven alternatives were compared according to five, subjectively weighted objectives: symmetry, accuracy, stability, sustainability, and simplicity.[12] After scoring by this group of subjectively weighted objectives or attributes, the methodologies were ranked by Union with the 20-year trend with forecast information being best, followed by the 20-year trend.

Union proposed the 20-year trend method rather than the 20-year trend with forecast information method, arguing that the latter was far more complex and that it relied upon a third party's proprietary model and therefore might not be sustainable.[13]

In respect of the characteristics of the HDD data underlying the forecasted weather normal, VECC notes that Union stated that "*... the yearly variability in temperature is increasing, with the standard deviation of 166 HDDs over the period 1956-1985 increasing to 310 HDDs over the period 1972-2001.*[14]

And the Board summarized the gist of this issue as follows:

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[10] EB-2003-0063, Decision with Reasons, March 18, 2004, page 18.
[11] Ibid.
[12] Symmetry was given a weight of 3, accuracy a weight of 2, and stability, sustainability, and simplicity were each given a weight of 1.
[13] EB-2003-0063, Decision with Reasons, March 18, 2004, page 20.
[14] Ibid, page 19.

Although Union agreed that the data in evidence showed increasing variability over time, i.e., the data may exhibit heteroskedasticity, Union stated that it had not statistically tested for heteroskedasticity. Union also stated that the data it was relying on was time series data whose mean and variance were changing over time. The data were non-stationary and the validity of standard statistical tests was in question if the data were not stationary.[15]

In its findings, the Board stated (in part):

The five objectives and associated weights proposed by Union are a good starting point for establishing a proper weather normalization methodology. The issue for the Board to consider is whether the 20 year trend methodology is a superior forecasting tool than the current 30 year moving average. The impetus to change methodologies is the hypothesis, supported by the evidence of Dr. Weaver, of a global warming trend. Dr. Weaver's evidence does not support any particular weather normalization method. …

The Board is concerned with the lack of clarity with respect to the statistical evidence. A number of parties explored whether an estimator derived from ordinary least squares was more or less efficient than using a more sophisticated regression technique. Union's inability to respond clearly is of concern, especially given the large impact that the proposed change in methodology has on its revenue requirement.

Both the 20-year trend and the 30-year average normalization methodologies have advantages in their application. The 20-year trend may track more through the middle of the data and will respond more quickly to changes in short-run trends, but will be more volatile. The 30-year average will respond more slowly to changes but it will be less volatile. Union was unable to demonstrate that its proposal provided a clear and unambiguous improvement over the 30 year methodology. …

The OEB Act gives the Board clear authority to adopt any methodology it considers appropriate when setting rates. In order to test the suitability of changing the normalization methodology, and in consideration of the principle of minimizing rate shock, the Board will allow Union, for 2004, to forecast HDDs based on a 70:30 weighting of the 30-year average forecast and 20-year trend forecast respectively. For each year thereafter, the Board will consider 5% declines and inclines to the weighting of the 30 year and 20 year methodology respectively until such time as a 50:50 weighting is in place. … "[16]

Union has provided less evidence in support of the 20-year trend than it provided in the (unsuccessful) RP-2003-0063 proceeding

To put it most succinctly, in the current proceeding Union's evidence in support of adopting the 20-year trend for weather normalization is based entirely on the fact

[15] Ibid, page 21
[16] Ibid, pages 21-23

that over the period 1991-2010, the Root Mean Square Error (RMSE) for the 20-year trend methodology is less than the RMSE for either the 30-year average or the currently approved 55:45 blend of the 30-year average and the 20-year trend.

Union's witness on Day 1 of the Technical Conference reinforced this point:

MR. GARDINER: We have followed the weather-normal discussion and evidence as presented to the Board, since Union did so back in 2004. We have continued to compare ore current blended method with the 20-year trend.

We noted that Enbridge was successful in obtaining the 20-year trend for their largest region, the GTA region, and with more data that we have since we have last made the argument before the Board -- we have nine more years, and more -- you know, the analysis indicates the superiority of the 20-year trend, and that's what we have done.

MR. WIGHTMAN: You are saying it's superior because of the smaller root mean squared error, and in comparison with the 30-year average and the blended?

MR. GARDINER: Correct.

MR. WIGHTMAN: And it's the best of those three?

MR. GARDINER: Correct.[17]

That the substantive support for the 20-year trend versus the 30-year average and the blend rested entirely on comparing the single attribute of accuracy measured by the RMSE was further confirmed during the oral hearing:

MR. BUONAGURO: Thank you. Now, I am going to take you to Exhibit J.C-2-4-1, which is a VECC interrogatory where we asked a series of questions about the weather methodology.

Actually, when I do this for myself I am slower than when I do it for other people. Sorry.

Now, in this interrogatory, you were asked about the assumptions underpinning your model, your investigations of possible alternative models or estimators other than the 30-year average and the 55:45 blend, and diagnostic tests for violations of standard assumptions.

In short -- and I've highlighted part (c) of the response -- if I can summarize, you said that you didn't do any of these things because you only looked for accuracy among the three models as measured by the root mean squared error, RMSE. In this regard, the 20-year trend was better than the 30-year average and 55:45 blend.

[17] Technical Conference, May 31, 2012, page 91.

Is that a fair summary?

MR. GARDINER: Yes.[18] (July 12, Day 2, page 45)

Further, under cross-examination in the current proceeding, Union's witness admitted that they had not only failed to further investigate any of the other four alternatives under consideration in the RP-2003-0063 proceeding, they had also not looked at alternative normalization methodologies more recently investigated by Enbridge in two rate cases since RP-2003-0063:

MR. AIKEN: Are you aware that in their 2007 rates proceeding, which was EB-2006-0034, that Enbridge proposed and the Board accepted a different heating degree-day forecasting methodology for each of its three regions?

MR. GARDINER: Yes, I am aware of that.

MR. AIKEN: Now, in that proceeding -- and in fact in Enbridge's current rates proceeding, which is EB-2011-0354 -- Enbridge reviewed a total of nine forecasting methodologies.

