IN THE MATTER OF:

CENTRA GAS MANITOBA INC.
2013/14
GENERAL RATE APPLICATION

HEARING BEFORE
THE PUBLIC UTILITIES BOARD

Board Counsel's Supplementary Book of Documents

June 24, 2013

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PUBLIC UTILITIES BOARD OF MANITOBA

CENTRA GAS MANITOBA INC.

2013/14 GRA

Written Evidence of John D. McCormick
on Behalf of
Consumers Association of Canada (Manitoba) Ltd.

May 27 2013

J. D. McCormick Financial Services, Inc.
1014 Hillcrest Avenue South West
Calgary, Alberta T2T 0Z2

Executive Summary

- I am of the opinion that the underlying data used to develop the financial forecasts for T-Bill and 10 Year + Canada rates is both outdated and materially different from current forecasts readily available in the market.
- I am of the opinion that to attempt to base the interest component of the revenue requirement on financial forecasts of T-bill and 10 year + Canada rates which are based on superseded data is unwise, and, owing to the material difference between the original data inputs and those currently available, is prejudicial to consumers.
- I am of the opinion that the Board should establish a policy that Centra would provide an update of its forecast interest rates, at each proceeding.
- I am of the opinion that to reduce the degree of upward bias in Centra's forecasting, the Board should remove Informetrica, the source of the highest forecasts in Table 1 and Table 2, in PUB/Centra I-6, from its calculation of forecast interest rates used to derive near term interest costs.

Q.1 Please state your name, business address and occupation.

A. My name is John D. McCormick, and my business address is 1014 Hillcrest Avenue South West, Calgary, Alberta. I am a financial consultant and President of J. D. McCormick Financial Services, Inc. A description of my professional qualifications is found in Attachment 1.

Q.2 What is the purpose of your evidence at this proceeding?

A. Consumers Association of Canada (Manitoba) Ltd. had requested that I review the application for matters related to financing and provide my views with respect to those matters that caught my attention.

Q.3 What matters caught your attention?

A. This being Centra's first rates hearing subsequent to Order 128/09, I thought that it would be worthwhile to explore whether the revised interest rate forecasting methodology, employed by Centra, followed the particulars discussed in paragraph 9 of the Order, and, in particular, paragraph 9 (f).

Paragraph 9 (f) suggests an update of the interest rate "forecast in advance of the hearing if warranted"[1]. Philosophically, in my opinion such an update would always be warranted as I view superseded data as invalid. Owing to interest rate volatility, and a desire to make decisions with the best possible data, I would recommend that the Board order an interest forecast update as part of each proceeding. I was, though, interested in learning what change in forecast results Centra would view as warranting such an update[2]. I was very interested in learning what steps had been taken to develop a "proposed process to update the forecast in advance of the hearing"[3].

As the second major topic in forecasting, I was interested to learn about Centra's progress on developing a "process to retrospectively test the accuracy of

[1] Order No. 128/09, September 16, 2009 page 137 of 139.
[2] In addition to the October 2012 update discussed in the material related to this proceeding, Tab 5 in the Hydro 2010/11 GRA makes reference at page 2 of 8 to an October 2009 update.
[3] Order No. 128/09, September 16, 2009 page 61 of 139 and page 137 of 139.

forecasters to assess their inclusion in future forecasts"[4] as part of a process to maintain a "robust, precise forecasting methodology"[5]. Centra has changed the group of worthy forecasters, adding two new names, but keeping at least one that I would delete due to the manner of its discontinuous data presentation. Centra also appears to have changed its methodology as to how it includes certain forecasters that forecast annual data points.

The record in this proceeding indicates that Centra's selection of worthy forecasters results in forecasts which consistently exceed actual results. As a consequence, I would also seek to remove at least one of the forecasters whose forecasts are high. The record in this proceeding shows Centra forecasting 8% to 23%[6] in excess of actual annual total interest cost in the past four years. To reduce the degree of upward bias in Centra's forecasting, I would urge the Board to remove Informetrica[7], the source of the highest forecasts in Table 1 and Table 2, from its calculation of forecast interest costs.

The next aspect of my interest was to consider whether the Centra forecast had accurately converted the various forecasters' data points into quarterly or annual financial year forecasts of interest rates. While the forecast error created by sloppy use of the forecasters' forecasts may be less consequential than the forecast error created by the inclusion of forecasters whose forecasts are high, accuracy is an important feature in good analysis.

The Board, in Order 128/09, also commented on the integration of the financing function and noted "that Centra's needs should "trump" consolidated perspectives"[8]. As such, I wished to understand whether, policies had been put in place to ensure that Centra's differing needs were identified and considered in its financings.

[4] Order No. 128/09, September 16, 2009 page 61 of 139 and page 137 of 139.
[5] Order No. 128/09, September 16, 2009 page 61 of 139
[6] PUB/Centra I-42
[7] I would note that it appears that some of the reasons for removing Spatial Economics reflected in CAC/MSOS/MH II-161 (Revised) dated October 15, 2010, may also apply to Informetrica.
[8] Order No. 128/09, September 16, 2009 page 63 of 139.

Q.4 Was the evidence prepared by you or under your direct supervision and control?

A. Yes.

Q.5 Please summarize your conclusions.

A. In aggregate, I am of the opinion forecast interest rates for 3 month T-bills of 2.10%, and 10 year + Canada bonds of 3.20%[9], are inappropriate. They are built upon a foundation of stale dated and superseded forecast data[10].

I am of the opinion that the Board should establish a policy that Centra would provide a update[11] of its forecast interest rates, at each proceeding.

I am of the opinion that to reduce the degree of upward bias in Centra's forecasting, the Board should remove Informetrica, the source of the highest forecasts in Table 1 and Table 2, in PUB/Centra I-6, from its calculation of forecast interest rates used to derive near term interest costs.

Q.6 Why do you view mandating a process to update the interest rate forecast as part of the hearing as important to the Board's mandate to set "just and reasonable"[12] rates and tolls.

A. The statute sets out the "just and reasonable" standard which the hearing process is designed to achieve. Superseded forecast data is, by its very nature, no longer

[9] These are the rates identified for 2014/15 in PUB/Centra I-6. In addition, I believe that the forecast rates for the remaining period of 2013/14 are also inappropriate being based largely on superseded data. The specific reference to a March 2014 3.30% fixed rate financing contained in Tab 9, does not explain the difference between its forecast rate and the forecast rate for the 2013/14 year, but would also appear to be based on superseded data.

[10] Order No. 128/09 September 16, 2009, page 62 of 139 "The Board understands that Centra utilizes forecasts from many sources and that a consensus approach is appropriate for determining interest rate forecasts. However, the Board believes that the use of stale-dated forecasts, subsequently superseded with more updated information, is not appropriate. Accordingly, the Board will expect the new methodology to ensure that only current forecasts are utilized for interest rate forecasting purposes for future GRAs."

[11] See Order No. 128/09 September 16, 2009, pages 62 and 63 of 139 "The Board will also expect Centra to propose a methodology to be used for rate setting purposes to update the interest rate forecast during the hearing process. The Board understands that an update is already required for the cost of gas, and that an updated interest rate forecast should also be provided. Centra may choose to update its interest rate forecast coincident with its cost of gas update."

[12] The Public Utilities Board Act, Manitoba, Sections 61, 64, 77 and 84.

valid. To rely on superseded data[13] does not seem reasonable. It would be highly beneficial to demonstrate that the hearing process achieved that "just and reasonable" standard if the most current interest rate information is placed before the Board. Owing to its use of private subscription forecast services, Centra is in the best position to assist the Board, in demonstrating the efficacy of its methodology and the timeliness and reliability of resulting forecast.

Centra's willingness to update its forecasts and demonstrate the efficacy of its methodology, based in part on access to private subscription data, while potentially helpful, is not required. As we saw in the last Centra GRA, an alternative methodology, relying only on public data, can be accepted by the Board[14].

Centra may have a long internal forecast and planning cycle, but I do not accept that the long cycle of the development of its financial forecasts should obligate its Board of Directors nor the Public Utilities Board to approve an outdated and unreasonable forecast of interest rates. The internal forecast is not sacrosanct. As I understand the principle, as it has descended from the 1929 *Northwestern Utilities* case[15], public utilities boards have considerable scope to set a fair and reasonable rate of return even if no witnesses testify to the altered conditions of the money market. To facilitate the Board's need for timely forecasts, I believe Centra should willingly update its forecast rates during the regular GRA filing process. To promptly provide the forecast inputs to the model as part of its

[13] Order No. 128/09 September 16, 2009, page 62 of 139 "The Board understands that Centra utilizes forecasts from many sources and that a consensus approach is appropriate for determining interest rate forecasts. However, the Board believes that the use of stale-dated forecasts, subsequently superseded with more updated information, is not appropriate. Accordingly, the Board will expect the new methodology to ensure that only current forecasts are utilized for interest rate forecasting purposes for future GRAs.".
[14] Order 128/09 page 60 of 139. "Accordingly, the Board will direct Centra to adopt the interest rate forecasts that are more in line with the recommendations put forward by CAC/MSOS' witness, Mr. McCormick. ... While actual rates are very likely to vary from these forecast rates, nonetheless, as the evidence presented by Mr. McCormick was found to be more suitable than the projections of Centra, Mr. McCormick's rate forecasts should be utilized for forecasting purposes".
[15] Northwestern Utilities and the City of Edmonton, SCC, [1929] SCR 186.

application will also enhance regulatory efficiency, by reducing the need for information requests to acquire the data.

Q.7 What do you view as the purpose of the interest rate forecast?

A. In my view the purpose of this attempt to forecast future interest rates, in the context of the GRA, is to arrive at a forecast with the minimum error in the rates forecast over the forecast period, which in this case is the test years of the GRA. I do not believe that achieving accuracy in the forecast, requires a large or particular number of forecasters, and reject the notion that using a large number of forecasters, 12 in 2008/09, and 11 in 2012/13, enhances the process without additional testing of accuracy. The success of the process should rather be judged by its degree of accuracy, not the use of stale dated forecasts from a group of famous name forecasters.

Centra obviously views its interest forecasting process as part of an overall planning system. While its planning efforts are no doubt important internally, in the context of this hearing, I submit that those broader goals are irrelevant to correctly setting the portion of the revenue requirement required to support the forecast interest costs.

Organizations can become committed to a particular process over time and, in focusing on the particular process, can lose sight of the purpose for which the process was initially undertaken.

In the 2008/09 Centra GRA, Centra vigorously defended its then institutionalized process of interest rate forecasting[16]. In CAC/MSOS/Centra 2-76 (k), we were told that "Each year Centra applies a consistent economic forecasting methodology that utilizes high quality inputs from numerous independent forecasters"[17], and "Centra adopts a longer term view which incorporates high quality data sources and sound forecasting methodologies."[18] During the IR

[16] In its Rebuttal Evidence in the 2009/10 Centra GRA, May 29, 2009 at page 23 of 24, "Centra is of the view that its current forecasting methodology for interest rates is fair and reasonable".
[17] CAC/MSOS/Centra 2-76 (k), page 5 of 5, Centra 2009/10 GRA
[18] CAC/MSOS/Centra 2-76 (k), page 5 of 5, Centra 2009/10 GRA

process, in spite of its professed belief in its then "sound forecasting methodologies", Centra declined to, provide a link between the names of forecasters and their data points[19], justify the use of superseded and statistically interdependent data, and, explain its blending of period end and period average inputs.

My evidence in that proceeding addressed what I perceived to be serious methodological lapses in analysis, and indicated then current forecasts for 3 month T-bill rates for the 2009 and 2010 of less than 0.5% for 2009, and less than 1% for 2010, rather than the 3.75% and 4.5% 3 month T-bill rates indicated in that application and derived from the Centra methodology. My evidence in that proceeding also indicated then current forecasts for 10 year Canada rates for the first calendar quarter of 2010 would indicate an interest rate in the 3% range rather than the 4.7% rate indicated in the application.

Even with the significant adjustments made in the forecasting methodology made through Order 128/09, Centra has a persistently upward bias in its forecast of total interest costs. For that reason, I am making further suggestions as to how to improve the forecast accuracy.

Q.8 Did Decision 128/09 resolve the forecasting issues related to Centra?

A. That decision solved a number of the very large problems in the Centra forecast methodology, but some issues of implementation appear to remain outstanding. In addition, Centra also appears to have changed its methodology in the manner in which it employs data from certain forecasters, which is worthy of exploration.

[19] An update to PUB/Centra 2-198 filed in the 2009/10 GRA on June 3, 2009, provided the link to forecasters names and their various forecasts some of which dated from October 2009. This update was filed after intervener evidence was filed on May 15, 2009

As I have mentioned, the record[20] appears to indicate a chronic uncorrected upward bias in the results of the forecast methodology when compared to actual results. The change in the manner in which certain forecaster's contributions are employed may contribute to that upward bias.

Q.9 Were you able to establish that the forecast had accurately converted the various forecasters' data points into quarterly or annual financial years forecasts of interest rates?

A. Regrettably, no.

I attempted to confirm the calculation of many of the visible[21] data points presented in Table 1 and Table 2 of PUB-Centra I-6 based on the supporting documentation provided but identified a number of anomalies. The first type of problem was that there appear to have been a number of calculation errors [CAC-Centra II-46 (a) CIBC]. The second type of problem were instances where forecasters' data points were available, but were not included [CAC-Centra II-46 (a) Conference Board] in the various tables. Finally, in instances where some forecasters might omit a data point in mid series, the forecast values included in Tables 1 and 2 of PUB-Centra I-6, presented values which did not appear to make consistent use of the known data points to bridge the gap created by the missing data point.

In addition to these problems related to the visible forecast data points which were created based upon identified sources, initially, I could not attach any confidence to the suppressed data points ascribed to Bank A or Bank B, and, as such, could not attach any confidence to financial year values. Subsequently, many of those data points were made available in PUB/Centra II-141.

Consumers are entitled to have a forecast of interest rates built on a methodology that can be demonstrated to provide a good approximation of the value which it

[20] PUB/Centra I-42 (b)
[21] The data points for "Bank A" and "Bank B" were initially suppressed and the input sources were not provided in response to PUB/Centra I-6.

seeks to forecast. As the data provided in PUB/Centra I-42 (b) shows, the forecasts employed vary substantially from the actual experience. I believe that we can do better than just averaging some dozen or so forecasters that have apparently been selected without any clear criteria[22] for or demonstrated success in the accuracy of near term forecasts of the interest rates which are used as base rates in the revenue forecast. While it may appeal to our intellectual curiosity to study the vast array of interest rate forecasts available from Canadian and international economists[23], consumers will benefit from accuracy.

Q.10 How can forecast accuracy be improved?

A. In broad terms, I believe that retrospective testing can be instructive, and essential to creating a robust methodology.

Imagine for a moment, that you were the general in charge of a campaign and you discovered that your artillery units were shooting 8% to 14% too far. I suspect that it would not take very long to get targeting recalibrated.

If you are a golfer, you understand that the goal of every stroke is to get the ball into or close to the hole. If you are a golfer, who like me, generally hits to the right you embrace strategies to reduce the directional error, perhaps by changing one's stance or one's grip.

Whatever one's career path or choice of recreational pursuit, most people would be familiar with some form of benchmarking or quality enhancement process. If we discover that our results are constantly high, or constantly low, and to our disadvantage, we would adjust the process to reduce the error. Owing to the nature of this process, Centra is not disadvantaged if its forecast of interest rates is above the actual future interest costs. The excess charges in rates, all other things

[22] Centra appears to seek the "strength of diversity" which would CAC/Centra I-13 page 7 of 7. The goal of diversity of opinion would seem to support inclusion within the sample of views selected from among the highest quartile and the lowest quartile.

[23] Bloomberg, for example, provides near term forecasts of various rates including 10 year Canada rates from 19 firms. For recent forecasts for 2Q 2014 ranged from 1.70% to 3.02% , while the median value was 2.59%.

being equal, result in higher retained earnings. In this instance, the moral hazard[24] is that Centra is not disadvantaged in adopting an interest rate forecast methodology based on a particular sample of forecasters that consistently produces forecasts of interest rates that exceed actual experience.