And I will give you the reference for that. It is table 1 of Exhibit C2, tab 3, schedule 1, in their filing.

I will read them for the record. They are the naive methodology, the 10-year moving average, the 20-year moving average, the 30-year moving average, the 20-year trend, the 50/50 weighting, which is a 20-year trend and the 30-year average, de Bever methodology, de Bever with trend, and the Energy Probe methodology.

With the exception of the 30-year moving average, the 20-year trend, and weighting of the two, did Union investigate the use of any of these alternatives as part of its proposal in this proceeding?

MR. GARDINER: The evidence before you is based on analysis of the 20-year trend versus the current blend, which we have been using since the decisions in 2007.

Given that Union Gas had examined the other methodologies back in 2004 and found the 20-year declining trend to be the superior methodology, and then given that Enbridge also went forward and analyzed the different methodologies and the 20-year declining trend was approved for the GTA region, which sets a precedent, and given that our analysis that we have done, an additional eight years of analysis since 2004,

[18] Oral Hearing, Volume 1, July 10, 2012, page 45. Later on in the proceeding, Union's witness also added "symmetry" as an attribute that also supported the choice of the 20-year trend over the other two normalization methods that Union looked at for this proceeding.

confirms the strength of the 20-year declining trend, that's why we looked at that methodology.

MR. AIKEN: So I take it your response is, no, you didn't attempt to investigate these other methodologies that Enbridge has reviewed, two of which have been approved by the Board, other than the 20-year trend; is that correct?

MR. SMITH: With respect, that is not an accurate summary of the witness's evidence, Mr. Aiken.

MR. AIKEN: Then I will ask the question again.

Has Union in this proceeding investigated the other six methodologies that Enbridge has reviewed?

MR. GARDINER: We did not look at the six that Enbridge investigated. We recognized that in 2004 we looked at numerous methodologies. In 2004 we got a blended methodology, which sort of indicated to Union Gas that the concept of the 20-year declining trend was a valid one.

From 2004 to 2007, the Board in its decision allowed Union Gas to increase the percentages to 55/45, and we did so.

In this rate case, we have an extra eight years since 2004. We got to the bottom line: Blend versus 20-year trend, which one is more accurate? The 20-year trend.

MR. AIKEN: So I take it from that response you did not investigate the other two methodologies that the Board approved for Enbridge in 2007?

MR. GARDINER: I did not.[19]

Finally on this point, under cross-examination Union's witness confirmed that even though Union only investigated three alternatives in this proceeding (versus seven in RP-2003-0063), the (fewer) alternatives considered in this filing were subjected to a lower level of analytical comparison than was done in RP-2003-0063; fewer attributes were checked and the weighting of the attributes was dropped:

MR. BUONAGURO: Okay, thank you.

Now, just briefly, I wanted to take a look at the 2003 evidence. So this is Exhibit C1, tab 4; from RP-2003-0063, I should say. I am looking at page 5 of 7. This is table 1 for that evidence. Do you see that on the screen?

MR. GARDINER: Yes, I do.

[19] Oral Hearing, Volume 1, July 10, 2012, pages 32-34.

MR. BUONAGURO: Now, this is included in Exhibit K2.1, which was marked today. So this table, this essentially is the 2004 version of the table that we will look at in a second in the new evidence. So this is the, quote, "multi-attribute ranking of weather normalization methods".

Looking from here, I can see that at that time you compared one, two, three, four, five, six, seven different methodologies for weather?

MR. GARDINER: Yes.

MR. BUONAGURO: And then you can see across the top there were one, two, three, four, five six -- I think seven different attribute rankings based on -- sorry, different tests to test accuracy, symmetry, stability, sustainability and simplicity. Is that fair?

MR. GARDINER: That's correct, yes.

MR. BUONAGURO: Okay. Now, I was going to take you through some of the details of this, but I think they're somewhat self-evident.
I would, though, go to -- I would suggest or put to you that in the current proceeding there is only three methodologies, obviously. There is the 30-year average, the current 55:45 blend and the 20-year trend that are being compared, as opposed to the seven that are in here?

MR. GARDINER: That is correct.

MR. BUONAGURO: And then there are -- I can take you to table 1 from the current evidence, but essentially there's fewer specific tests.

So, for example, for accuracy in 2004 you tested using RMSE and MAPE, whereas for this proceeding you only tested, I believe it is for RMSE?

MR. GARDINER: Yes. The root mean square error? Correct.

MR. BUONAGURO: Right. Then also one of the differences between what you did in 2004 and the current application was weighting.

In 2004, you had the one, two, three, four, five different attributes and you had differently weighted them, including, I think, the most –- the highest weighted one was symmetry in that case, whereas in this case accuracy is the one dominant attribute that you are testing for; is that fair?

MR. GARDINER: Accuracy is a strong factor, but as the charts show in the evidence, the 20-year trend method is more symmetric than the other two.

MR. BUONAGURO: Okay. Thank you, but I am just -- comparing to the last time, symmetry was heavily weighted and -- the most heavily weighted, whereas in this proceeding it was accuracy is the most heavily weighted attribute.

I think that is clear on the face of the two tables, and generally consistent with your evidence as to why you are picking the 20-year trend?

MR. GARDINER: In the evidence, if I look at C1, tab 5, page 6 of 7, table 1, and in an interrogatory there is an update of this table, and it shows the same results.

Maybe the approach of how to show the results is different. In 2004, we had a table and we did a symmetry in a table.
This year, instead of giving you a table, I gave you charts, so you could see it. So by seeing it, that it is symmetric, then I said: Okay, how do I tell people that it is more accurate? And the other -- yes, more accurate, and the standard deviation is stability, and that is what table 1 shows you.

So the presentation changed. Instead of it being completely tabular, I said: Okay, I will give you accuracy in a table and I will let you see it.

MR. BUONAGURO: Right. I don't want to belabour the point, but you would agree with me that, for example, you dropped the weighting of different attributes and you are focussing on accuracy?

MR. GARDINER: And symmetry, yes.

MR. BUONAGURO: All right. Thank you. That's fine.

Just lastly, we don't know, I don't think, in the evidence in this case, how the other methodologies that were tested in 2004 would fare or had fared against any number of tests, because you haven't done any analysis; is that correct?

MR. GARDINER: That is correct. Because we didn't test them.[20]

In short, VECC submits that Union had tested more models and compared them according to more attributes in RP-2003-0063 than it has presented as evidence for the Board to consider; furthermore, Union appears to believe that since it preferred the 20-year trend to the other six methods it considered in the RP-2003-0063 proceeding, it still prefers the 20-year trend to the other alternatives <u>without having even checked that by its RP-2003-0063 attributes scoring, the performance of the 20-year trend exhibited in RP-2003-0063 relative to the other alternatives is maintained using the more recent data which has become available since RP-2003-0063</u>.

[20] Oral Hearing, Volume 2, July 12, 2012, pages 60-63.

VECC submits that given today's spreadsheet software packages available, it would have been a relatively simple task to (i) provide a comprehensive update to the RP-2003-0063 evidence using the more recent data, (ii) investigate whether any of the other two Enbridge approved normalization methodologies would have been superior to Union's 20-year trend, and (iii) investigate whether a trend based on a longer or shorter period of time than 20-years provided superior results to the 20-year trend. VECC does not understand why Union would not perform these types of analyses in support of its proposal.

As a final point, VECC notes that the evidence provided in the RP-2003-0063 proceeding indicated that:

(i) in terms of accuracy, the 20 year trend got the same score (12 + 10 = 22) as did the "Variable year weighted average trend" (10 + 12 = 22) as measured by Root Mean Square Error (RMSE) and Mean Absolute Percent Error (MAPE);
(ii) the 20-year trend with forecast information scores the highest (21 + 21 = 42) in terms of symmetry; and
(iii) the 30-year average was best (7 points) with respect to stability (with the 20-year trend getting only 2 points).[21]

There is no evidence that Union's proposed 20-year trend methodology exhibits a statistically significant trend in forecasting 2013 HDDs

In the Southern Operations Area, Union has used the 20-year trend based on data from 1991 to 2010 to arrive at its 2013 forecast of 3,599 HDDs.[22]

It is important to distinguish between (i) the accuracy of any particular estimator which can be determined by comparing that estimator's forecast HDDs for each particular year against the actual HDDs for each respective year and (ii) how well the estimator for any particular year results in a good fit with the actual historical data over a period.

In the former case, one must look at how accurate the estimator would have been for each year, given the data available at the time. This means that if, for example, we are looking at the accuracy of the 20-year trend over the period 1985-2010, we would first look at 1985 and see what the 20-year trend would have generated as a forecast in 1985 (using the most recent 20-years of data available when the 1985 forecast was made) and then compare the forecast for 1985 with the actual. This exercise would have to be repeated for each successive year in the period under comparison. The result would be a different 20-year trend line for each year in the period under comparison. By comparing the forecast for each year with the actual *ex post* we can determine how accurate the estimator has been.

[21] RP-2003-0063, Exhibit C1, Tab 4, page 5, Table 1.
[22] Ibid, page 43.

In the latter case, we are only looking at the results generated by the estimator using the most recent available 20-years of data available when the Test Year is being forecast. By looking at the summary statistics in this case we can examine such questions as (i) is the trend statistically significant at some specified, commonly used confidence level?, (ii) does the data exhibit heteroskedasticity, autocorrelation, or other deviations from the assumptions that provide support for the use of the 20-year trend (also known as "Ordinary Least Squares" or "OLS") and, if so, can we remedy or mitigate the impact of these deviations so that our estimates retain enough significance that we can make a qualified judgment as to their usefulness?, and (iii) how well does the regression fit the data?, etc.

In this section we are looking at the latter case, examining the summary statistics underpinning the trend that Union has proposed in its pre-filed evidence to support the estimate of 3,599 HDDs. VECC's conclusion is that one cannot reject the hypothesis that there is no trend in the data underpinning this forecast at any reasonable or typically employed level of confidence. VECC provides its analysis below.

The estimated regression equation coefficients and summary statistics that underpin the 3,599 HDD forecast is provided in the response to Undertaking Exhibit J1.2.[23]

Regarding Exhibit J1.2, VECC notes that the R^2 and adjusted R^2, which provide an indication of the variance in HDDs (the dependent variable) "explained" by time (the independent variable) for this regression, are 11.0% and 6.1% respectively. VECC submits that these are very small values for these particular statistics.[24]

The F-statistic for this regression is 2.227 and this statistic allows a test of whether the slope coefficient (i.e., the "downward trend") is zero.[25] At a 95% level of confidence, the critical value of the F-statistic in this application is 4.41.[26, 27]

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[23] Filed 2012-07-12.

[24] In this respect, VECC notes that the Technical Conference Undertaking, Exhibit JT1.2, shows R^2 values of 0.97 for the FEI fitted line and values of 0.91 and 0.90 for the PPH fitted lines. The response includes the comment that "[t]he R square, mean absolute percent error (MAPE) and the mean absolute deviation (MAD), shown in the tables below, indicate the estimates fit well with the observed data." (Emphasis added.)

[25] VECC submits that a quite common level of confidence required by practitioners is 95%.

[26] Taken from Table A-3, Upper percentage points of the F distribution, in Appendix A of *Essentials of Econometrics, Second Edition, 1999,* D. Gujarati which reproduced E.S. Pearson and H. O. Hartley, eds., *Biometrica Tables for Statisticians,* vol. 1, 3d ed., table 18, Cambridge University Press, New York, 1966.