In my evidence in the last Centra GRA, I noted; "In as much as Centra has selected a sample of the available forecasters, I believe it would be a good practice to review the estimates of forecasters so as to be assured that the selection of forecasters would best approximate the result. I believe it would be worth knowing whether one included forecaster was perennially low or high if that result was causing a variance which could be avoided by its exclusion."[25] I remain of that opinion.

Based on that simple principle, and noting that Informetrica is currently the highest forecaster in the sample, I would remove its forecast of near term interest rates to address the consistent upward bias in Centra's forecasting from this sample of forecasters.

In my evidence in the Manitoba Hydro 2010/11 & 2011/12 GRA, I discussed the accuracy of certain forecasters who had made predictions in April and May of 2009. I noted that there was very low overall error when one based a forecast on Scotia and National Bank data. In a 6 quarter period, discussed in that evidence at page 26, "the Scotia forecast had the least average error, being about 23 basis points too low. The National Bank forecast was closer to actual in the early quarters before markedly increasing its variance in the last two quarters. Its average error was about 26 basis points too high. For these six quarters using only the National and Scotia forecasts would result in the lowest average error, about 2 basis points."[26] It should be noted that both Scotia and National, like many forecasters, were low in the early periods and high in the later quarters.

[24] Wikipedia describes moral hazard as a concept in economic theory which "arises because an individual or institution does not take the full consequences and responsibilities of its actions, and therefore has a tendency to act less carefully than it otherwise would, leaving another party to hold some responsibility for the consequences of those actions."
[25] See page 15 of Mr. McCormick's evidence dated May 15, 2009.
[26] See page 26 of Mr. McCormick's evidence dated December 10, 2010.

Q.11 Would you identify some of the data "anomalies" to which you referred earlier, which you classified as calculation errors?

A. In CAC/Centra II-46 and 47, we asked for an explanation of the some anomalies related to CIBC, Conference Board and National Bank data points.

To deal with 1Q 2014 CIBC data point anomaly, in CAC/Centra II-47 (f), Centra confirms that the 1Q 2014 data point should have been 2.86[27]. Their reply does not explain that the values ascribed to the CIBC for 1Q 2014 through to 1Q 2015 were values related to Desjardins' forecast.

With respect to the National Bank data points, the issue that gives rise to my concern is that the National Bank, from time to time, provides discontinuous data points. In some quarters they do not publish one of the middle values of their forecast. I am of the view that the Centra abandoned its averaging methodology as it calculated the 2Q 2013 data point of 1.31 for National Bank T-bill rate. We had both the data points required to calculate the period average, but the 2 Q 2013 value got swept up in the effort to deal with the missing 3Q 2013 data point. Centra did not apply the same methodology that was used to develop the 1Q 2013 data point. Referring to the table below, one can see that the average of 0.98[28] and 0.94[29] inputs to the 1Q 2103 calculation averages to 0.96, the average of 0.94[30] and 1.05[31] do not average to the 1.31 value presented in Table 1. Effectively, the 1.31 calculated data point rejects or ignores available data, in this case the National Bank 2Q 2013 end period forecast value of 1.05.

[27] In CAC/Centra II-46 (b) we also addressed missing data points related to the Conference Board forecast.
[28] 0.98 is the 4Q 2012 end period value input.
[29] 0.94 is the 1Q 2013 end period value input.
[30] 0.94 is the 1Q 2013 end period value input
[31] 1.05 is the 2Q 2013 end period value input

National Bank	4Q 12	1Q 13	2Q 13	3Q 13	4Q 13	Total 2Q to 4Q values
As published end period	0.98%	0.94%	1.05%		1.67%	
Solve for a 3Q end period value			1.05%	1.36%	1.67%	
Calculate period average value		0.96%	1.00%	1.21%	1.52%	3.72%
Centra period average		0.96%	1.31%	1.31%	1.31%	3.93%

In my opinion the better method to deal with the discontinuity would be to estimate the missing 3Q 2013 value relying on the known 2Q 2013 and 4Q 2013 values. My estimate for the missing 3Q 2013 value would be 1.36, the average of the known 2Q 2013 and 4Q 2013 values. Using the 1.36 value for the 3Q 2013 end period data input into the into the calculation of the period average values for 3Q 2013 and 4Q 2013 would result in values of 1.21 and 1.52 respectively. The total of the 2Q, 3Q and 4Q values in the Centra method to bridge the missing quarter's data point is 3.93, while the total, using my method would be 3.72. As such, ignoring the available 2Q forecast data point adds 20 basis points before averaging, to the T bill interest rate calculation.

In CAC/Centra II-47, Centra explains that the "same approach" that was used to bridge the missing data point for the T-bill calculation was utilized for the National Bank "long term interest rate" calculation. As such, I am also of the view that the calculated data point for National Bank 10 year + Canada rate for 2Q 2013 is simply wrong. It does not apply the same methodology that was used to develop the 1Q 2013 data point. While the 10 year + calculation is a little less obvious, as one must average 4 numbers rather than just the 2 numbers required for T-bills, my calculation of the value is 2.13 not the 2.28 value presented in Table 2. Effectively, the 2.28 calculated data point rejects or ignores available data.

In addition to the problems of care in the use of data involving the 2Q through 4Q 2013 data points ascribed to National Bank, the explanation of the 4Q 2012 long bond averages demonstrates a further example of laxity in approaching data.

Centra on page 3 of 4 in CAC/Centra II-47 tells us that the end period and period average 30 year bond data points are each 2.31. To be logically consistent, the end period data point would, of necessity also need be 2.31. Unfortunately, the Royal Bank provides a different actual value, 2.40, which, of course, would force the 2.31 period average to 2.36.

The foregoing discussion relates to the Centra methodology which attempted to compensate for the intermittent discontinuity in the National Bank's forecast data points, and which attempt resulted in Centra suppressing the valid 2Q data point. These attempts to compensate for the discontinuity in the presentation of data, raise the question, of why National Bank continues to be a worthy forecaster. With all the alternatives available, and the apparent difficulty triggered by the manner in which it publishes its forecast, I am unsure what, if any, special value National Bank currently adds to the resulting forecast.

Q.12 Are you satisfied with the manner in which Centra bridges from quarterly inputs to annual inputs in its forecast?

A. No. My concerns arise in those instances where a forecaster has supplied quarterly data for some portion of its forecast and then annual average data for a further longer period.

An example of this area of concern can be found with the use of Desjardins data. In PUB/Centra I-6, attachment 1 at page 8 of 29, one is provided with annual average data, which for T-bills is 1.05% for 2013, 1.55% for 2014 and 2.25% for 2015. In PUB/Centra I-6, attachment 1 at page 3 of 29, one is provided with period end data including T-bill rates of 1% for 1Q and 2Q 2013, 1.05% for 3Q 2013 and 1.15% for 4Q 2013.

While Centra has averaged the 1.05% for 3Q 2013 and 1.15% for 4Q 2013 inputs to arrive at a 4Q 2013 period average value of 1.10%, they abandon averaging for 1Q 2014, and apply the annual average to each of the four calendar quarters. Essentially they are assuming an immediate jump in rates which then remain constant for that calendar year. In my view, if it is reasonable to assume an

average rate of 1.10% in 4Q 2013, it would be more reasonable to interpolate 2014 data to arrive at the average rather than assuming an immediate rate hike to a constant level. Assuming interpolation is unsatisfactory for some reason, I would have preferred an analysis which assumed that the 1Q 2014 data point was 1.55% which when averaged with the 4Q 2013 data point would result in a period average value for 1Q 2014 of 1.35%. Clearly, if we wish to maintain a 1.55% annual average for this forecaster's contribution, we would need to increase the value in a later quarter to compensate for a lower value in an earlier period. Having the big jump from a quarterly rate to the next year's annual rate in the first quarter of each forecast year adds a few basis points to the fiscal year calculation of interest rates.

Q.13 Can you provide an update on the interest rate forecasts for T-bills and comment on the materiality of the change in forecasts since those of September and October 2012 were issued?

A. Yes, at least partially. Unfortunately, I do not have access to all the forecasts[32] of the 11 forecasters used by Centra.

The table below provides certain of the forecast T bill data points for seven of the fall 2012 forecasters. These were selected from the forecasters for which fall 2012 forecast documents were included in PUB/Centra I-6 and PUB/Centra II-141 where there is public access to a more current interest rate forecast.[33]

[32] For example, Informetrica, among others, does not appear to freely post its forecasts on its website http://www.informetrica.com/ .

[33] For the CIBC forecast see http://research.cibcwm.com/economic_public/download/rates.pdf , for Desjardins see http://www.desjardins.com/en/a_propos/etudes_economiques/previsions/courbe-rendement/cr1304.pdf , for Laurentian see http://www.vmbl.ca/Economics/15/WeeklyMonitor_07052013_e.pdf , for Scotia see http://www.gbm.scotiabank.com/English/bns_econ/forecast.pdf , and for TD see http://www.td.com/document/PDF/economics/finances/DollarsAndSense_May2013.pdf

T Bill Rates		2Q 2013	3Q 2013	4Q 2013	1Q 2014	2Q 2014	3Q 2014	4Q 2014	AVG 2014
CIBC	27/09/2012	0.95%	0.95%	1.20%	1.45%				
CIBC	08/05/2013		0.95%	0.95%	0.95%	0.95%	0.95%	1.05%	0.97%
	Variance			0.25%	0.50%				
Scotia	27/09/2012	1.00%	1.00%	1.00%					
Scotia	30/04/2013	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.10%	1.02%
	Variance	0.0%	0.0%	0.0%					
TD	18/09/2012	1.40%	1.55%	1.65%	1.70%	2.05%	2.05%	2.10%	
TD	02/05/2013	0.95%	0.95%	0.95%	0.95%	0.95%	1.05%	1.40%	1.06%
	Variance	0.45%	0.60%	0.70%	0.75%	1.10%	1.00%	0.70%	
Desjardins	Fall 2012	1.00%	1.05%	1.15%	1.55%	1.55%	1.55%	1.55%	
Desjardins	25/04/2013	0.95%	1.00%	1.00%	1.00%	1.00%	1.20%	1.50%	1.14%
	Variance	0.05%	0.05%	0.15%	0.55%	0.55%	0.35%	0.05%	
Laurentian	17/09/2012	1.00%	1.50%	1.60%				2.10%	
Laurentian	15/04/2013	0.96%	1.00%	1.05%	1.05%	1.05%	1.10%	1.60%	1.17%
	Variance		0.50%	0.55%				0.50%	
BMO	02/10/2012	1.00%	1.00%	1.25%	1.25%	1.50%	1.50%	1.75%	
BMO	10/05/2013		0.99%	0.99%	0.99%	0.99%	1.24%	1.49%	1.18%
	Variance		0.01%	0.26%	0.26%	0.51%	0.26%	0.26%	
RBC	04/10/2012	1.45%	1.85%	2.00%					
RBC	May-13	1.00%	1.00%	1.00%	1.00%	1.10%	1.25%	1.55%	1.19%
	Variance	0.45%	0.85%	1.00%					
	AVG Var	0.24%	0.34%	0.42%	0.52%	0.72%	0.54%	0.38%	

Other than TD, which provided, in both the September 2012 and April 2013 forecasts, quarterly forecast data points for 2Q 2013 through 4Q 2014, the other forecasters' data points overlap only for a few periods. With the exception of Scotia, where there is no variance in the overlapping values, all the other forecasters have forecast lower values in the more recent forecasts and some to those changes in values are quite significant. While many are in the 50 basis point range, those for TD are more significant.

As these forecasters mainly provide end period data, the "AVG 2014" column was calculated including the 4Q 2013 value and all the four 2014 end period values, the exception being the BMO for which only 4 data points were averaged. The overall average of these forecasters for calendar 2014 year T bill rates would

round to 1.10%. I estimate that the average for the 2014 calendar year T bill rate presented in Table 1 from PUB/Centra II-141 might be approximately 1.88%. This analysis would suggest that the benefit to consumers of an update in the forecast T-bill rates could be in the order of 75 or 80 basis points for calendar 2014.

Before we leave the forecast of T bill rates for 2014, which on this sample of forecasters is currently averaging slightly over 1%, it may be instructive to realize that rates in the 1% range have been around for some time. Recall that the Manitoba Hydro Debt Management Strategy 2004/05 2005/06, dated June 2004, at page 2 of 9, observed "With the exceptionally low interest rates in the current short-term market, Manitoba Hydro has been taking advantage of a greater weighting in short-term instruments. In fact, for the first time in the Corporation's history, short-term borrowing is being transacted at rates below 1%."

In addition to the consumer benefit in 2014 of a lower forecast, in several of the 2013 quarters in which we have overlapping data points, that there is also a reduction in forecast T bill rates. In the TD 4Q 2013 data points, there is a 70 basis point consumer advantage contained in current updated forecast. The consumer advantage contained in the Laurentian 4Q 2013 data points is 55 basis points.

As a final note, only one of these recent forecasters published a period end 1Q 2015 T bill rate forecast. That CIBC forecast value is 1.25%, The average of the 5 visible values in Table 1 in PUB/Centra I-6 for 1Q 2015 is 2.69%[34], and as such the current CIBC end period represents a drop of 56% of the 2.69% value, or, expressed in basis points, a drop of 144 basis points. With these significant

[34] Several of the values presented in 1Q 2015 in PUB/Centra I-6 are period average values, while the CIBC value is an end period value, which in a rising interest rate environment would tend to reduce the impact of the comparison as period average values would tend to be lower than the end period values.

changes being observed in 6 or 7 months, I understand and support the Board's desire for an update.[35]

Q.14 Is it your opinion that the current T-bill forecasts are sufficiently different from the superseded forecasts from September and October 2012 that a update is required?

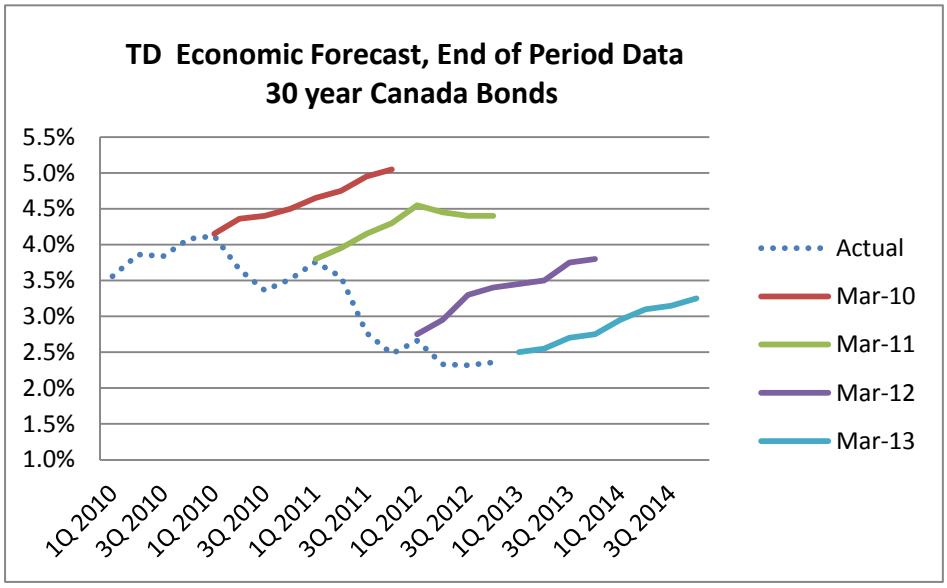
A. Yes.

In my view, these new forecasts indicate a material change of forecast T bill rates. I remain of the opinion, that the fact that the September and October forecasts have been superseded is sufficient cause to require the update even in the absence of a debate over the relative materiality of any change.