Because the computed F-statistic from the regression, 2.227, is less than 4.41, the regression equation is not statistically significant at a 95% level of confidence and the hypothesis that there is no linear relationship between HDDs and time cannot be rejected at a 95% level of confidence. VECC further notes that these same conclusions are confirmed at the 99% and the 90% levels of confidence.[28]

Furthermore, the time coefficient estimated by the regression is -14.5 but has an associated t-statistic of 1.492. VECC notes that the null hypothesis that the time coefficient equals zero (versus the alternative hypothesis that the time coefficient is not zero) cannot be rejected at either a 95% or even 90% level of confidence.[29] [30] [31]

Finally, on this point, under cross-examination, Union's witness admitted that he did not know if any of the trend variables were significant at the 95% level but that he used the equations to forecast HDDs even if the trend variable was not statistically significant:

MR. AIKEN: Thank you. Mr. Gardiner, you mentioned the series of 20-year trend equations this morning. When you estimated this series of equations - and I take it there are, like, 26 of them over the '85 to 2010 period - how many of them had a trend variable that was not significant at a 95 percent level of confidence? Is that something that you would know offhand?

MR. GARDINER: No. It's not something I know offhand.

MR. AIKEN: Would it be fair to say that you used the equations to forecast the degree days, even if the trend variable was not statistically significant?

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[27] The degrees of freedom for the numerator is 1 while the degrees of freedom for the denominator are 18. The 95% level of confidence corresponds to a 5% level of significance.

[28] The corresponding critical values for the F-statistic are 8.29 (99%) and 3.01 (90%).

[29] The critical values of the t-statistic are 2.101 (95%) and 1.734 (90%) as taken from Table A-2, Percentage points of the t distribution, in Appendix A of *Essentials of Econometrics, Second Edition, 1999,* D. Gujarati which reproduced E.S. Pearson and H. O. Hartley, eds., *Biometrica Tables for Statisticians,* vol. 1, 3d ed., table 12, Cambridge University Press, New York, 1966.

[30] The t-test described is a "two-tailed" test as it compares the null hypothesis of a zero coefficient versus the alternate hypothesis that the coefficient is either greater than zero or less than zero. In the event that a "one-tailed test" is used, i.e., the hypothesis that the time coefficient is zero is tested against the alternative hypothesis that the time coefficient is negative, the time coefficient is not statistically different from zero at the 95% (or any higher %) level of confidence.

[31] VECC admits that the hypothesis that the time coefficient is zero can be rejected for virtually any data if the level of confidence is chosen to be low enough.

MR. GARDINER: That is correct.[32]

Union's aversion with respect to running standard statistical diagnostic tests

Although there are numerous statistical tests to detect non-constant variance, i.e., heteroskedasticity,[33] and structural changes, Union's evidence is that it checks visually only for these deviations from the maintained assumptions underpinning the use of ordinary least squares, i.e., the methodology that it uses to estimate the 20-year trend line used to forecast HDDs.[34] Excerpts are provided below:

Regarding testing for a structural shift:

MR. BUONAGURO: Thank you. Just to summarize, I asked you if heating degree data, which is what you're dealing with here, is a time series data. You agreed with me.

I asked you if there were statistical tests available to detect structural change in time series data. I believe you agreed with me, but then -- and your answer is on the record. You're saying -- I think you are agreeing you didn't do any of that kind of statistical analysis, and then you gave us an explanation for why you didn't do it. Is that fair?

MR. GARDINER: I didn't do the statistical analysis because I didn't feel it was appropriate. (Emphasis added.)

Regarding testing for heteroskedasticity:

MR. BUONAGURO: Okay. So, for example, if I take you to the RP-2003-0063 Decision as a reference point, and this is paragraph 134 of the decision, part of the decision says:

"Although Union agreed that the data in evidence showed increasing variability over time, i.e., the data may exhibit heteroskedasticity, Union stated it had not statistically tested for heteroskedasticity."

My understanding from that is that, certainly back at the time of this decision, Union agreed that there may be or there was heteroskedasticity, which means that whether - the data that you are dealing with has the attribute of increasing variance with time; is that correct?

MR. GARDINER: That is what we found in 2004.

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[32] Oral Hearing, Volume 1, July 10, 2012, pages 42-43.
[33] Standard tests for heteroskedasticity include the Goldfeld-Quant Test, the Park Test, the Glejser Test, White`s Generalized Heteroskedasticity Test, Spearmann`s Rank Correlation Test, Bartlett`s Homogeneity of Variance Test, the Breusch-Pagan Test, etc.
[34] Oral Hearing, Volume 2, July 12, 2012, pages 47-48 regarding structural change and pages 52-53 regarding heteroskedasticity.

MR. BUONAGURO: Now, has that changed?

MR. GARDINER: I don't know.
MR. BUONAGURO: So are we up -- sorry, you don't know if -- at this time, whether the data that you are dealing with continues to exhibit heteroskedasticity?

MS. HARE: Did you practice that, Mr. Buonaguro?
[Laughter]

MR. BUONAGURO: I don't. I didn't. I should have hired a jazz vocalist to come in here and say it for me every -- every time it comes up.

MR. SOMMERVILLE: A ventriloquist.

MR. BUONAGURO: I did, however, give the spelling to the reporter in advance. Anyway, sorry, I am sidetracked.

I asked you if that continued to be the case now and you said you don't know.

MR. GARDINER: <u>I don't know, because I haven't tested for it, no.</u> (Emphasis added.)

Yet, VECC notes that just prior to this exchange, Union`s witness had unreservedly acknowledged that heteroskedasticity (i.e., non-constant variance) was inherent in weather data:

MR. BUONAGURO: Okay. Thank you. I just wanted to make sure.
Now, can you tell me, do you believe that weather data exhibits a constant mean?

MR. GARDINER: If by "mean" you mean a simple average, as the data shows, the average changes over time.

MR. BUONAGURO: So the answer is no?

MR. GARDINER: Yes. Correct.

MR. BUONAGURO: Okay. Thank you.

Do you believe that -- I think you answered this, but I am going to ask -- do you believe that weather data exhibits constant variance? I think that is...

MR. GARDINER: No, it does not. It is very variable.[35]

[35] Oral Hearing, Volume 2, July 12, 2012, pages 51-52.