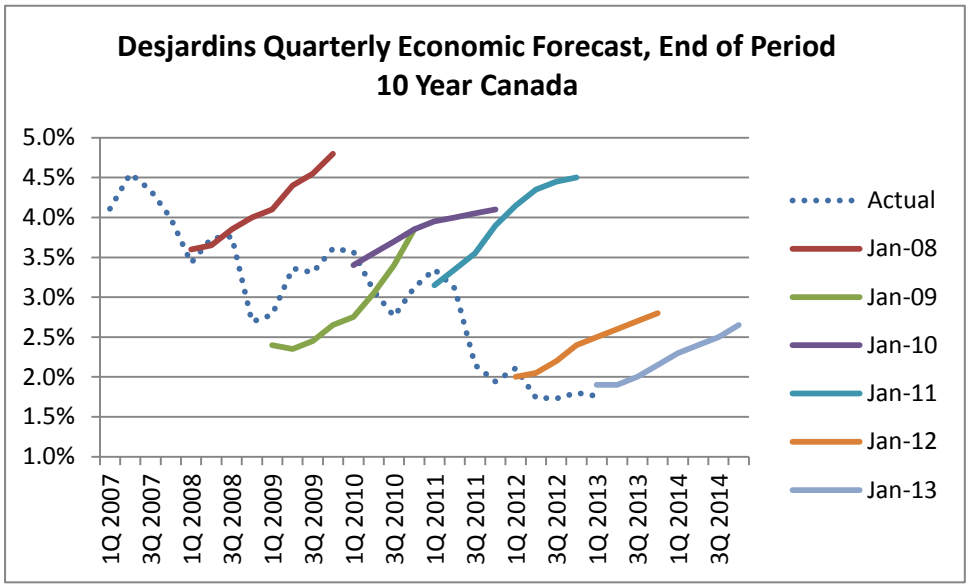
The new forecasts have several advantages. In the first instance there is now actual data for an additional 6 or more months that was formerly being forecast. Secondly, several of the new forecasts, CIBC, Laurentian, Royal and Scotia in my sample, extended the period of their published quarterly forecast into 2014 and beyond. Finally, the forecasters have, for better or worse, been able to recalibrate their prognostications based on more data and knowledge of more recent events.

To provide an example of how forecasts change over time, I have prepared a chart showing actual results and a series of TD Bank forecasts between March 2010 and 2013. In each of the successive annual forecasts covering a 2 year forecast period, TD economists have forecast increasing interest rates going forward. It is important to note that in each case the forecast value that begins each series is materially below the prior year's forecast for that date. The variance or error, when we have actual data, is often less in the first few quarters of the forecast, than the last few quarters. This observation supports the need for updates.

[35] Order No. 128/09 September 16, 2009, page 62 of 139 "The Board understands that Centra utilizes forecasts from many sources and that a consensus approach is appropriate for determining interest rate forecasts. However, the Board believes that the use of stale-dated forecasts, subsequently superseded with more updated information, is not appropriate. Accordingly, the Board will expect the new methodology to ensure that only current forecasts are utilized for interest rate forecasting purposes for future GRAs."



The chart below shows actual results and a series of Desjardins forecasts between January 2008 and 2013. In each of the successive annual forecasts covering a 2 year forecast period, Desjardins economists have forecast increasing interest rates going forward, with the exception of the January 2009 forecast. Interestingly, the cumulative error of the January 2009 forecast is the lowest of the group for which we have 8 points of actual data.



Q.15 Do you have a recommendation as to the threshold which would vitiate the need to update the forecasts?

A. No. I recommend that superseded forecasts be replaced when new forecast data is available.

I was, though, interested in Centra's views on that subject. I understood from the documents [36] filed in the proceeding that there was some circumstance in the interest rates or capital markets forecasts which was in their view of sufficient importance, or "materially different", so as to encourage them to undertake an update of the spring and summer 2012 forecast using September and October 2012 data[37].

Centra indicated that there had been a "significant financial market event" and that the level of interest rate forecast change was "materially different". To attempt to benchmark the "significant financial market event" rendering the interest rate forecast change "materially different, in CAC/Centra I-12, we requested information that would allow an efficient review of the values which were thought to be materially changed.

CAC/Centra II-56 we requested the comparative spring or summer equivalent tables to Table 1 and Table 2 provided in PUB/Centra I-6, and the copies of the source forecasts relied upon. The tables were not provided, and as such we have not been able to fully quantify Centra's view of what change in market conditions would constitute a material change. In the recently received reply to CAC/Centra I-12, we were provided with a table from the spring Economic Outlook which shows certain differing values from the forecast rates of the fall update, but we were unable to infer what the minimum Centra threshold for a material change might be.

[36] Centra indicates in Section 4.1 page 2 of 7, in Tab 4 of the application, that "this year, the continued falling forecasts of near term interest rates … were considered materially different from the spring and summer forecasts".

[37] In addition to the October 2012 update discussed in the material related to this proceeding, Tab 5 in the Hydro 2010/11 GRA makes reference at page 2 of 8 to an October 2009 update.

Had we been given spring equivalent tables to Tables 1 and 2, it would have been a smaller task to identify the changes in the interest rate environment which in aggregate were considered material by Centra. In PUB/Centra I-6 we gained access to many of the fall and early winter forecasts which we understand were the basis of "IFF 12, which is the basis for the 2013/14 Centra General Rate Application."[38] In CAC/Centra I-6 we received many of the forecasts used in the summer review, but not all[39].

With the data available, my view is that the change from spring forecasts provided in CAC/Centra I-6 to the fall forecasts provided in PUB/Centra I-6 for 10 and 30 year Canada rates is of similar materiality as the change between the most currently available forecasts and the fall forecasts provided in PUB/Centra I-6.

Since it appears to me, that we have experienced a similar level of materiality in the changes in forecasts, while I appreciate opportunity to review the 2013 Economic Outlook when it is filed, I am puzzled that Centra remains unsure of "whether to revise the Application at that time."[40]

Q.16 Can you describe the recent changes in forecasts for the 10 year and 30 Canada bonds?

A. Yes, and in aggregate there were reductions in forecast interest rates for 10 and 30 year Canada bonds, for periods in which the publically available data in the October 2012 and May 2013 publically available forecasts overlapped. The one forecaster which went against the decreasing trend in interest rate forecasts was BMO which increased its 10 and 30 year forecasts by an average of about 24 basis points in periods in which the superseded and current forecasts overlapped. Other forecasters had moderate decreases in their forecasts in periods which overlapped, including CIBC, Desjardins, Laurentian, Scotia and TD. RBC had a

[38] CAC/Centra II-56.
[39] Forecasts from BMO, Spatial and Informetrica were not included in CAC/Centra I-6.
[40] CAC/Centra II-59.

more significant decrease in its forecasts in the periods which overlapped averaging about 72 basis points. Overall, the variance for overlapping data points from the current public forecasts compared with the October forecasts appeared approximately equal that the variance between the October forecasts and the subset of the spring 2012 forecasts contained in CAC/Centra I-6[41].

The table below shows the calculation of the 10 year + RBC values based on the October forecast contained in PUB/Centra II-141 (a), and the publically available May 2013 forecast. The average variance in 10 year + values for 3Q 2013 to 4Q 2014 is approximately 72 basis points.

	RBC	4Q 12	1Q 13	2Q 13	3Q 13	4Q 13	1Q 14	2Q 14	3Q 14	4Q 14
10 yr	Oct-12	1.85%	2.05%	2.20%	2.40%	2.55%	2.90%	3.30%	3.65%	4.00%
30 yr	Oct-12	2.40%	2.60%	2.75%	2.95%	3.10%	3.45%	3.85%	4.20%	4.55%
10+		2.34%	2.23%	2.40%	2.58%	2.75%	3.00%	3.38%	3.75%	4.10%
10 yr	May-13			1.85%	1.90%	1.95%	2.20%	2.40%	2.65%	2.85%
30 yr	May-13			2.45%	2.55%	2.65%	2.80%	3.00%	3.15%	3.35%
10+				[42]	2.19%	2.26%	2.40%	2.60%	2.80%	3.00%
	Variance				0.39%	0.49%	0.60%	0.78%	0.95%	1.10%

Q.17 Can you comment on the accuracy of current process of interest rate forecasting used by Centra and the prospect of Centra enhancing its accuracy?

A. In PUB/Centra I-42 (b), Centra supplies certain data points relevant to its forecast accuracy. In each of the 4 years for which data has been supplied, forecast interest on debt exceeded the actual amounts by between 8% and 23%[43]. Were

[41] Using the data in Table 2 of PUB/Centra II -141 to provide an example, the average forecast value for fiscal 2014/15 is 3.20%. Using the same sample of 7 publically available forecasters presented in an earlier table related to T-bill forecasts, their current average 10 Year + forecast for calendar year 2014 is approximately 2.83%, a change of about 35 basis points.

[42] A variance was not calculated for 1Q 13, as the 1Q 13 input values were no longer forecast values but were actual values.

[43] In any analysis, the starting point is important. In my evidence in the Manitoba Hydro 2010/11 & 2011/12 General Rate Application, at page 3, using a different starting point, I noted "A comparison of the original Schedule 4.12 filed in the recent Centra GRA with their compliance filing shows that the short term and long term interest expense saving to consumers for the 2009/10 and 2010/11 test years was approximately $10.1 million. This $10.1 million difference arose largely because of the more rigorous and

this trend to continue into 2012/13, and the upward bias in Centra's forecasting continues at the amount in 2011/12, the variance in the period 2008/09 through to 2012/13 could exceed the total interest on debt in the 2010/11 year.[44]

This issue of persistent upward bias in Centra's forecasting of total interest on debt, is not only an issue of just and reasonable rates, but is also an issue of intergenerational equity[45]. By way of example, the retired farmer in Swan River may not be around long enough to benefit from a year in which total interest on debt is under forecast. Centra, for its part, noted "retained earnings held for the benefit of ratepayers along with the self correcting ability to adjust the revenue requirement at the next GRA".[46] This GRA appears to be that opportunity for adjustment. As Centra seems to feel the matter had been resolved[47], the timing is not beneficial[48], such a process will weaken it, and deprive it of the "valuable strength of diversity"[49], among other concerns, it appears that the only hope for an adjustment lies with the Board

In PUB/Centra II-141, Centra provides a quotation for PUB/Centra 50 (b), from the 2011/12 Cost of Gas Application, addressing the timeliness of retrospective testing. They concluded:

> "It is Centra's view that the collective economic opinion that currently exists within Centra's established portfolio of respected forecasters provides a valuable strength of diversity, and that ***a process to retrospectively test*** the ***accuracy*** of forecasters to assess their inclusion in future forecasts ***is not beneficial at this time***." [Emphasis added]

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updated forecast methodology, ordered by the PUB, which employed lower interest rates based upon more current interest rate forecasts".

[44] 10,053+4,380=14,433. 14,433 > 14,273.

[45] Hydro recognized the concept of "intergenerational customer equity and fairness" in a discussion of asset liability matching in respect of "ultra long financing" in CAC/MSOS/MH II-146 (Revised) in the Hydro 2010/11 GRA.

[46] Page 2 of 6 PUB/Centra II 142,

[47] Page 4 of 5 Letter of April 1, 2013, Mr. Czarnecki to Mr. Singh

[48] PUB/Centra II-141

[49] Page 7 of 7 CAC/Centra I-13

In light of the persistent upward bias in Centra's forecasting of interest costs, I wonder for whom the retrospective testing "is not beneficial at this time". I am confident that the retired farmer in Swan River, in particular, and consumers generally, would find it beneficial, just as they would have found Order 128/09 beneficial. I also wonder when, if ever, the conditions will exist which would make retrospective testing "beneficial" to Centra. The moral hazard here, relates to the cost being borne by the consumers while the benefit is enjoyed by Centra.

Centra, in PUB/Centra II-141 (b), provides a number of objections to retrospective testing, including that concern that "it is important for the Corporation to consider the broad range of respected forecaster opinion", and, "retrospective testing … could potentially weaken or bias the Corporation's viewpoints." With respect, I am not proposing that Centra be prevented from reading the totality of economic forecasts from every one of the forecasters currently prognosticating, only that they modify their sample of worthy forecasters, for the purpose of calculating near term interest rates, or the interest rate calculation methodology, so as to avoid the demonstrated upward estimation bias.

Centra also observes, in PUB/Centra II-141 (b), that "forecaster modeling algorithms are evolving". With respect, "forecaster modeling algorithms" have been evolving for decades, and, while the economic worries of the day constantly change, the low interest rate environment was noted in the Manitoba Hydro Debt Management Strategy 2004/05 2005/06, dated June 2004, as the Corporation celebrated financings at rates under 1%. As such, I reject the implicit suggestion that we must wait "through a full business cycle … to appropriately test the accuracy of these algorithms."[50]

With this history of near term upward bias in Centra's forecasting of total interest on debt, we inquired as to the last year in which Centra had under forecast the

[50] PUB/Centra II-141 (b), page 3 of 6.

total interest on debt, in CAC/Centra II-52 (d). While Centra advised that it "disagrees with the premise outlined in the preamble " to the question, "that variations between forecast and actual interest costs … arise as a result of the forecast methodology, changes in the capital spending or debt levels". Centra completely ignored part (d), and did not identify or supply the date of any year in which it had under forecast interest costs, leading to the inference that such an event has not happened in recent memory.

In answer to a request to quantify the various factors contributing to the variances[51], such as forecasting a fixed rate financing and then undertaking a shorter term floating rate such as Series 10. Centra declined to quantify the causes, and ascribed the variances "primarily" to "significant financial market changes". Centra's disagreement with the premise that a number of other factors may have contributed to interest cost variances is puzzling, since there appear to have been changes in the interest basis[52] of financings and, the rates[53] at which forecast financings were undertaken.

[51] CAC/Centra II 52 (b) as to interest on long term debt, and CAC/Centra II-52 (c) as to interest on short term debt.

[52] In CAC/MSOS/Centra 1-5 (e), in the 2009/10 GRA, we see that $75 million of financing was forecast as 20 year fixed rate 5.3% forecast rate financings, based on a 4.7% long rate and a 60 basis point credit spread (see CAC/MSOS/Centra 1-1(m)). Series CG 10, for $35 million was done at a rate of 3 Month BAs + 0.484%.

[53] In CAC/MSOS/Centra 1-5 (e), in the 2009/10 GRA, we see that $75 million of financing to be undertaken in February 2010 and $50 million of financing was forecast as 20 year fixed rate at a5.3% forecast rate. Series CG 11, a 20 year financing was undertaken at a rate of 4.726%, Series CG 12, and CG 13, each a 27.5 year financing were undertaken at a rate of 4.638%, Series CG 14, a 25 year financing was undertaken at a rate of 4.638%,. Each of those financings were undertaken at rates which varied from the forecast rate.
It is worthy of note that the terms the intercompany advance from MHEB many not match all the particulars of the underlying debt placement from which an interest rate may be assigned. For example, Series CG 13 has a maturity date of September 30, 2037, while the page 52 of the Manitoba Form 18-K indicates a March 5, 2063 maturity date for series C109, which was identified as the source of the assigned interest rate in PUB/Centra I-43. See http://www.gov.mb.ca/finance/pdf/mb18k2012.pdf

Schedule		STD	LTD	Total Debt	STD/Total
5.7.7	2009/10 T	98,330	265,835	364,165	27.0%
9.7.2	2009/10 A	80,145	253,260	333,405	24.0%
	Variance	18,185	12,575	30,760	2.96%
5.7.8	2010/11 T	94,869	297,671	392,540	24.2%
9.7.3	2010/11 A	21,600	297,671	319,271	6.8%
	Variance	73,269	-	73,269	17.40%

The table above shows the amounts of short and long term debt in each of the financial test years 2009/10 and 2010/11 as reflected in Schedules 5.7.7 and 5.7.8, dated January 20, 2009.[54] The similar tables 9.7.2 and 9.7.3 found in tab 9, reflect the actual data for those test years and appear to indicate a dramatic change in the role of short term debt in the debt structure.

I would have thought that a $73 million reduction in the short term debt level and the total debt in the capital structure might have had a measureable influence on the forecast interest levels in 2010/11. I believe it could have been helpful to have Centra's quantification of the any of the other factors involved in creating the interest variance to support a solution to the upward bias problem, rather than the vague identification of the primary factor as changes in the capital market.

Q.18 How long is that "full business cycle" which Centra suggests must transpire "to appropriately test the accuracy"[55] of the forecasters' work?

A. As I understand the term, it is not a period certain. A week, for example, is a defined period of 7 days. The various phases of the moon, as it wanes and waxes from full moon to new moon and full moon again, is a period certain of about 29 days[56].

[54] PUB/Centra II-144a Attachment 1 page 25 of 55 provides an amended Schedule 5.7.3 for the 2009/10 test year, reflecting order 128/09 dated February 19, 2010. Page 26 of 55 provides an update for the 2010/11 test year. See also page 13 of 55 and 14 of 55 for similar schedules reflecting Orders 128/09 and 41/10.

[55] See page 7 of 7 of CAC/Centra I-13. Since Centra references "the financial crisis" the cycle, for which they appear to wish to await the conclusion, may have begun in October 2008.

[56] Astronomers have the length of time to the moon's cycle calculated to the minute, but the number of hours and minutes are not relevant to our discussion.

The timing of a full business cycle is random and somewhat unpredictable. You could begin at any point in the cycle, and the full business cycle you are observing will conclude when the various phases have run their course. Like the moon, as it moves through its phases, the business cycle can be described as having 4 phases. Contraction, a slowdown in the pace of economic activity, will be followed by the low point of the cycle, the trough, which occurs just before the economy begins to expand. The expansion phase will run until it reaches its zenith or peak. The peak being the final phase before the economy slips, once again, into the contraction phase.

To use the C. D. Howe Institute's identification of the monthly trough and monthly peak of the most recently completed cycle as the benchmark[57], the last business cycle, marked by recessions, ran from April 1992 to October 2008, a period of over 16 years.

It does not seem reasonable that this Board should allow Centra to wait for the completion of some currently undefined period, "a full business cycle", which based on the C. D. Howe Institute's last measurement, could be a decade or more, to adjust clearly the demonstrated pattern or upward bias in forecasting near term interest rates.

Q.19 Do you understand Centra's choice of forecasters?

A. No.

Centra has selected approximately 12 forecasters from a large number of forecasters who comment on the Canadian interest rates. Bloomberg shows 19 names of contributing firms that offer forecasts of 10 year Canada bonds. In addition Centra provides 5 other names which were recently considered for the spaces granted to Desjardins and Laurentian Bank. Removing duplicates, the list of names includes about 28 firms.

[57] http://www.cdhowe.org/c-d-howe-institute-business-cycle-council-issues-authoritative-dates-for-the-2008-2009-recession/19382

Within the group of worthy forecasters changes can be made throughout the year. Owing to the frequency of publication, apparently not all forecasts made throughout the year would contain the same sample set of worthy forecasters. Centra, on page 3 of 6 in PUB/Centra II-141(b), provides a list of twelve forecasters that contributed to the 2012 Economic Outlook. There is one name, Spatial Economics, included in that list which is not included in the list of worthy forecasters used in the September and October update process. Apparently, Spatial Economics currently only forecasts in the spring[58].

While several years ago, only a subset of Centra's worthy forecasters contributed to the near term interest rate forecast, that may no longer be the case. There is one apparent change in the inclusion policy or methodology brought to our attention with the publication of Tables 1 and 2 in PUB/Centra I-6. That is the inclusion of Informetrica in the first 2 years of forecasts. In CAC/MSOS/MH II-161 (Revised) dated October 15, 2010, Table 1 lists those forecasters that are included in the forecasts for the first two years, and in a separate column, those who contribute to forecast years 3 and beyond. Informetrica was not included in contributing forecasters, at that time, for years 1 and 2. The explanation appears to be Informetrica's publication of annual rather than quarterly forecasts. Informetrica, like Spatial Economics, apparently reports annually and provides calendar year data, but unlike Spatial Economics, Informetrica was not excluded from the fall update. Informetrica's inclusion appears to raise a serious question of consistency in approach to forecasting near term interest rates.[59] It is my recommendation that Informetrica be removed from the group of worthy forecasters for near term interest rates.

[58] See note 4, page 3 of 6 PUB/Centra II-141(b). In PUB/Centra 2-198 Revised June 1, 2009, in the 2009/10 Centra GRA, Centra indicated that it had included a November 2008 Spatial Economics forecast as an input to the 2009 Economic Outlook. Spatial Economics at that time had the highest forecast for 10 year + interest rates included in the forecast for 2011.

[59] In CAC/MSOS/MH I-138 in the 2010/11 Hydro GRA. Hydro observes that "With respect to the forecast of 90 Day T-bill rates, the following forecasters were excluded in the rates for 2009/10 - 2012/13 … Informetrica and Spatial Economics were excluded as quarterly forecast information was not available from them."

CAC/MSOS/MH II-161 (Revised) dated October 15, 2010, also provides a table which provides the frequency of forecasts of the various worthy forecasters. One is weekly, most are monthly, one reports quarterly, and two report annually. Desjardins, recently added to the group of worthy forecasters, appears to publish its "Yield Curve"[60] about 7 times a year. With a publication cycle of 7 times a year, I would view Desjardins as being less accessible than those forecasters that provide monthly updates. For clarity, I would favor forecasters which update frequently and publish in a consistent manner over those who update infrequently and publish less consistent data.

Centra indicated that the number of source forecasters was increased in the work related to the 2012 Economic Outlook. At that time, Desjardins and Laurentian, were added, from a long list of other forecasters considered, including Deutsche Bank and Economap Strategic Economic Advisors, J.P. Morgan, Merrill Lynch and UBS Warburg[61]. Centra did not supply the criteria which lead to the selection of this list of 7 names for consideration, nor did it identify why the two forecasters, thought to be most worthy of inclusion, were more worthy that the others.

Centra did indicate in CAC/Centra I-13, that its forecasters include "Canada's primary financial institutions in addition to several other independent sources, all of which are well known and respected." Without intending any disrespect, I would not have classified Desjardins and Laurentian as among "Canada's primary financial institutions". If balance sheet strength is a measure of respect, I would suggest that Deutsche Bank [62]and UBS Warburg might precede Desjardins and Laurentian in the league tables.

Centra did though indicate that it enjoys a "valuable strength of diversity" in its

[60] http://www.desjardins.com/en/a_propos/etudes_economiques/previsions/courbe-rendement/
[61] PUB/Centra II-141(b)
[62] Recent financial statements indicate Total Equity of 56, 078 million Euros as at March 31, 2013. See https://www.deutsche-bank.de/ir/en/content/reports_2013.htm,
For comparison Laurentian Bank financial statements indicate $1,541 million in equity as at October 31, 2012. See https://www.laurentianbank.ca/pdf/RA2012_AN_p75_160_FinancialStatements.pdf

portfolio of forecasters. Understanding that providing or bolstering "diversity" might have been one of the reasons for including Desjardins and Laurentian, I looked for diversity in the forecasts of T-bill rates presented earlier in a table in this evidence. Before looking at the forecasts, I had imagined that one or other of these worthy new members of the pool might have enhanced the diversity of the group by being higher of lower than the existing sample. They were not.

Looking at the "AVG 2014" column in that table of T-bill rates, I saw two groups of forecasters based on the 2014 data points. The low group, made up of CIBC, Scotia and TD, average about 1.02% for 2014. Before considering the new members, the higher group included BMO and Royal with vales around 1.18%. The new additions, Laurentian and Desjardins, clearly are joining the high group, although with their addition to the high group they drop the average by a little over 1 basis point to 1.17%. While the addition of these two new forecasters to the pool does not seem to increase the breadth of opinion on 2014 T-bill rates, adding two more members to the high group does increase the average of the 7 forecasters up a couple of basis points over the average of the previous 5 forecasters in my sample.

In CAC/Centra 1-13 we had requested any "analysis, undertaken by Hydro or Centra, considering … or excluding or including forecasters in the group of contributors". In the recently received reply, there is no mention of any such analysis.[63]

In the 2009 Centra GRA, Centra told us that "The Corporation does not review the relative success of each forecast included in its forecast of T-bill rates by comparing their historical forecasts with actual market results".[64] If this same policy applies to the selection of new worthy forecasters from the pool available, one must therefore wonder what criteria allowed them to select Desjardins and

[63] There is, though, a comment on arithmetic adjustments to the effect that Centra saw "little value in performing detailed analysis on any computational variances."
[64] CAC/MSOS/Centra 2-76f from the Centra 2009/10 GRA.

Laurentian Bank to be included in the group of worthy forecasters to the exclusion of others considered.

Centra has also indicated that "The Corporation does not have a view regarding the optimal number of sources within its pool of independent forecasters."[65] Recent actions in adding two names to the pool would seem to suggest that 10 sources was suboptimal and 12 was more optimal.

As noted earlier, I am unclear why National, with its less complete manner of publishing its results, and the data additional estimation challenge that the data discontinuity creates, is worthy to remain in the pool.

Q.20 Since some of the forecasters update their forecasts monthly are you suggesting that an IFF forecast would only be valid for a month?

A. No. I would not suggest that we create a treadmill of constant updates for Hydro and Centra.

Rate cases have not been annual events. The last Centra GRA was in 2009, so the regulatory review requirement clearly does not impose an obligation to do monthly updates. The better view is that the Board should be supplied with timely information in the hearing process, and, Centra, as the applicant controls the start date.

I have mentioned above my belief in the necessity of the Board having access to timely information to arrive at just and reasonable rates. Centra, in earlier proceedings, has asserted that it "monitors and assesses interest rates on an ongoing basis".[66] If that is still true, Centra will be well aware that its forecast of interest rates becomes increasingly unrepresentative with the publication of the updated forecasts over time.

[65] PUB/Centra II-141(b) page 3 of 6 footnote #4.
[66] CAC/MSOS/Centra 2-72 e (8 and 9) from the Centra 2009/10 GRA.

Q.21 Were you able to identify any policy changes with respect to Centra's debt?

A. Yes. There appears to be a significant change in Centra's ability to access short term debt.[67]

Previously, Centra had been accessing short term financings at a spread free BA or T-bill rate reflecting Hydro's ability to finance at very low rates for short terms.[68] While not immediately obvious, this change appears to increase the effective short term rate to Centra and perhaps appears to allow Hydro greater access to the funds at the lowest cost.

In the past, Centra had made it a practice to fund a healthy proportion of its total debt with short term debt. Details of the proportions of short term debt as a fraction of the total debt can be found in CAC/MSOS/Centra 1-1 (c) in the 2009/10 GRA[69]. In that table, short term debt represented as much as 41.4% of the total debt[70], and over the period presented, both actual and forecast, short term debt averaged a little over 25% of the total debt. Going forward, the proportions of short term debt as a percentage of total debt are forecast to shrink markedly.

The table below shows the amounts of short and long term debt in each of the five financial years from 2006/07 through 2010/11 as reflected in Schedules 5.7.4

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[67] Centra`s individual need for short term capital relates in part to the "`seasonal nature of Centra`s business and cash flow requirements". See CAC/MSOS/Centra 1-6 page 2 of 4. The balance is highest at the end of the December quarter and lowest at the end of the March quarter.

[68] In the 2009/10 Centra GRA, in Centra`s Rebuttal Evidence at page 23 of 24, Centra noted: "With respect to short term financing, Centra reiterates that the intercompany short term financing agreement using one month Bloomberg banker`s acceptance rates is fair and has been consistently applied since Manitoba Hydro acquired Centra"

[69] Similar Manitoba Hydro data for the period 2004-2009 was made available in CAC/MSOS/MH I-146(d). These tables were recently updated with the delivery of CAC/Centra I-18. In CAC/MSOS/MH I-146(e), Hydro provides its view that "Short term borrowings are not intended as a financing vehicle to reduce Manitoba Hydro's overall debt servicing costs. Manitoba Hydro uses its short term notes to fund seasonal working capital requirements and to bridge the timing between long term debt issues. The data provided in CAC/Centra I-18 suggests that Hydro rarely uses this facility (at least across a quarter end). Hydro had drawn down short term debt in sufficient amounts to meet Centra's needs in only 7 of 25 quarters beginning June 2005. In most of the remaining quarters Hydro had no or insufficient short term debt to fund Centra's indicated short term debt balance. This state would allow the inference that Hydro prefers to prefund its near term cash requirements with longer term (and likely higher cost) instruments. The late arrival of this reply has restricted our ability to explore this possible policy change.

[70] For 3Q 2008/09 Centra indicated a short term component of $168,466,000 of $406,473,000 total debt equaling 41.4%. Long term fixed rate debt was shown as $238,007,000.

through 5.7.8, dated January 20, 2009.[71] The table below indicates that in early 2009, the then expectation was that short term debt would continue to represent some percentage of the total debt structure in the mid twenty percent range.

Schedule		STD	LTD	Total Debt	STD/Total
5.7.4	2006/07 A	88,058	243,362	331,420	26.6%
5.7.5	2007/08 A	97,321	240,261	337,582	28.8%
5.7.6	2008/09 F	100,333	238,083	338,416	29.6%
5.7.7	2009/10 T	98,330	265,835	364,165	27.0%
5.7.8	2010/11 T	94,869	297,671	392,540	24.2%
	Average	95,782			27.2%

Currently, the similar tables found in tab 9, reflect a dramatic change in the role of short term debt in the debt structure. The proportion of spread free short term debt is forecast to drop in 2012/13 to less than one tenth of its former average.

Schedule		STD	LTD	Total	STD/Total
9.7.2	2009/10 A	80,145	253,260	333,405	24.0%
9.7.3	2010/11 A	21,600	297,671	319,271	6.8%
9.7.3	2011/12 A	16,696	297,671	314,367	5.3%
9.7.4	2012/13 F	8,494	296,244	304,738	2.8%
9.7.5	2013/14 T	20,340	295,000	315,340	6.5%
	Average 2010/11 to 2013/14	16,783			5.3%

Clearly, a comparison of these tables indicate that there was an expectation of a need for a higher level of debt capital, reflected in Schedules 5.7.7 and 5.7.8, than was actually required for those test years.[72]

The table above also reflects that as opposed to the original mid-twenty something percent proportion of spread free short term debt as a component of total debt in

[71] PUB/Centra II-144a Attachment 1 page 25 of 55 provides an amended Schedule 5.7.3 for the 2009/10 test year, reflecting order 128/09 dated February 19, 2010. Page 26 of 55 provides an update for the 2010/11 test year. See also page 13 of 55 and 14 of 55 for similar schedules reflecting Orders 128/09 and 41/10.

[72] For test year 2009/10 there was an expectation of $364 million in debt in the capital structure, where the actual number appears to be approximately $333 million and in 2010/11 the expectation in Schedule 5.7.8 was $392 million while the actual was $319 million as reflected in Schedule 9.7.3.

the capital structure, going forward the forecast is for less than 10% of the debt to be short term debt.

In PUB/Centra II-176, we are told that the "Reduction in the relative weighting of short term debt shown in the schedule is primarily the result of the cumulative amounts of capital financing that were converted from short term debt to long term debt with debt series CG9 ($30 million on September 1, 2009) and CG14 ($30 million on March 31, 2010). In addition to those new issues, series CG10, CG11 and CG12 were undertaken in February 2010 to partially refinance CG5.[73] Of those issues CG10 is particularly relevant to the discussion of short term debt as it was undertaken for a principal amount of $35 million on a floating rate basis at a coupon based on "3 Month BAs + 0.484%".

Q.22 Can you quantify the importance of this policy change?

A. Yes.

In the 2009/10 Centra GRA, CAC made an issue of the spread between Hydro's cost of funds for short term debt and the rate that was to be charged between Hydro and Centra on that short term debt. In that proceeding, Centra indicated that it was "allocated interest by MH on the basis of Bloomberg's one month banker's acceptance rate."[74] In the recently arrived CAC/Centra I-12, Centra indicates that the current "intercompany charge for Centra's short term debt is equivalent to the short term interest rate (defined as the 3 month Canadian T-Bill rate or C1033M)". While the "intercompany" transfer rate had changed to the lower T-bill rate from the generally higher Banker's Acceptance rate, owing to the presentation of historical data, I will ignore the spread between T-bills and BAs[75].