However, moments later, Union`s witness appears to contradict himself with respect to formal testing for heteroskedasticity:[36]

MR. BUONAGURO: Would you agree that there are a number of formal statistical tests for non-constant variance for heteroskedasticity?

MR. GARDINER: Yes.

MR. BUONAGURO: But my understanding is you didn't perform any in this case; is that correct?

MR. GARDINER: We check on the demand equations. We check for heteroskedasticity, auto-correlation.

MR. BUONAGURO: Which tests did you use, the formal statistical tests?

MR. GARDINER: We take the Durbin-Watson.

Given that the Durbin-Watson statistic is used to check for autocorrelation (and not heteroskedasticity), and given the previous responses of the witness, VECC concludes that while Union checked formally for autocorrelation, it made no similar attempt with respect to heteroskedasticity.

In VECC`s view, the issue with using ordinary least squares regression in the presence of heteroskedasticity, is that the estimates of the coefficients (e.g., the trend coefficient) are inefficient, i.e., unlike the case in which heteroskedasticity is not a problem, the regression estimates no longer exhibit least variance regardless of sample size; in other words, a better estimator exists.[37]

VECC submits that the evidence is that the variance is not constant, as admitted to above by Union`s witness.

As to the importance of addressing this issue, VECC notes that some econometricians view heteroskedasticity as being of greater relative importance than does Union`s witness:

"As we have seen, heteroskedasticity does not destroy the unbiasedness property of OLS estimators, but the estimates are no longer efficient, not even in large samples. This lack of efficiency makes the conventional OLS hypothesis testing procedure of dubious value. Therefore, if heteroskedasticity is suspected or diagnosed, it is important to seek remedial measures."[38]

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[36] Oral Hearing, Volume 2, July 12, 2012, page 59.
[37] An additional problem with heteroskedasticity is that standard confidence intervals and tests based on t-statistics and F-statistics are no longer reliable.
[38] *Essentials of Econometrics, Second Edition, 1999,* D. Gujarati, page 359.

To reiterate, heteroskedasticity uncorrected or unmitigated combined with using OLS methodology results in estimator variances that are not as small as possible and also renders the usual tests of statistical significance of the estimated trend and the estimated confidence intervals as unreliable.

VECC further submits that theoretically, the way to address the problems associated with heteroskedasticity is to employ a Generalized Least Squares methodology in estimating a trend.[39] VECC makes this claim notwithstanding the following exchange at the oral hearing:

MR. BUONAGURO: Okay. Now, if a statistical test showed the presence of heteroskedasticity, do you agree that an application of generalized least squares would be more appropriate than ordinary least squares, which is what you have used.

MR. GARDINER: No, I don't agree.[40]

VECC submits that standard methods of correcting for heteroskedasticity include transforming the model, transforming the data, or by re-specifying the estimated equation.[41]

VECC further submits that had Union attempted these types of approaches and subsequently tested to see whether heteroskedasticity had been eliminated or mitigated – an exercise which VECC submits would not have been prohibitive in terms of time or money – Union's proposals would be far more supportable than it stands at the moment, given that Union agrees that there is heteroskedasticity but has not formally tested for it for some reason.

Finally, although Union agrees that the HDD data is time series data and although there are specific statistical techniques that have been developed to deal with time

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[39] The GLS methodology explicitly allows for non-constant variance while the efficiency of OLS relies on homoscedasticity or constant variance. Where heteroskedasticity has been agreed to be a feature of the data, VECC believes its point is made and that Union's witness is incorrect theoretically speaking.

[40] Oral Hearing, Volume 2, July 12, 2012, pages 52-53

[41] For example, if variance is increasing over time, a possible approach would be to transform the model Union has used by dividing their regression equation through by the square root of the regressor "time" where t=1 to 20 for each year of data: if the error variance is proportional to time, this will work. On the other hand, if the error variance is proportional to the square of time, dividing both sides of Union's regression equation b model as a y time where t = 1 to 20, would also allow the efficient use of OLS on the transformed equation. Another approach that could be tried would be to respecify Union's linear model, HDD = a + bT, as a log-linear model of the form lnHDD = a + blnT. These simple approaches are discussed on pages 359-368 of *Essentials of Econometrics, Second Edition, 1999,* D. Gujarati.

series data, they have not even attempted to see if such an approach would lead to any improvement with respect to forecasting HDDs.[42] Although VECC cannot be certain with respect to the outcome of any such investigations, the point is that Union did not undertake any of them.

In Summary

VECC submits that their proposal to change its weather normalization methodology from the current approved blend to its proposed 20-year trend be denied on the following grounds:

- Union has provided less support for its proposal in the current proceeding than it did in the RP-2003-0063 proceeding, a proceeding in which the Board found Union had not supported its proposal adequately;

- Union has not applied simple, formal statistical tests to diagnose heteroskedasticity in the data, although Union either agrees that it is a problem or doesn't know whether it is a problem, depending on which part of the cross-examination is deemed to be accurate;

- Union has admitted that it doesn't even know if the estimated trend variable is statistically significant for its 26 or so trend equations on which it bases its accuracy claims, or for the 2013 HDD estimate which is a significant input to Test Year rates;

- if we assume that heteroskedasticity is not a problem (i.e., doesn't exist), the evidence indicates that the trend estimated for 2013 rates is not statistically significant at usual confidence levels,;

- however, if heteroskedasticity is a problem, this means that the variances of the OLS estimator are not as small as they could be under some different methodology, and furthermore means that tests of significance of the trend coefficient (i.e., is it statistically different from zero?) and estimated confidence intervals cannot be relied upon in the event that the heteroskedasticity remains unmitigated;

- though it would not have been costly to do so, Union has made no attempt to see if the heteroskedasticity could be mitigated;

- though it would not have been costly to do so, Union has made no attempt to see whether the other two approaches approved for Enbridge would have resulted in a superior methodology to its proposed 20-year trends;

[42] Technical Conference Day 1 pages 87-90.