The evidence in the 2009/10 Centra GRA showed that Hydro frequently had a

[73] See PUB/Centra I-43 for term sheets of the various issues.
[74] Order 128/09 page 56 of 139.
[75] For a period running from February 2010 to May 2013, the one month BA rate, series V39068, averaged 1.03%, while the three month T-bill rate, series V39065, averaged 85 basis points, a difference of 18 basis points.

lower cost of funds for short term debt than the one month banker's acceptance rate which Hydro was charging Centra.[76] [77] The table on page 57 of 139 of Order 128/09 shows that for certain periods Hydro's cost of funding for short term debt was below the Bloomberg average 1 month BA rate.[78] In two of the quarters presented, Hydro was financing at 80 basis points below the 1 month BA rate. In one of the quarters presented, Hydro enjoyed a 99 basis point advantage over the 1 month BA rate. The profit on the disparity of cost and funding rates is significant when one notes that Centra had between $165 million and $168 million at period end in the relevant quarters. [79]

"Centra noted that MH may, periodically, be able to secure short-term financing at a lower rate than the one month banker's acceptance rate."[80] Somewhat paradoxically, in light of the spreads being charged "Centra stated MH has no intention to profit from its financing agreement with Centra".[81] However unintentional the short term financing profit was, the Board accepted the CAC position that there should be no spread earned by Hydro on short term debt required by Centra, and went as far as to order a quarterly "true-up".[82]

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[76] Order 128/09 at pages 126 and 127 of 139. "Mr. McCormick noted that the quarterly variance in funding rates available to MH were substantially different to the one month BA rate charged to Centra which has recently ranged from a 53 basis point difference in the September 2007 quarter to 99 basis points in the December 2008 quarter. Mr. McCormick indicated that Centra was paying a premium for short term debt that is readily available. Mr. McCormick indicated that Centra should be entitled to short term rates that are available on a pass through basis, or close to the associated cost of financing."

[77] Additional Manitoba Hydro data for the period March 2004 to December 2009 can be found in CAC/MSOS/MH I-146 (e) from the 2010 Hydro GRA.

[78] The data in the table was sourced from CAC/MSOS/Centra 1-9 (d) from the Centra 2009/10 GRA and the original table covered the period March 31, 2004 through December 31, 2009.

[79] The 2Q 2008/09 short term debt is identified as $165,691,000, and the 3Q 2008/09 short term debt balance is identified as $168,466,000. Assuming an average balance of approximately $167 million, and a spread of 99 basis points, the quarterly profit to Hydro would have been approximately $413,000.

[80] Order 128/09 page 56 of 139. The data in the table in CAC/MSOS/Centra 1-9 (d), shows 2 periods in which Hydro's short term funding cost was equal to or greater than the average 1 month BA rate. The excess in those 2 periods averaged 5 basis points. In 13 other periods, the Hydro cost of funding was lower than the average 1 month BA rate. In those 13 periods, the average profit to Hydro was 37 basis points, and in five of those 13 periods, the average spread to Hydro was in excess of 50 basis points.

[81] Order 128/09 page 58 of 139.

[82] Order 128/09 at page 63 of 139. "The Board understands the administrative simplicity of charging the one-month Bloomberg banker's acceptance rate, however the Board believes that any short-term debt advances should be provided on a cost recovery basis.

Order 128/09 was issued September 16, 2009. While Centra had prior thereto enjoyed access to short term financings at rates approximating 1 month BAs, on February 22, 2010, Centra entered into CG10, a $35 million financing at a rate based on 3 month BAs, and a spread of 48.4 basis points. Ignoring any spread between 1 month and 3 month BAs[83] [84], the 48.4 basis point spread incorporates a $169,000 annual additional interest cost over the short term rate with "true-up" which Centra had enjoyed before.

Manitoba Hydro's access to short term debt appears unchanged at $500 million. The Board, in Order 128/09 also commented on the integration of the financing function and noted "that Centra's needs should "trump" consolidated perspectives"[85]. I do not understand how imposing a spread of at least 48.4 basis points[86] on Centra through the CG10 issue, where no spread was payable before, serves Centra's needs.

The process of pushing the lowest cost funding out of Centra's capital structure is forecast to continue. Tab 9 at page 60 of 63 indicates a $15 million principal amount of floating rate debt would be issued in March 2014. That issue is forecast to have an interest rate of 3 month BAs plus a spread of 45 basis points. Ignoring any spread between 1 month and 3 month BAs[87], the 45 basis point

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For administrative purposes, the Board accepts that it will remain appropriate for MH to charge Centra the one month banker's acceptance rate, as it is a readily available number. However, the Board will expect a true-up and adjustment on a quarterly basis to ensure there has been no over or under-recovery of short-term finance costs charged to Centra." See also Order 128/09 at page 137 of 139.

[83] For the period February 22, 2010 through May 23 2013, the spread between the average daily 1 month BA rate, Bank of Canada series V39068, and the average daily 3 month BA rate, series V39071, was 8 basis points. Adding the 8 basis points to the 48.4 basis point spread would increase the additional interest amount to $197,400 per year.

[84] Mr. McCormick acknowledges that Centra uses Bloomberg data for actual or forecasting purposes, rather than Bank of Canada data. Each of those sources use different sources of market pricing information which can give rise to variances. See CAC/MSOS/Centra 2-75, May 1, 2009 page 3 of 5 for a discussion of the Bank of Canada and Bloomberg different methodologies in collecting data.

[85] Order No. 128/09, September 16, 2009 page 63 of 139.

[86] The response to CAC/Centra I-14 (p) and note 5 in CAC/Centra I-19, seems to suggest that the 48.4 basis point spread is a manufactured rate calculated to create an economic equivalence in a swap transaction, rather than a rate reflecting the new issue market at the date of the transaction.

[87] Including the 8 basis point average spread between one and three month BAs would increase the cost to $79,500 per annum.

spread on this $15 million incorporates a $67,500 annual additional interest cost over the short term rate with "true-up" that Centra had enjoyed before. The total additional interest cost due to spread of the CG10 issue and the forecast $15 million issue is $236,500.[88]

Q.23 Did the recent arrival of the reply to CAC/Centra I-18 assist your understanding of this change in Centra's access to short term debt?

A. Yes. The consolidated tables attached to the recently delivered reply were quite interesting.

The tables indicate that in the 17 quarters from March 2009 to and including March 2013, Hydro has had a quarter end short term debt balance for seven of those quarters. Centra had, often substantial, quarter end short term debt balances in each of the 17 quarters. In all but 3 of those quarters, the quarter end Centra balance exceeded the consolidated or Hydro balance. This appears to suggest that Hydro is prefunding its short term financing requirements. The relative balances may also explain why the size of the true up amounts have become negligible.

Centra indicated "When Centra's short term debt balances exceeds Manitoba Hydro's short term debt balances, the weighted average index rate is utilized to calculate the adjusted interest cost."[89]

Q.24 Is there anything inherently wrong with a spread on the recent floating rate debt series?

A. No. Floating rate debt issues are commonly done with some credit spread. By way of example, in January 2011, Manitoba undertook a floating rate issue to mature April 19, 2016 with an interest rate based on CDOR plus 20 basis points. When I last looked at the issue, Bloomberg indicated that there was $480 million

[88] $67,500 + $167,000 = $236,500. Including the 8 basis point average spread between one and three month BAs would increase the cost to $276,900 per annum. $79,500 + $197,400= $276,900
[89] Page 7 of 7 CAC/Centra I-18.

outstanding[90]. Manitoba also undertook a floating rate issue in May 2011 to mature on September 15, 2016 with an interest rate based on CDOR plus 15 basis points. When I last looked at the details of that issue there was $350 million outstanding.

Regrettably, most of the information related to debt and interest rate issues in response to the first group of interrogatories only arrived on in the afternoon of May 24, 2013, so there has been limited time to analyze it. As such, I have been unable to collect data on the spread for the Canadian dollar floating rate issue undertaken by Manitoba in February 2010, or the 5 year floating rate issue announced in April 2010. So at this time, I am unable to comment on the reasonableness of the 48.4 basis point spread in the context of the spring 2010 new issue floating rate market. From the recently received description contained in note 5 of CAC/Centra, I-19, the 48.4 basis point spread was mathematically derived based on the assumptions therein set out to achieve a theoretical point of indifference related to the interest cost of debt series described therein.

Q.25 Can you comment on the timing of this policy change?

A. Yes.

The forecast debt levels in the 2009/10 Centra GRA had premised on continuing access to large amounts of short term spread free debt. Centra was also forecasting exclusively fixed rate long term debt. The interesting timing aspect, is that after the Board removed the interest rate advantage that Hydro was earning, Centra[91] altered its intention to do a fixed rate financing and undertook a floating rate financing.

Assuming that Centra has some limits for the proportion of floating rate debt in its capital structure, this recent $35 million dollar financing, and the forthcoming $15

[90] Page 51 of the Manitoba Form 18-K indicates an April 19, 2016 maturity for series C121, which was identified as having $430 million outstanding. See http://www.gov.mb.ca/finance/pdf/mb18k2012.pdf

[91] "Centra has no employees" Tab 5, page 28 of 30, lines 11-12. See Order No. 128/09 September 16, 2009, page 63 of 139. "With respect to advances from MH to Centra, the Board believes that MH should act in Centra's individual best interest when it comes to Centra's borrowing decisions, and that Centra's needs should "trump" consolidated perspectives." [Emphasis added]

million floating rate financing will consume room that was formerly available to be funded, without spread, through short term debt.

Q.26 Did the arrival of the reply to CAC/Centra I-19 on Friday May 24, assist your understanding of this change in Centra's access to short term debt?

A. Yes. In some respects it was quite helpful, in other respects raises questions that could have been posed in the second series had CAC/Centra I-19 arrived on a timely basis.

Firstly, the passage quoted from CAC/MSOS/MH I-175 (a), on page 5 of 10 of CAC/Centra I-19, notes that the use of short term is an "inappropriate" method of funding certain capital requirements. While that may be a plausible explanation for the policy change, it seems to represent an admission of "inappropriate" financing behavior in at least the 2006/07 and 2007/08 financial years[92], and clear intention during the 2009/10 Centra GRA to continue that "inappropriate" financing behavior in the forecast years, 2009/10 and 2010/11, as indicated by the balances shown in CAC/MSOS/Centra 1-1 (c).

On page 6 of 10 of CAC/Centra I-19, Centra provides, in the form of a chart, the actual values of Total Debt for 2009/10 and 2010/11, years that were the subject of forecasts in the 2009/10 Centra GRA. The actual pinnacle value was slightly over $350 million of total debt during 2009/10 and 2010/11. The forecast pinnacle value, during the 2009 Centra GRA, was over $455 million, perhaps supporting my observation that some portion of the variance between forecast interest cost and actual interest cost may have arisen due to factors other than financial markets.

Finally, footnote 6 on page 10 of 10 of CAC/Centra I-19, provides what I believe may be a new policy related to debt concentration. "The debt management strategy guidance for the concentration of refinancing risk is to have less than

[92] At page 6 of 10, Centra notes the high gas prices in 2005-06 and 2008/09, and observes that gas prices had fallen in the intervening years.

15% of the long term debt portfolio maturing within a fiscal year." We were most interested to see this policy as in previous years and hearings when we have inquired as to policies, objectives and guidelines, the responses tended to be restricted to interest coverage, debt equity ratios, and under questioning fixed and floating interest rate ratios. While we had frequently asked about policies concerning debt, we cannot recall such a guideline ever being mentioned. What is unclear, among other things, is when this new policy was developed, and whether it applies to Centra or only the consolidated entity since Hydro views its financing arrangements as integrated.

Should this new policy on debt concentration apply to Centra, it is not surprising that it did not come to our attention in the 2009/10 Centra GRA, in which we raised the issue of debt concentration in our evidence in pages 15 through 17. The problem of concentration which we identified in 2009 could not be made to conform with this policy until 2012 owing to the concentration of debt due to the large balances in Series CG 1[93], CG 3[94] and CG 5[95]. Those 3 debt series represented 73.4% of Centra's March 2004 debt and collectively represented 73.4% of Centra's debt, with approximately 37% of the debt maturing in one year.

In CAC/Centra I-19 we were advised:

> "Since the acquisition of Centra in 1999, Centra's debt portfolio has been in transition as the principles of Manitoba Hydro's Debt Management Strategy (including those to manage the interest rate risk with the debt portfolio arising from the use of short term debt and floating rate long term debt) have been applied to manage its debt."[96]

1999 to 2010[97] or 2013[98], seems a very long transition period.

[93] This series represented approximately 25% of Centra's 2004 debt.
[94] This series represented approximately 19% of Centra's 2004 debt
[95] This series represented approximately 30% of Centra's 2004 debt, and with another series maturing within a month, collectively placed approximately 37% of the debt in one year.
[96] The same sentence appears on page 6 of 11 of CAC/Centra I-14
[97] The year in which the percentage of Centra's debt maturing in any one year first dropped below 36%

In CAC/Centra I-14, Centra identifies debt series CG1 through CG4 as legacy issues. The February 2000, CG5[99] issue of $75 million of 10 year fixed rate debt, seemed designed to frustrate any balance or diversification of maturity dates, since when its principal amount is added to that of the $18 million series CG 4 issue, also due in 2010, they collectively represented almost 37% of Centra's then debt maturing in one year. Either the new 15% maturity policy did not exist in 2000, or those allocating the financing to Centra did not see the issue or financial risk of concentration of debt maturities on a Centra level.

As interesting as it is to learn of new policies in the IR process during a GRA, we would encourage the Board to require Centra in this GRA and Hydro in future GRAs, to clearly enumerate the policies which then apply to them, and, alert the Board to policy changes that have been implemented during the period since the last GRA.

Q.27 Do you accept the proposition that it is "conceptually flawed to represent floating rate debt as having less cost to the consumer than fixed rate debt"[100]?

A. No. I disagree with that proposition.

In fact, I am rather surprised that Centra would take that position in this hearing, since, in the 2009/10 Centra GRA, in CAC/MSOS/Centra 2-72 (e)(7), Centra observed that "Centra's customers have received the benefit of a lower cost of financing on the accumulated portion of STD".[101] In Coalition/MH I-85 in the Hydro 2008/09 GRA, Hydro noted the purpose of its target guidelines for floating rate debt were in place "to ensure that the Corporation provides rate payers with the economic benefits provided by floating rate debt (short-term interest rates are lower than long-term interest rates in a typical upward sloping yield)." Each of those earlier statements seem to directly challenge that proposition.

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[98] The year in which the percentage of Centra's debt maturing in any one year first dropped below 15%
[99] The term sheet for this issue was filed in PUB/Centra 49 (b) in the 2009/10 GRA.
[100] See footnote 3 of CAC/Centra I-12.
[101] I was unable to find any suggestion in the 2009/10 GRA that Centra then considered that its use of STD was in any way "inappropriate".

When markets are exhibiting a typical upward sloping or normal yield curve, which is the "normal" or most common condition, short term rates are lower than long term rates.

I do acknowledge that markets change and it is possible that over time short term rates in the future market could exceed a long term fixed rate entered into at some earlier day. It is also possible that by going long too soon, a long term rate that looked attractive at one time[102] is less attractive in the context of a later market. The use of short term debt as part of a portfolio allows a borrower to gain a financial advantage or economic benefit, being the lower costs of funds, and those short term issues can be used to allow an issuer to defer a long term issue to a period in which it may anticipate more attractive market conditions.

In CAC/MSOS/MH I-150, Hydro provided a very clear chart showing the gross interest cost in percentage terms for 5 data series, covering both US and Canadian, fixed and floating rate debt, on an actual and then forecast basis covering 2003/04 through 2011/12. It should be no surprise that throughout that period the US and Canadian floating rate and short term interest rate series both are materially below the comparable series for fixed rate debt.

Q.28 Do you accept the proposition that "At the date of debt origination, the Corporation is economically indifferent between either fixed or floating rate debt for the same term to maturity?[103]

A. As Centra has, until recently, demonstrated a propensity to do fixed rate debt long term debt to the exclusion of floating rate debt, the question of economic

[102] For an example, compare the coupon and other terms of the 2030 and 2037 maturities undertaken in 2010 with the coupon and other terms of the 2033 and 2042 maturities undertaken in 2012, detail of which are found in PUB/Centra I-43.
Series 11, February 2010, 4.726% maturing February 2030.
Series 12, February 2010, 4.638% maturing August 2037.
Series 16, September 2012, 3.281% maturing September 2033.
Series 17, September 2012, 3.413% maturing September 2042.
In its Rebuttal Evidence in the 2009/10 Centra GRA, May 29, 2009, Centra noted "There are significant downside risks associated with not locking in long term rates if they are at historic lows." I would observe that there can be risks or future costs of locking in long term rates too soon.

[103] See note 3 paragraph 3, of CAC/Centra I-12.

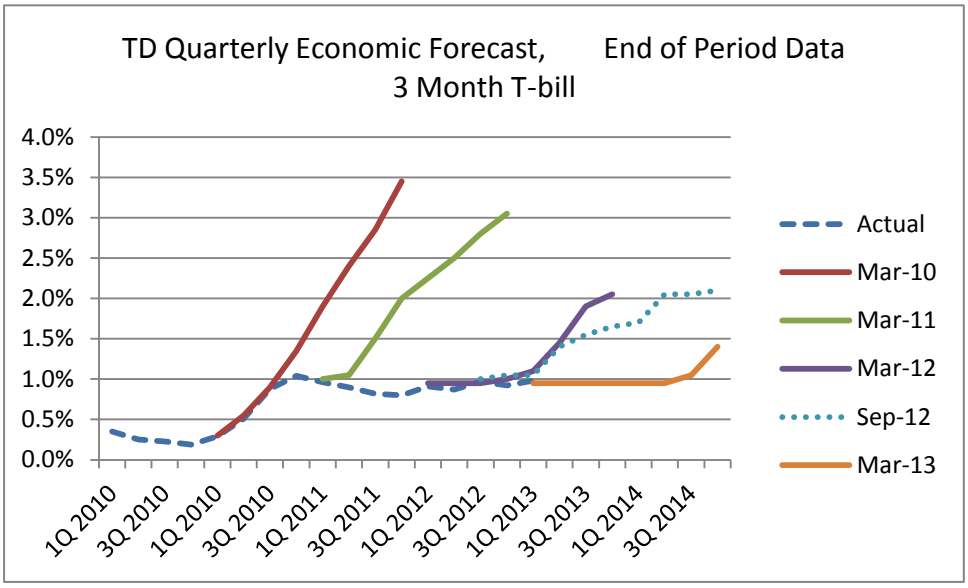
indifference would appear to have been made subservient or secondary to other factors.

Centra explains this calculated indifference point with an example that focuses on its interest rate forecast as the driver. Centra observes "For example, for the forecasted long term debt issuance in March 2014, while floating rate long term debt interest rates are projected to be less than the fixed rates in the early years of the debt stream, at the back end of the debt stream, the interest payments on the floating rate long term debt are projected to exceed those of the fixed rate long term debt"[104]. With this example we can see that the state of indifference exists as a result of the interest rate forecasts for "the early years" and "the back end of the debt steam".

At an earlier point of this document I have provided two charts showing various Desjardins and TD forecasts for long term rates from as various successive dates between January 2008 and March 2013. All of the forecasts charted were upward sloping in that there were lower rates in the earlier periods and higher rates in the "back end".

As the discussion of indifference relates to short term rates, I thought it helpful to provide a chart showing the TD forecast of T-bill rates for several recent periods.

[104] CAC/Centra I-12 footnote 3, paragraph 3. As there does not appear to be a maturity date indicated in the documentation filed, the length of the period described as the "`back end of the debt stream" is uncertain. The long term portion is forecast to have a 20 year term, and if the floating portion is swapped, it may have a similar term.



The TD forecasts of March 2010 and March 2011 each progonsticate significant increases in T-bill rates over their 2 year span, and, in each instance in the ultimate quarterly data point forecast were 245 basis points or 213 basis points higher than the actual interest rate that prevailed 2 years later. The more recent forecasts are more moderate in their expectation of the degree of the prospective increase in rates and the immeadicacy with which the increase may commence. While the right shape of forecast curve from one of the many forecasters, may allow the calculation of an indifference point, the weak link in the exercise is that forecasters are less than perfect in their prognostications of interest rates, particularly as it relates to the "back end of the debt stream". Owing to my views of the accuracy of interest rate forecasts, I am unwilling to place any great weight on the concept of calculated indifference.

Q.29 Were there other matters related to the forecast interest rates which you wished to comment on?

A. Yes. As one of the components of the forecast total interest cost, Centra seeks to include in its forecast revenue requirement, the forecast 10 year + rate and a forecast credit spread. To better understand the forecast credit spread, in

CAC/Centra I-12 (h) we sought details on the credit spreads of the issues for which term sheets had been requested in PUB/Centra I-43.

In its reply to CAC/Centra I-12 (h) Centra did not provide the requested comparison on the Centra interest rate to the relevant Canada bond of proximate term. This request was similar to the information requested and supplied in CAC/MSOS/Centra 1-4 (c) and (d), and included spreads depending on the issue, 70.5 basis points in one example. While some of the Centra debt series, CG 8 for example, seem clearly linked to particular Manitoba financing in date, term, coupon and yield, others are less clearly linked[105]. Regretfully, the delay in receiving an answer to this first series question has prevented follow up questions in the second series.

I was also interested in Centra's views and policies as to the appropriate levels of short term and floating rate debt in the Centra capital structure and in Centra's forecast of new debt to be issued within the GRA process. While Hydro at one time had a policy of forecasting all of its new long term debt as fixed rate debt[106], it amended that policy to reflect that a portion of its debt issues were undertaken on a floating rate basis. Centra's current capital structure includes a $35 million principal amount of floating rate debt, Series CG10[107]. Tab 9 at page 60 of 63 indicates a $15 million principal amount of floating rate debt would be issued in March 2014. To better understand the Centra's policies on floating rate debt and its views on prudent levels of interest rate stability, in CAC/Centra I-14 (i and p) and CAC/Centra I-17 and 19, sought more information on these topics.

[105] The CG9 "September" issue with a coupon of 5.1745%, is described as having its "coupon rate assigned" based on a June debt series, FK-2. The Manitoba 18-K at page 51 refers to series FK as having a 4.65% coupon. Series CG10, a floating rate issue maturing in 2015 is described, in PUB/Centra I-43, as having its interest rate "assigned" based on "Series FM-4". The Manitoba 18-K at page 51 refers to series FM as maturing in 2014 with a 3.05% coupon. Series CG11, maturing in 2030 is described, in PUB/Centra I-43, as having its interest rate "assigned" based on "Series FN". The Manitoba 18-K at page 51 refers to series FN as maturing in 2050. Series CG12, maturing in 2037 is described, in PUB/Centra I-43, as having its interest rate "assigned" based on "Series C109". The Manitoba 18-K at page 52 refers to series C109 as maturing in 2063.

[106] See CAC/MSOS/ MH I-143 (a) "For the purposes of the forecast, all new long term debt is assumed to be Canadian dollar 30 year fixed rate financing".

[107] See PUB/Centra I-43 for the term sheet for this issue.

Regrettably, we received incomplete replies to several of these questions and the delay of receiving an answer to this first series question has prevented follow up questions in the second series.[108] .

While in this current GRA, Centra has forecast more than 20% of new debt on the basis of a floating rate instruments, its policy for future years has, as yet, not been clarified.

Q.30 Do you also have concerns with the forecast floating rate for the new long term floating rate debt issue forecast for March 2014?

A. Yes. I have two concerns with the forecast rates for near term issues in this circumstance. The first is that while we may have a precise date for the issue, we use a blunt instrument in the form of the average interest rate forecast for the fiscal year as the base rate. As we are forecasting an action to take place in a relatively narrow time period, the use of a quarterly forecast as opposed to an annual forecast would appear to increase the precision of the forecast[109]. As I addressed the concern with calculating a precise rate for the relevant quarter and then averaging it with 3 other quarters at some length in my 2009 evidence, I will not repeat that discussion here.

My second concern is that the base rate has been forecast using superseded data. The forecast for the floating rate issue of uncertain term to be done at a spread of 45 basis points intended for March 2014 also suffered from the same use of superseded or materially changed data points discussed above.

Assuming that Centra is correct in its timing and that these issues will be done close to the month end, if we look at the changes in the T-bill forecasts as

[108] By way of example, being aware that Manitoba has issued floating rate instruments with terms of 5 and 15 years, including series C123 and D166, we requested the spreads applicable to a series of alternative terms for floating rate instruments**,** in CAC/Centra I-14 (p) but received partial data.

[109] Using the data in Table 1 of PUB/Centra II -141 to provide an example, the average forecast value for fiscal 2014/15 is 2.10%. The forecast value for the first quarter of 2014, in which the issue is expected is 1.66%, resulting in a difference of approximately 45 basis points. Using the same sample of 7 publically available forecasters presented in an earlier table, their current average T-bill forecast for 1Q 2014 is 1% and the average for calendar year 2014 is approximately 1.1%.

indicative of the change in the reference rate for the floating rate issue, CIBC in September 2012 had forecast a March 31, 2014 end period T-bill rate of 1.45%. The May 8, 2013 CIBC forecast is for a 0.95% T-bill rate. Desjardins in fall 2012 had forecast an end period T-bill rate of 1.55%. The current April 25 2013 forecast is for a 1.00% T-bill rate. Directionally, these two forecasters would suggest a reduction in forecast base rate of approximately 50 basis points[110].

To appropriately compensate Centra for the anticipated financings in March 2014, I would recommend that the Board incorporate the current forecast of financing costs into the revenue requirement for both the floating and fixed rate[111] March 2014 forecast issues, rather than the forecast costs identified in the application based on fall 2012 forecasts.

Q.31 Are you aware of the Board's comments in Order 128/09 with respect to "Centra's individual best interest"?

A. Yes. I agree with the view expressed by the Board.

"With respect to advances from MH to Centra, the Board believes that MH should act in Centra's individual best interest when it comes to Centra's borrowing decisions, and that Centra's needs should "trump" consolidated perspectives."[112]

I have already commented on the apparent end to Centra's free access to spread free short term debt. There are at least two areas where there appears to have been some inattention to Centra's individual best interest in past years. One of these areas related to the weighted average term to maturity of debt and the other relates to the allocation between fixed and floating rate debt.

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[110] Additional data points on the change in other forecasters March 31 T bill values between September and May are found in a table comparing the forecasts earlier in this document.

[111] Using the data in Table 2 of PUB/Centra II -141 to provide an example, the average forecast value for fiscal 2014/15 is 3.20%. The forecast value for the first quarter of 2014, in which the issue is expected is 2.86%, resulting in a difference of approximately 35 basis points. Using the same sample of 7 publically available forecasters presented in an earlier table related to T-bill forecasts, their current average 10 Year + forecast for 1Q 2014 is 2.55% and the average for calendar year 2014 is approximately 2.83%.

[112] Order No. 128/09 September 16, 2009, page 63 of 139. "With respect to advances from MH to Centra, the Board believes that MH should act in Centra's individual best interest when it comes to Centra's borrowing decisions, and that Centra's needs should "trump" consolidated perspectives."

Q.32 What is the weighted average term to maturity of debt?

A. The weighted average term to maturity of debt is a calculation in which one multiplies the principal amount of debt issues by their remaining life in years and divides the calculated value by the total principal amount. It is one of a number of ways that the characteristics of a debt portfolio could be described.

It is often suggested that it is an appropriate corporate financing practice to fund long life assets with long-term debt[113]. Regrettably, there are a number of other factors at work, that make it impossible to precisely match the maturity of financing with the declining life and value of assets. For example, assets depreciate at different rates, while many issues are "bullet" issues in which the full principal is repaid at maturity. Issuers' choices are effected both by current market conditions and appetites[114] and their expectations of future market conditions.

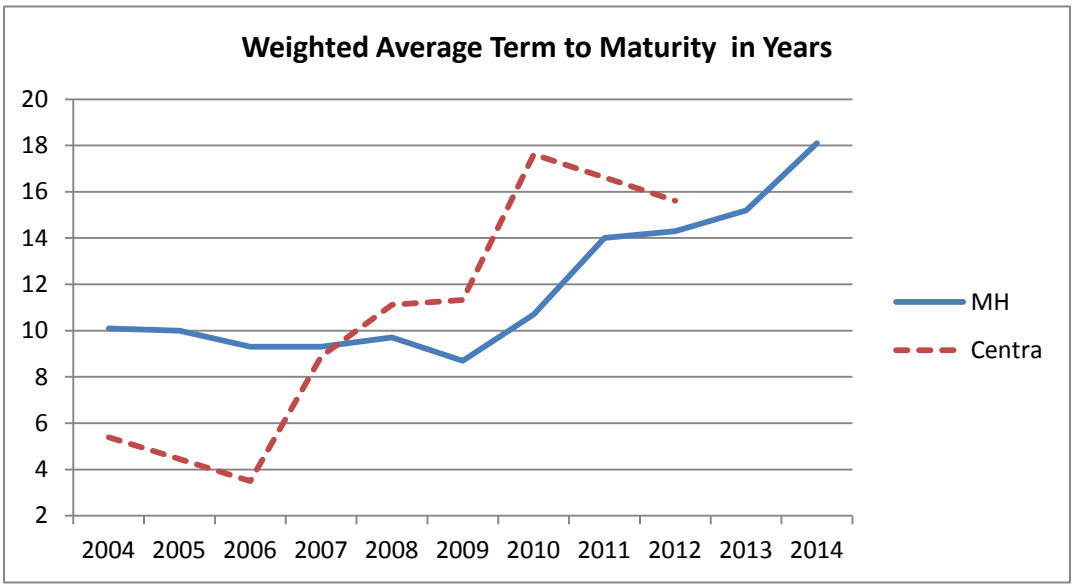
Both Hydro and Centra have long life assets. The financial statements of Hydro indicate that the range of service lives for some of its asset categories extend to terms of 65, 75, 85 and 125 years[115]. The Centra financial statements[116] also indicate service lives extend to terms of 45 and 65 years. Neither financial statement provides an average of the remaining lives of its various assets. The longer service lives of Hydro assets, and the fact that Hydro has been heavily investing in new facilities suggest that it would be appropriate for Hydro to have a longer weighted average term to maturity in its debt portfolio relative to Centra.

Financing long service life assets utilizing short or medium term financing may expose ratepayers to the risk of incurring higher interest rates upon refinancing. The near term benefit is that short or medium term financing, in a normal yield

[113] See Order No. 128/09 September 16, 2009, "Centra further stated it was an appropriate corporate financing practice to fund long term assets with long-term debt, noting that Centra's capital assets portfolio has service lives exceeding 30 years and that utilizing short or medium term financing exposes ratepayers to the risk of incurring higher interest rates upon refinancing."
[114] Hydro discussed some of this factors and its then expectations of short term rates which were "projected to rise faster than the long term interest rates" in CAC/MSOS/MH I-148 (b) from an earlier proceeding.
[115] See page 63 of the 61st Annual Report
[116] See page 8 of 22, of appendix 5.4.

curve environment, saves today's generation of consumers and ratepayers cash. The current benefit of short or medium term financing, assuming a normal yield curve, is certain. The future costs, if any, are uncertain. I would observe that terming out an obligation only changes the time at which the issuer faces the refinancing risk, it does not eliminate it.

The chart below presents actual and then forecast data points found in CAC/MSOS/MH II-148 (b) and CAC/MSOS/Centra I-5 (a) in prior proceedings.