- though it would not have been costly to do so, Union has made no attempt to see whether a trend based on either greater than or less than 20 years of data would have produced a more accurate, more symmetric, more stable, etc., trend for use in forecasting HDDs;

- Union has made no effort to see if the full results it got in the RP-2003-0063 proceeding justified its continued preference for the 20-year trend over the other six alternatives it examined in that proceeding: Union didn't bother checking;

- The switch to a 20-year trend methodology – a switch which VECC strongly disagrees with – results in an adverse material impact on ratepayers.

- Union did not investigate trends of various different lengths, any ARIMA models, any transformation of variables, any re-specification of its models, or whether time series techniques could provide a more efficient estimator than the 20-year trend – which is acknowledged to be inefficient in the presence of uncorrected heteroskedasticity.

For all these reasons VECC submits that a 50:50 blend of 30-year average and 20-year trend is appropriate for 2013, representing the full implementation of the Board's decision in RP-2003-0063.

4. Is the 2013 S&T forecast appropriate?

VECC's submissions with respect to the S&T Forecast are discussed within issue G.1.

D. Cost of Service

14. Is the gas supply plan for 2013 appropriate?

VECC is concerned with the apparent disparity between the asset mix dictated by the Gas Supply Plan and the subsequent use of those assets by Union. It became clear through the hearing that at a high level Union would purchase assets to, ostensibly, support its Gas Supply Plan, and then immediately assign those assets to third parties in order to create ex-franchise revenue such that the assets were never used to meet the requirements of the Gas Supply Plan.

This practice is most notable with respect to annual transportation contracts that were assigned in their entirety on an annual basis, such that, from an operational perspective, it was as if Union had never entered into those contracts at all. This practice is illustrated in part through the undertaking response at Exhibit J3.1.

Exhibit J3.1 illustrates how, in the Eastern Delivery Area, Union purchased on an annual basis 20,000 GJ/day of transportation that they immediately assigned to 3rd parties in order to generate S&T revenue.

There is a detailed discussion of the circumstances surrounding the assignment of these transportation assets on an annual basis at Transcript Volume 7, pages 91-99. In summary, it is VECC understands that:

a) the Gas Supply Plan is developed around the concept of obtaining firm assets to meet the requirement of a "47 degree day" forecast,
b) gas supply customers are charged on the basis of the assets underpinning the Gas Supply Plan,
c) Union's optimization group has the ability to assign the assets underpinning the Gas Supply Plan on a variety of bases, including annual, with the goal of creating a margin for its shareholder and, depending on the operation of the earnings sharing mechanism, ratepayers,
d) the actual degree day requirements within the 2009-2011 gas years did not exceed the capacity of the firm assets that remained after optimization, such that it would have been cheaper for gas supply customers had the assigned assets never been purchased,
e) if the actual degree day requirements had exceeded the capacity of the firm assets that remained after optimization, Union was confident that it would have been able to meet its gas supply requirements in 4 or 5 different ways, and
f) since the actual degree day requirements never exceeded the capacity of the assets that remained after optimization Union would not speculate on how much it would have cost to obtain short term assets to supplement the remaining capacity had it been necessary.

It appears to VECC the Board has decided that the Gas Supply Plan for 2013 should not itself be disturbed, and VECC agrees. However the evidence with respect to the disparity between the asset mix dictated by Union's current gas supply planning process and the actual asset mixed utilized by Union over the past few years as a result of the availability of RAM credits suggest that it would be appropriate for the Board to require Union to review its Gas Supply Planning process to determine whether it would be in the best interests of Union's gas supply customers if Union's approach to Gas Supply Planning more aggressively pursued a leaner Gas Supply Plan. VECC would suggest a consultative might be an appropriate forum to examine Gas Supply Planning issues, including but not necessarily limited to:

a) the appropriate degree day forecast to plan to,
b) the appropriate mix of assets to meet the forecast gas supply needs,
c) the implicit value, if any, of renewing annual transportation contracts even if they are not reasonably necessary for the current Gas Supply Plan, given the current and future availability of such contracts, and

d) a review of the cost of obtaining short term assets to meet spikes in demand should they actually happen.

E. Cost of Capital

1. Is the forecast of the cost of debt for the Test Year, including the mix of short and long term debt and preference shares, and the rates and calculation methodologies for each, appropriate?

Michael Janigan will be providing the oral submissions of VECC with respect to this issue.

2. Is the proposed change in capital structure increasing Union's deemed common equity component from 36% to 40% appropriate?

Michael Janigan will be providing the oral submissions of VECC with respect to this issue.

G. Cost Allocation

1. Is Union's utility Cost Allocation Study, including the methodologies and judgments used and the proposed application of that study with respect to Test Year rates, appropriate?

VECC is concerned about the methodology Union has used to allocate S&T revenue to the various rate classes, including the implicit over-allocation of costs to the M1 rate class resulting in a M1 R/C ratio in excess of 1.0.

First, it appears to VECC that Union has allocated S&T revenue to the classes with the sole purpose of managing rate impacts, without any regard for the causal connection between the generation of S&T revenue and the classes that pay for the assets that cause that revenue to be generated. The most obvious example of this is the "allocation" of a debit against the M1 rate class in connection with S&T revenue, implying that the M1 class causes S&T net losses, when in fact Union is arbitrarily increasing its recovery from the M1 rate class to make funds available to reduce impacts in other rate classes by way of an inter-class subsidy.[43]

Second, it appears to VECC that a material portion of the net S&T revenue that is allocated to distribution rate classes as a distribution cost offset is in fact properly characterized as revenue that should be credited against gas costs. The bulk of the S&T revenue realized by Union over the course of the 5 years previous to the test

[43] Exhibit J.H 1-10-3 sets out the proposed "allocation" of S&T margin, including a debit against the M1 class which, as was clarified at the hearing at Transcript Volume 11, pages 143-145, is simply a deliberate over-allocation of revenue requirement to the M1 class in order to offset rate impacts in other classes.

year resulted from the optimization of assets originally procured for the purposes of meeting the requirements of Union's annual Gas Supply Plan; most notably is Union's practice of leveraging assets that attract TCPL based RAM credits to generate profits. It is clear on the face of such transactions, VECC asserts, that revenues generated as a result of optimizing assets purchased to meet the Gas Supply Plan are revenues that should offset gas supply costs; more specifically such revenues should be credited to the gas customers that paid for the optimized assets (most notably the costs incurred for the transportation of gas).