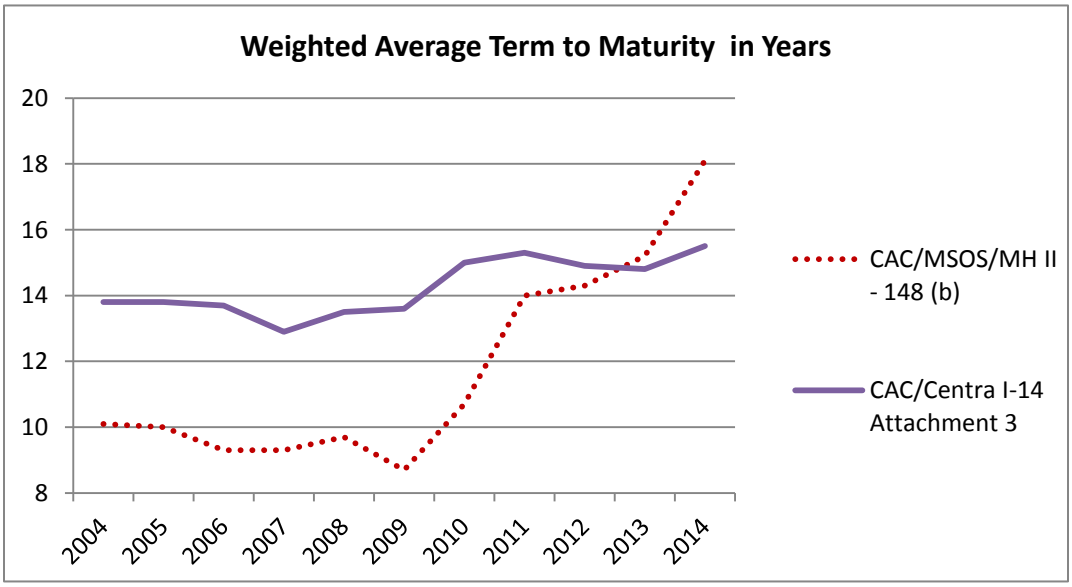
This chart indicates that a dramatic change in Centra's weighted average term to maturity from a low of 3.49 years at March 31, 2006 to a forecasts level of over 15 years for March 2012. Based on the information concerning series 7 through 17 found in PUB/Centra I-43 (b), I would estimate a current weighted average life for those series of Centra's debt at just over 19 years.[117] With Centra, having now achieved what may be an unprecedented level of weighted average term to maturity and commensurate deferral of refinancing risk, one might wonder

[117] As I am uncertain of the methodology used to develop the values in the table above, I have not attempted to include the March 31 short term debt in this estimate.

whether it is now appropriate to investigate the lower current yield on available medium term debt.[118]

To better understand the changing levels of refinancing risk, access to lower cost financing alternatives and related Centra specific policies, CAC/Centra I-14 sought details on these topic. As Centra's reply many of the CAC/Centra questions was not available until May 24, it was difficult to comment in the absence of the requested data, but with the recently available response some questions arise. It would have been helpful to address these questions in the second series of interrogatories.

The table below compares the weighted average term to maturity data for Hydro as presented in CAC/MSOS/MH II-148 (b) and CAC/Centra I-14, Attachment 3 from this proceeding.



Clearly, the difference in the values suggests a difference in calculation methodology which remains unexplained. It is unclear whether either of the series are Hydro specific or consolidated, but owing to the relative size of Centra's debt, that difference would not account for the 3.7 year difference between 10.1 year value and 13.8 year value in 2004. The chart above would also

[118] Order No. 128/09 September 16, 2009, page 56 of 139 "Centra acknowledged that the current yield on medium term debt is less expensive than long-term debt, however one must also consider refinancing risk."

suggest that during this period of significant investment, Hydro has not been as aggressive in increasing the term of its debt as was anticipated in an earlier hearing, and perhaps thereby benefiting from the lower rates available in the prevailing normal yield curve.

Chart 6, in CAC/Centra I-14, appears to establish that this is new revisionist data line, is consolidated data. That being the case, we would observe that the comparison of consolidated data with Centra data in that chart would operate to slightly redue the apparent variance in each year as Centra data is included in the consolidated average.

Q.33 Would you explain your interest in discussing Centra policies relating to short-term debt?

A. The short answer to explain my interest in Centra's policies relating to short term debt is that much seems to have changed in since the last GRA.

At the time of the last Centra GRA, Centra did forecast healthy short term debt balances on a quarterly basis through to 4Q 2010/11, representing on average about 25.5% of total debt. Centra also indicated that it had "no floating rate long term debt outstanding during periods from 2004/05 to 2010/11."[119] Centra has since done one floating rate issue in February 2010[120] and is indicating another for March 2014[121]. As Centra provided that answer in March of 2009, clearly the comment with respect to 2010/11 must be considered prospective. I would also point out that forecasting a long term fixed rate debt instrument and issuing a shorter term floating rate instrument may be a factor in explaining the upward bias in Centra's forecasting of interest costs as measured in PUB/Centra I-42 (b)

At the time Centra commented disavowing "floating rate long term debt" to 2010/11, Hydro had a policy to forecast its interest rate costs on 100% of its new debt at its various long term fixed forecast interest rate. Subsequently, Hydro

[119] See CAC/MSOS/Centra I-1 (e) dated March 31, 2009 from the Centra 2009/10 GRA.
[120] See PUB/Centra I-43 for information about series 10.
[121] See Tab 9 page 59 and 60 of 63.

altered that forecast policy to reflect that at a minimum 20% of its new debt would be assumed to be financed using floating rate instruments[122].

In looking at the calculation of "STD/Total" in CAC/MSOS/Centra 1-1(c) from the Centra 2009/10 GRA, one can see on a quarterly basis, "STD/Total" has varied from a low of about 3.7% to high of over 41.4% during the period 1Q 2004/05 through the forecast for 4Q 2010/11. Series 10, the currently outstanding floating rate issue, represents about 11.9% of the principal identified in PUB/Centra I-43 (b). With the addition of a forecast $15 million floating rate issue in 2014, the floating portion of long term debt would be approximately 15% of the then long term debt. With this background, schedules 9.7.1 through 9.7.5 show very low levels of short term debt in the capital structure. As such, the proportion of floating rate and short term debt is forecast to be significantly reduced from the 25% average level that was being forecast in the last Centra GRA.

The information we received with respect to Centra's short term borrowing policy in the 2009 proceeding was expressed in a number of ways in the various IR responses. In CAC/MSOS/Centra 1-6 b, c and d in the Centra 2009 GRA, we are told "Centra targets to keep the floating rate debt between 15-30% of the total debt portfolio at the fiscal year end"[123]. For 2012/13, it appears uncertain that minimum year end target may will be met. In 2009, in CAC/MSOS/Centra 2-72 d, we learned that for certain periods, including "2010/11 there have been no changes in Centra's risk tolerance with respect to short term or floating rate debt". The increase in the floating portion of long term debt does not seem to maintain

[122] My evidence in the Manitoba Hydro 2010/11 & 2011/12 General Rate Application, beginning at page 8, drew attention to the discontinuity of Hydro forecasting all new debt as 30 year Canadian dollar fixed rate debt, while frequently issuing floating rate instruments at lower interest levels. I also recommended that a portion of forecast new debt be forecast based on Hydro's policy to maintain a portion of floating rate debt. See also Q.11 on page 14.

[123] To underscore some of the subtle differences between Hydro and Centra policies relating to various aspect of their respective debt portfolios, in CAC/MSOS/MH II-119 (REVISED) in a prior hearing Hydro had a "longstanding corporate practice to be in compliance with the target range at year-end." That target range was ""15 -25%".

the approximate 25% average level of floating and short term debt maintained between 2004/05 and 2008/09, perhaps suggesting a change in risk tolerance.

To better understand the changing levels of short term and floating rate debt, and related Centra specific policies, CAC/Centra I-17 and 18 sought details on these topics. As I have already reviewed the disclosure that the long standing practice of using relatively large amounts of short term debt was " inappropriate", I will not repeat that discussion.

Q.34 Are there any facts relevant to the issues on the record of this proceeding that you would like to bring forward?

A Yes. In our discussion of interest rates, I thought it might be helpful for the Board to have a table of recent Bloomberg data showing the indicated yield curve for Manitoba.

Term	Yield May 13, 2013
3 Months	1.0600%
6 Months	1.0838%
3 Years	1.3508%
5 Years	1.7992%
10 Years	2.9178%
15 Years	3.3348%
20 Years	3.4894%
30 Years	3.5103%

Conclusion

Q.35 Please review your conclusions.

A. I am of the opinion that the underlying data used to develop the financial forecasts for T-Bill and 10 Year + Canada rates is both outdated and materially different from current forecasts readily available in the market.

I am of the opinion that to attempt to base the interest component of the revenue requirement on financial forecasts of T-bill and 10 year + Canada rates which are

based on superseded data is unwise, and owing to the material difference between the original data inputs and those currently available, is prejudicial to consumers.

I am of the opinion that the Board should establish a policy that Centra would provide a update of its forecast interest rates, at each proceeding.

I am of the opinion that to reduce the degree of the upward bias in Centra's forecasting, the Board should remove Informetrica, the source of the highest forecasts in Table 1 and Table 2, in PUB/Centra I-6, from its calculation of forecast interest rates used to derive near term interest costs.

Q.36 Does this conclude your evidence?

A. Yes.

ATTACHMENT 1

PROFESSIONAL QUALIFICATIONS OF JOHN D. McCORMICK

Academic Training

LL.B. from the University of Alberta (1978)
M.B.A. in Accounting from the University of Alberta (1975)
B.A. in Political Science, from the University of Calgary (1972)

Professional Organizations

Law Society of Alberta [Inactive]

Professional Experience

September 1975 - May 1978 - Sessional Lecturer for the Department of Accounting, the Faculty of Business Administration and Commerce, the University of Alberta

June 1978 - March 1983 – Barrister & Solicitor and Articling Student, Parlee, Irving, Henning, Mustard & Rodney, Edmonton

September 1980 - May 1982 - Sessional Lecturer (M.B.A. Tax) for the Department of Legal and Industrial Relations, the Faculty of Business Administration and Commerce, the University of Alberta

March 1983 - October 1991 – Associate rising to Vice-President and Director, ScotiaMcLeod, Toronto and Calgary

> In this capacity, Mr. McCormick represented the firm in transactions ranging from small private placements to major financings including the initial public offerings of Telus and Petro-Canada. The transactions included the issuance of preferred and common shares, special warrants, rights, warrants, partnership units, and trust and royalty units . . . domestic deals and crossborder financings. He executed approximately $5 billion of financing, wrote five trust deeds for major borrowers in the energy industry covering secured and unsecured obligations in the domestic and European markets, and assisted a major airline to renegotiate the terms of its convertible debentures with key financial institutions. In the utility area, he provided coverage of a number of western Canadian utility issuers including Nova, Alberta Natural Gas and Foothills Pipe Lines. He developed expertise in a number of industries including Canadian energy and petroleum services, pipelines, basic and specialty chemicals, airlines, pulp and forest products, telephone and telecommunications, and magnesium.

November 1991 – January 1994 – President, J. D. McCormick Financial Services, Inc., Calgary

January 1994 – January 1997 – Vice-President & Director, Levesque Beaubien Geoffrion, Calgary

In this capacity, Mr. McCormick was responsible for account coverage of over 125 account relationships in Alberta, British Columbia and Saskatchewan. He gained additional expertise in the banking, gold and satellite communications industries.

January 1997 – October 1997 – President, J. D. McCormick Financial Services, Inc., Calgary

October 1997 - May 1998 – Sprott Securities, Calgary

May 1998 – present – President, J. D. McCormick Financial Services, Inc., Calgary

In this capacity, Mr. McCormick secured and executed valuation and financial advice assignments with junior and senior public companies and government. He assisted a senior issuer in a securitization transaction. He provided financial advice with respect to the recapitalization of Sunoma and Barrington, which had over $400 million in debt, fairness opinions to directors of TSE, CDNX and ASE listed companies. He provided financial advice in respect of several oil and gas industry merger and acquisition assignments, including advice to Tappit in respect of its attempted $13 million hostile takeover of Backer, and expert testimony or reports in three securities cases in Alberta and Saskatchewan. Among other things, he was retained to provide, strategic advice with respect to several corporate reorganizations, a valuation of a U.S. corporation with equity valued at over $200 million and strategic advice to its owner, advice in respect of a $15 million equity financing, the negotiation of a long term joint venture, disposition of an oil services firm, and, advice in respect of software company concerning a private placement by a major industry partner.

Previous Expert Reports

Mr. McCormick was retained by the Alberta Energy and Utilities Board to give evidence at the 2000 Pool Price Deferral Accounts Proceeding, which resulted in Decision 2001-092.

He was also retained by the Canadian Association of Petroleum Producers to give evidence at the TransCanada Pipelines 2001 and 2002 Fair Return Application proceeding, which resulted in Decision RH-4-2001.

Mr. McCormick was retained by The City of Calgary to give evidence before the Alberta Energy and Utilities Board in respect of the AltaLink proceeding, which resulted in Decision 2003-061, the ATCO Gas proceeding which resulted in Decision 2003-072, the ATCO Electric proceeding which resulted in Decision 2003-071, and the ATCO Pipelines proceeding which resulted in Decision 2003-100. Mr. McCormick was retained by the Canadian Association of Petroleum Producers and The City of Calgary in respect of the Generic Cost of Capital proceeding which resulted in Decision 2004-052.

Mr. McCormick was retained by the B. C. Old Age Pensioners Organization to give evidence before the British Columbia Utilities Commission in respect of the Application of Pacific Northern Gas to Recapitalize under an Income Trust Ownership Structure, which resulted in a decision dated September 9, 2005.

Mr. McCormick was retained by AltaGas Utilities Inc. to file evidence in respect of its review and variance application related to the cost of funds allowed in respect to a $30,000,000 financing.

In the Province of Manitoba, Mr. McCormick was retained to provide evidence in the Centra Gas Manitoba 2009/10 & 2010/11 Rate Application which resulted in Order 128/09, and the Manitoba Hydro 2010/11 & 2011/12 Rate Application.

Mr. McCormick was also retained by the East Coast Producer Group, [Encana, Imperial, Exxon Mobil, Mosbacher, Pengrowth and Shell], whose gas production from the east coast offshore fields was transported on Maritimes & Northeast Pipeline, to give evidence before the National Energy Board, related to a claim for additional equity return as a result of triggering an escrow provision in a 1999 debt financing, and which resulted in Decision RH-4-2010, issued in June 2011.

He has provided expert reports in respect of a number of lawsuits related to securities matters.

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MANITOBA PUBLIC UTILITIES BOARD

IN THE MATTER OF the Public Utilities Board Act (Manitoba)

AND IN THE MATTER OF Centra Gas Manitoba Inc.
2013/14 General Rate Application

REBUTTAL EVIDENCE OF CENTRA GAS MANITOBA INC.

WITH RESPECT TO THE WRITTEN EVIDENCE OF
John D. McCormick on behalf of
Consumers Association of Canada (Manitoba)
(CAC)

CENTRA GAS MANITOBA INC.
2013/14 GENERAL RATE APPLICATION

REBUTTAL EVIDENCE
INDEX

1.0 Introduction

On January 25, 2013, Centra filed its General Rate Application ("GRA") requesting approval of natural gas rates to be implemented August 1, 2013. On May 10, 2013 Centra updated its Application to include a Cost of Gas based on the April 2, 2013 forward price strip. On May 27, 2013 the Consumers Association of Canada (Manitoba) ("CAC") filed the evidence of John D. McCormick which dealt with Centra's interest rate forecasting and other financing related matters. On June 5, 2013 the Consumers Association of Canada (Manitoba) ("CAC") filed evidence of John D. McCormick in response to information requests from the Public Utilities Board.

The purpose of this Rebuttal Evidence is to provide Centra's response with respect to the pre-filed evidence of Mr. J. McCormick.

2.0 Evidence of Mr. John D. McCormick

Mr. McCormick's opinions and recommendations pertain to Centra's interest rate forecasting and debt management practices. This Rebuttal Evidence will address both of these topic areas. The tables on the following pages provide a summary of Mr. McCormick's stated opinions, along with Centra's corresponding response.

Centra's rebuttal evidence will demonstrate that the update changes to interest rates forecasts for 2013/14 and their associated impact are immaterial. Centra's interest rate forecast is unbiased and Centra does not support removing forecasters in order to purposely bias the forecast. Contrary to Mr. McCormick's suggestions, there is no uncorrected upward bias in Centra's forecast methodology. Centra has complied with Directive 9 from Order 128/09; the matter of retrospective testing has been extensively canvassed and Centra considers that Directive 9 has been settled. Mr. McCormick's recommended Government of Canada 10 Year+ interest rate for the 2013/14 is unlikely to occur. Centra's approach of continuing to use short term debt for temporary purposes is appropriate. The interest rates assigned to all of Centra's existing long term advances are based on actual MHEB financings, and Centra is of the view that the interest rate on its long term issues are reasonable. Centra's refinancing risk has been significantly reduced through the debt management activities undertaken by the Corporation during the past few years.