To complicate matters, in the normal course gas costs are a pass-through for the utility. Currently Union characterizes such optimizations as a form of S&T revenue that has been included as an offset against distribution rates. Historically Union has claimed a portion of the net benefits generated from S&T revenue, retaining, during some time periods, a fixed percentage of the total revenue generated, or, in other periods, fixing an amount of revenue in rates and ostensibly taking on the risk of over or under recovering such revenue. Properly characterizing such transactions, as VECC asserts, as gas cost related would in the normal course dictate that the net revenues or losses generated as a result of optimization activity related to Gas Supply Plan related assets to be allocated 100% to gas customers through the QRAM process, directly crediting 100% of the revenue or 100% of the losses as an element of the pass through of gas costs.

At the same time VECC has expressed a concern that the availability of optimization revenue has revealed the possibility that Union's Gas Supply Plan is, in relation to the plan from which the S&T group actually operates, overestimating the assets needed to underpin the needs of its gas customers. As noted in VECC's submissions with the respect to the Gas Supply Plan, it is preferable from the point of view of gas customers that the utility exclude the cost of assets that it does not actually think it will need in order to serve customer, rather than purchase those assets and then optimize them after the fact.

In view of these several concerns, VECC proposes the following as a reasonable approach for the 2013 rate year with respect to cost allocation and S&T related issues:

1. The net debit against the M1 class of $1.136M[44] should be eliminated, with the M1 class reset to a R/C ratio of 1.000 (subject to possible reduction based on the allocation of S&T revenue as discussed below). The inclusion of a debit against the M1 class cloaked as an element of the S&T revenue was always, at best, misleading, and should not be tolerated. The inclusion of a debit against the M1 class as currently proposed is an explicit attempt to intentionally over-recover from the M1 class in order to subsidize other rate classes, a practice that Union concedes it would not, itself, condone.[45]

[44] Exhibit H Tab 3 Schedule 1 page 1, updated July 13, 2012.
[45] Transcript Volume 11 pages 127-129.

2. As noted in its submissions with respect to the Gas Supply Plan, it appears to VECC that the Board has determined that the current Gas Supply Plan is acceptable for the test year, and VECC agrees. VECC concedes that the complexity of Gas Supply Planning is such that it would not be advisable to try and make any fundamental changes to the Gas Supply Plan for the upcoming gas year (November 2012 to October 2013) in this proceeding.

3. Accordingly the base level of gas costs should be determined based on the Gas Supply Plan, as Union has historically done and proposes to do in the test year.

4. However VECC submits that 100% of the net revenue from the optimization of assets that are acquired to meet the Gas Supply Plan ("Gas Supply Transactions") should be passed through to the gas customers that paid for the Gas Supply Plan assets that are optimized. VECC notes that Board Staff has suggested that the net revenues from such transactions be shared between gas customers and Union in a 90:10 split; whether or not Union should earn 10% of the net margin on such optimizations in the future, VECC is of the opinion that the *prima facie* oversubscription of Gas Supply Assets suggests that Union should be precluded from earning an incentive from the optimization of Gas Supply Transactions until the Board has determined definitively that the Gas Supply Plan is properly "sized". Once the Board has made such a decision VECC submits that the issue of whether, going forward, an incentive is appropriate for optimizations relating the Gas Supply Transactions, given that Union is not supposed to earn a return on the supply of system gas, could be entertained by the Board.

5. With respect to net revenue from exchanges that do not involve Gas Supply Plan assets ("Exchanges"), 90% of such revenues should be included in rates, with additional revenue tracked in a variance account and shared between customers and the shareholder on a 75/25 split basis as was historically the case.

6. Ideally net revenue from Gas Supply Transactions should be realized within the context of the QRAM, and allocated to customers based on the allocation of the costs of the assets that underpin the transactions. Done in this way most of the net revenue should be allocated to northern system gas customers. It should be noted, however, that done in this way distribution rates will increase across all the rate classes that have benefitted from Union's proposed allocation of S&T revenue, including northern system gas customers, although northern system gas customers should, from a total bill perspective, realize a net benefit.

   Alternatively such revenue could be credited against distribution rates using the same allocators as would apply if such revenue were allocated in the

context of the QRAM, such that essentially the same customers would receive the benefit of the revenue generated from the assets they have paid for; it is VECC's understanding that this is the manner in which Enbridge Gas Distribution Inc. allocates the revenue generated from the optimization of its own Gas Supply Plan assets.[46] To be clear, this is not VECC's preferred approach, as it artificially decreases distribution rates and increases gas costs, and has the effect of distorting the allocation based on the timing of the two methods. The QRAM would allocate the net revenues from Gas Supply Transactions more closely in time to when they are generated and therefore more closely to those customers that paid for the underlying assets then would be the case if such revenue were returned in distribution rates.

If such revenues are to be included in distribution rates, then the forecast S&T revenue should be increased to reflect the additional FT RAM related revenue that has yet to be included in rates, an increase of $11.6M.[47]

7. Net revenue from Exchanges other then Gas Supply Transactions could continue to be forecasted as an offset to distribution related revenue requirement with 75% of the forecast revenue included in distribution rates and subject to variance account treatment. Allocation of this revenue should, however, be based on some equitable distribution across all distribution rate payers; currently no part of any S&T revenue is allocated to the M1 class, for example. To that end VECC supports Board Staff's suggestion that Union provide alternative allocation scenarios for such revenue.[48]

H. Rate Design

3. Is the proposal to lower the breakpoint between small and large volume general service customers to 5,000 M3 per year effective January 1, 2014 appropriate?

Union's proposal to lower the breakpoint between M1 and M2 along with its proposal to harmonize the rate block structures[49] between (i) M1 (South) and Rate 01 (North) and (ii) M2 (South) and Rate 10 (North), and the rationale supporting these proposals are discussed in the updated evidence[50] and confirmed under cross-examination:[51] to increase the homogeneity in M1 and Rate 01 and to increase the

[46] EB-2012-0055, Exhibit C, Tab 2, Schedules 1 and 2 show how Enbridge's equivalent Transactional Services Deferral Account is allocated, in large part, to system sales customers.
[47] Union Argument-in-Chief, EB-2011-0210, Vol. 13, Pg. 36.
[48] Board Staff Argument, page 28.
[49] The rates for the corresponding blocks are not being harmonized under Union's proposal.
[50] Exhibit H1, Tab 1 Updated 2012-07-13, pages 14-28.
[51] Oral Hearing, Volume 10, 26 July 2012, pages 84-85 and pages 87-88.

class size to provide better stability for M2 and Rate 10. These changes are proposed to take effect in 2014.

VECC addresses the proposal to harmonize the rate structures for the South and the North under Issue 4 below.

With respect to Union's proposal to lower the breakpoint, between M1 and M2 in the South and Rate 01 and Rate 10 in the North, from 50,000 m^3 to 5,000 m^3, VECC has some concerns.

VECC agrees that this proposal will result in more homogeneous classes in the case of M1 in the South and Rate 01 in the North: in VECC's view, the pre-filed evidence shows that with the 5,000 m^3 breakpoint, the average residential and the average commercial usage[52] is closer to the class average for the low volume general service customers – in both operating areas – than with the current 50,000 m^3 breakpoint.[53]

Furthermore, the response to an undertaking indicates that using the 5,000 m^3 breakpoint results in a more appropriate dispersion of usage about the class mean for Rate 01 and M1 than does the 50,000 m^3 breakpoint.[54]

VECC also agrees that lowering the breakpoint as proposed would result in larger rate classes for M2 and Rate 10.

However, VECC has several concerns with Union's proposal to lower the breakpoint between small and general service customers from 50,000 m^3 to 5,000 m.[3]

First, VECC notes that the favourable effects of lowering the breakpoint in terms of homogeneity and dispersion about the mean would not be realized for the high volume general service classes. [55]

In addition, a significant concern for VECC with the new proposed breakpoint are the significant delivery rate impacts such a change would have on customers who would be moved from M1 to the low end of the new M2: a customer consuming 5,001 m^3 would experience a bill impact of 34.2% while a customer consuming 6,000 m^3 would experience a bill impact of 31.3%; on the other hand, existing M2

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[52] And, in the South, the industrial M1 average would also be close to the M1 average.
[53] See Exhibit H1, T1, Updated 2012-07-13, page 17, Table 5 and page 19, Table 6.
[54] See Exhibit J10.3. For M1 in the South and Rate 01 in the North, under the 5,000 m^3 breakpoint, the dispersion about the average appears roughly bell-shaped and approximately centred at the mean; under the 50,000 m^3 breakpoint, the dispersion is skewed to the right and is not centred at the class mean.
[55] Exhibit H1, T1, Updated 2012-07-13, page 17, Table 5 and page 19, Table 6 show that only the commercial users are close to the M2 and Rate 10 class averages with the lower breakpoint. In addition, the dispersion attribute appears worse under the proposal.

customers consuming 60,000 m^3 or greater would realize bill reductions anywhere from 27.6% to 17.5%.[56]

Further, VECC submits that Union has not made any attempt to mitigate the increases for the relatively low volume customers who would be migrated to M2, save for the proposal to reduce the fixed monthly charge to $35. For example, reducing the fixed monthly charge for M2 from $35 to $30, would lower the delivery bill impacts on the 5,001 m^3 and the 6,000 m^3 customers to 22.0% and 20.4% respectively.[57]

In this respect, VECC notes the following exchange during cross-examination:

MR. AIKEN: All right. Has Union considered any rate mitigation measures for the customers that you propose to move from Rate 1 to M2, given the 34 percent increase for the small ones, anyways?

MR. TETREAULT: No, we have not, Mr. Aiken. As you know, our rate design proposals in total are revenue neutral, and the number of customers that are impacted adversely in some way by our rate design proposals in general service is a very small percentage of the overall customer base.[58]

VECC is also concerned that Union has neither completed nor filed a new cost allocation study that would support its proposals to change the breakpoints per its proposal.[59]

VECC therefore submits that Union has not provided adequate cost allocation evidence to support this proposal nor has Union tried to mitigate the impacts on those customers who would be migrated to the large volume general service classes. Therefore, VECC submits that the current proposal be denied.

4. Is the proposal to harmonize the general service rate structures between the North and South operating areas effective January 1, 2014 appropriate?

With respect to the proposal to harmonize the rate structures (but not the rates) for the South and the North, VECC has no objection.

10. Is the proposal to modify the M1 and M2 rate schedules appropriate?

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[56] Exhibit J12.1, Attachment 1.
[57] Exhibit JT2.18, Attachment 2, page 3.
[58] Oral Hearing, Volume 12, July 30, page 22.
[59] In this regard, VECC notes that Union's proposal regarding the weighting of commercial and industrial customers for the purpose of migrating costs from M1 to M2 and from Rate 01 to Rate 10 have been met with scepticism on the part of some intervenors.

VECC does not object to the proposed changes in Supplementary Charges regarding combining meters.

DV. Deferral and Variance Accounts

2. Should deferral accounts for transmission-related transactional services that were eliminated in the EB-2007-0606 incentive ratemaking proceeding be re-established?

VECC adopts the submissions and recommendations of Board Staff with respect to this issue, as set out in the section "Establishment of Storage and Transportation Margin Deferral Account" on pages 39 and 40 of Board Staff's Submission filed on August 17, 2012.

ALL OF WHICH IS RESPECTFULLY SUBMITTED THIS 21st DAY OF AUGUST 2012