Interest Rate Forecasting	
Mr. McCormick's Opinion	**Centra's Response**
1. "I am of the opinion that the underlying data used to develop the financial forecasts for T-Bill and 10 Year + Canada rates is both outdated and materially different from current forecasts readily available in the market."[1]	**The interest rate forecasts are current and update changes for 2013/14 are immaterial.** Centra utilized current interest rate forecasts during the development of the initial Application. The updated interest rate forecasts in the 2013 Spring Economic Outlook for 2013/14 are not materially different from those in the initial Application.[2]
2. "I am of the opinion that to attempt to base the interest component of the revenue requirement on financial forecasts of T-bill and 10 year+ Canada rates which are based on superseded data is unwise, and, owing to the material difference between the original data inputs and those currently available, is prejudicial to consumers."[3]	**The revenue requirement was developed using current interest rate information and update changes for 2013/14 are immaterial.** Centra utilized current interest rate forecasts during the development of the initial Application. The Corporation has provided an update of its forecast interest rates. The changes for 2013/14 are minor and do not materially impact the revenue requirement.

1 From the Executive Summary to the *Written Evidence of John D. McCormick on Behalf of Consumers Association of Canada (Manitoba) Ltd*., dated May 27, 2013.

2 For the 2013 Spring Economic Outlook and the updated interest rate forecasts, please see revised response to PUB/Centra II-141(d). For the financial impacts to finance expense associated with the updated interest rates, please see Centra's updated response to PUB/Centra I-9(b). This response demonstrates that the inclusion of the interest rates from the 2013 Spring Economic Outlook (with a 25 basis point reduction in the 3 month Canadian T-Bill rate and a 30 basis point reduction in the CDOR03 interest rate) would reduce the revenue requirement by less than one tenth of one percent. For the 2013/14 test year, the revenue requirement is not affected by the 20 basis point increase in the forecasted 10 Year+ long term interest rate as the new long term debt financing is forecasted in IFF12 to occur at the end of the fiscal year.

3 Mr. McCormick's Written Evidence, Executive Summary.

Interest Rate Forecasting	
Mr. McCormick's Opinion	**Centra's Response**
3. "I am of the opinion that to reduce the degree of upward bias in Centra's forecasting, the Board should remove Informetrica, the source of the highest forecasts in Table 1 and Table 2, in PUB/Centra I-6, from its calculation of forecast interest rates used to derive near term interest costs." [4]	**The interest rate forecast is unbiased** as it is not developed with the intent of selecting or encouraging one outcome over others. From a risk management perspective, the externally produced source information provides beneficial insight into the expressed range and distribution of potential interest rates.[5] **Centra does not support removing forecasters from the pool** in order to purposely bias the combined forecast. Mr. McCormick's opinion that the Board should remove Informetrica in order to produce a lower forecast result demonstrates selection bias. Note that the removal of Informetrica would increase the 2013 Spring Economic Outlook interest rate forecast for 2013/14.[6] Centra believes that it is a mischaracterization to refer to **Centra's ability to successfully take advantage of the prolonged low interest rate environment**[7] as "*a chronic uncorrected upward bias in the results of the forecast methodology when compared to actual results*." [8]

4 Mr. McCormick's Written Evidence, Executive Summary.

5 As per Centra's response to CAC/Centra I-13 footnote 2. The forecast range is also graphically depicted on Chart 4 in the Debt Management Strategy (see Centra's response to CAC/Centra I-14).

6 Mr. McCormick's recommendation to remove **Informetrica** also ignores the fact that Informetrica is a respected economic forecaster with a wide array of clients including the Government of Canada; Ontario Ministry of Energy; Enbridge; and the Canadian Council on Social Development. For the impact of removing Informetrica, please see Centra's revised response to PUB/Centra II-141(d).

Centra notes Mr. McCormick's inconsistent views regarding the inclusion or exclusion of **National Bank**. On June 7, 2011, Mr. McCormick stated in his oral testimony at the 2010/11 & 2011/12 Electric GRA that: **"I would vote off everybody except for National and Scotia** because of the sample that I took and played around with, back-of-the-envelope effort, I got the lowest variance from reality by choosing those two (2) forecasters." Centra observes that although Mr. McCormick subsequently cited a small data sample when he qualified this assessment under cross examination by PUB counsel, he has again revisited his analysis on page 9 lines 16-26 of his Written Evidence.

In contrast, on page 2 of his Written Evidence in this Application, Mr. McCormick states that "I would delete (National Bank) due to the manner of its discontinuous data presentation" and on page 12 he states that he is **"unsure what, if any, special value National Bank currently adds to the resulting forecast."**

As evidenced in Centra's response to CAC/Centra II-47, National Bank's perceived discontinuity is easily accommodated by either of the two methods described by Centra (one of which Mr. McCormick subsequently utilized for his computations on pages 10-11 of his Written Evidence).

7 Wherein Centra reduced finance expense and the weighted average interest rate, and made these changes more permanent by fixing more of its debt portfolio, reducing interest rate risk and increasing the weighted average term to maturity.

8 Mr. McCormick's Written Evidence page 7.

Interest Rate Forecasting	
Mr. McCormick's Opinion	**Centra's Response**
4. Centra is non-compliant with some components of Order 128/09 Directive No. 9 regarding interest rate forecasting methodology (as per Mr. McCormick's response to PUB/CAC I-1).	**Centra has complied with Directive No. 9 interest rate forecasting adjustments.** Directive No. 9(d) on the retrospective testing of interest rate forecasters was extensively canvassed at the 2010/11 & 2011/12 Electric GRA. Centra considers that Directive No. 9 has been settled.[9]

[9] Centra has the following comments regarding Mr. McCormick's response to PUB/CAC I-1:

Directive No. 9(a). Regarding the use of all forecasts based on comparable average period data:

(1): The data for IHS Global Insight, Conference Board and Informetrica are period averages.

(2) (i): As described in PUB/Centra II-141(a), the cited data points in PUB/CAC I-1 footnote 2 were inadvertently left off of the original presentation of Tables 1 and 2 in Centra's response to PUB/Centra I-6. None of these amendments, changed the fiscal year interest rates as originally calculated in response to PUB/Centra I-6.

(2) (ii and iii): Regarding the National Bank data points, this matter is inconsequential to the interest rate forecast and the revenue requirement. As evidenced in Centra's response to CAC/Centra II-47, the perceived discontinuity is easily accommodated by either of the two methods described by Centra.

Directive No. 9(b). The use and alignment of current date interest rate forecasts has been incorporated into the Corporation's interest rate forecasting process since the economic downturn. See PUB/Centra II-141(b) for additional details. The Centra Application was developed following the approval of IFF12 (on November 20, 2012) and utilized information from the fall review to the Economic Outlook (using source forecasts from September – October 2012). Centra has provided its refreshed interest rate forecasts in the revised response to PUB/Centra II-141(d). As demonstrated in Centra's updated response to PUB/Centra I-9(b), the financial impact for 2013/14 associated with updating finance expense with the Spring 2013 Economic Outlook interest rates is minor and does not materially impact the revenue requirement (impact is less than one tenth of one percent).

Directive No. 9(c). The IFF utilizes fiscal period forecast rates. The quarterly interest rate precision within the IFF modeling as suggested by Mr. McCormick is not attainable. Although the forecasted new Centra debt issue is scheduled for the end of 2013/14, it is uncertain if all or part of the $30 million new cash requirement for cumulative long term capital financing will occur in 2013/14 or 2014/15. In accordance with Centra's debt management practices, short term debt will be used to bridge the timing.

Directive No. 9(d). The Corporation considers the matter of retrospective testing of interest rate forecasters to be settled. For a discussion on the topic of retrospective testing of interest rate forecasters, please see Centra's response to CAC/Centra I-10(a) and PUB/Centra II-141(b).

Directive No. 9(e). This matter has been settled.

Directive No. 9(f). The Corporation considers the matter of providing forecast updates in advance of the hearing to have been settled. The Corporation already provides base case interest rate forecasts and updates at each GRA proceeding. The Corporation has filed its Economic Outlook and provided requested updates to its base case forecasted interest rates at each of the two electric and gas GRAs and will continue to do so in future GRA filings.

Interest Rate Forecasting	
Mr. McCormick's Opinion	**Centra's Response**
5. "Mr. McCormick's recommended forecast long-term interest rate for the 2013/14 test year is 2.36%" [10]	**Mr. McCormick's rate for 2013/14 is below current market rates**. Mr. McCormick's recommended forecast Government of Canada 10 Year+ interest rate for the 2013/14 test year of **2.36%** is already 17 basis points below the actual market rate of **2.53%** as at June 11, 2013, and 21 basis points below the Bloomberg forward Canada 10 Year+ interest rate for March 31, 2014 of **2.57%**.[11] Note that the rate described by Mr. McCormick does not include transaction costs and credit spreads. The Spring Economic Outlook interest rate has a benchmark Government of Canada 10 Year+ rate of **2.50%** and after including spread and transaction costs, forecasts an all-in interest rate of 3.50% for 2013/14.
6. Mr. McCormick also calculates a Canadian T-Bill rate of 0.98%[12].	The 2013 Spring Economic Outlook T-Bill rate for 2013/14 is **1.05%**, and as of June 11, 2013 using Bloomberg data the actual 3 month Canadian T-Bill rate was **1.01%**, and the forward rate at March 31, 2014 which prices in market expectations was **1.22%** (Bloomberg FWCV, Canada Sovereign Curve).

[10] PUB/CAC I-8.

[11] As at June 11, 2013 (using Bloomberg data at 9:22 am), the Government of Canada 10 Year+ rate and curve was **2.53%**, and the BMO indicative all-in 10 Year+ rate including spread to Manitoba and transactions costs was 3.48%. The forward rate for the Government of Canada 10 Year+ rate at March 31, 2014 was **2.57**% (Bloomberg FWCV, Canada Sovereign Curve).

[12] PUB/CAC I-8.

Debt Management	
Mr. McCormick's Opinion	**Centra's Response**
7. "Mr. McCormick does not see an urgency to lock in long term rates. … As attractive as recent rates have been, maintaining a short term debt balance while awaiting a market opportunity may save the consumers some interest costs, both in the near term while the short term facility and in the longer term, as and when, a market window provides a more beneficial long term rate." [13] Regarding "the question of the price to be paid for the interest rate stability of issuing longer term debt, as opposed to issuing debt with a shorter term and facing, with some degree of concern or dread, the risk of higher interest rates at the point of refinancing. Our degree of concern or dread should be in decline." [14]	**The Corporation is of the view that it is inadvisable to wait on the sidelines while long term interest rates rise.** Mr. McCormick's proposed strategy to seek near term cost savings by maintaining a higher weighting of short term debt in the capital structure, is both risky and ill-timed given the expectation of rising interest rates. Excessive reliance on short term debt, floating rate long term debt or shorter dated fixed rate financings leaves Centra vulnerable to volatile and increasing debt service costs if rates increase; every refinancing brings with it the risk of rising financing costs. Portfolios with a large component of short term financing are subject to a higher risk of increased financing costs than those that make greater use of longer term financing.
8. "With respect to short term debt, Mr. McCormick would consider it reasonable to see a higher weighting of short term debt in the capital structure." [15]	**The Corporation will continue to utilize short term debt to borrow money for "temporary purposes"** under *The Manitoba Hydro Act*.[16] This includes supporting Centra's seasonal working capital requirements and to bridge the timing between long term debt issues. Short term debt will not be used to permanently fund capital construction.

[13] PUB/CAC I-6 lines 11-12 and lines 32-35. Also for his response to PUB/CAC I-6 lines 17-20, he states "As opposed to prefunding debt requirements, and having no balance outstanding in short term debt, Mr. McCormick would suggest it may be possible, and even one of the purposes of the short term debt facility, to use short term debt to provide cash while awaiting an opportune market window."

[14] In Mr. McCormick's response to PUB/Centra I-9 page 27 lines 18-21. After reviewing some historical interest rate data, in his response to PUB/CAC I-9, on page 28 lines 12-13 Mr. McCormick also suggests that there is a continued trend for "lower rather than higher rates." Centra observes that the forecasted interest rate Chart 4 in the Debt Management Strategy shows higher short and long interest rate forecasts in the future.

[15] PUB/CAC I-9 page 31 lines 18-19.

[16] Please see Centra's response to CAC/Centra I-19.

Debt Management	
Mr. McCormick's Opinion	**Centra's Response**
9. Mr. McCormick compared Centra advances to the originating Manitoba Hydro debt issues and stated that "while the interest rates that are ascribed to these advances may be the same, the dates of the advances may vary." [17] Mr. McCormick also noted that Centra had utilized the front end of ultra-long issues that had been secured by Manitoba Hydro. It was Mr. McCormick's opinion that the interest rates on CG10 and CG15 were unreasonable.[18]	**The interest rates assigned to all of Centra's existing long term advances are based on actual MHEB financings, including CG10 and CG15**, as indicated in the long term debt term sheets provided in the response to PUB/Centra I-43. Treasury operations are performed on a consolidated basis for the Corporation, including Centra. The Corporation does not execute financings specifically for Centra. Centra is able to take advantage of the opportunities which Manitoba Hydro has in the marketplace. Basing Centra's long term advances on actual Manitoba Hydro long term debt issues ensures fair and equitable treatment for both gas and electric ratepayers through a cost recovery mechanism. CG10 and CG15 were part of portfolio refinancing. **Centra was able to outperform indicative market conditions in effect on the assignment date for the weighted average interest rates and weighted average term to maturities**. These portfolio refinancings also reduced the interest rate refinancing risk by sub-dividing the larger lump sum amounts into smaller segments with different maturity dates.
10. "Mr. McCormick is of the view that Manitoba would enter the capital markets for floating rate debt for a term materially shorter and at spreads materially lower than the 20 year term and 45 basis point spread or margin over benchmark indicated in CAC/Centra I-14(p)." [19]	**The rates provided by Centra represent indicative market conditions.** The indicative rates provided by Centra were based on actual market expectations on May 9, 2013. As noted in Centra's response to CAC/Centra I-14 footnote 6, "the indicative asset swap pricing for 5, 10 and 30 year floating rate long term debt is approximately CDOR03 + 23 basis points; CDOR03 + 45 basis points; and CDOR03 + 76 basis points respectively." The Corporation has undertaken longer dated floating rate debt issues in the past and may do so again in the future.

[17] PUB/CAC I-7. Mr. McCormick also observed in his response to this information request that "market conditions can change in over 4 months. With the passing of time the rate at which the transaction was initially funded may no longer be representative of the market conditions when Centra was funded" (page 19 lines 3-5).

[18] PUB/CAC I-7 lines 30-31. Also PUB/CAC I-4 lines 6-8: "Mr. McCormick would view the spread or margin of 48.4 basis points from the benchmark rate as unreasonable for a 5 year floating rate Manitoba credit instrument issued in spring 2010." Also in his response to PUB/CAC I-7 lines 7-11: "Mr. McCormick is of the view that a straight pass through of a rate derived from a Manitoba BA based floating rate is more appropriate. Mr. McCormick is of the view that a reasonable spread or margin over benchmark for an issue in the market similar to series 10 would have been in the range of 18 to 23 basis points."

[19] PUB/CAC I-4 lines 13-16.

Debt Management	
Mr. McCormick's Opinion	**Centra's Response**
11. "Mr. McCormick would prefer a policy which, in addition to setting a limit on maturities in a 12 month period, also placed a concentration limit on some longer period, perhaps between 4 or 6 years."[20]	**Centra's refinancing risk has been significantly reduced** through the debt management activities undertaken by the Corporation during the past few years as Centra's legacy debt has been refinanced. See Centra's response to CAC/Centra I-19. The Corporation follows fiscal year financial reporting, with the current portion of long term debt being the long term debt that is maturing in the 12 months from the balance sheet date. The Corporation has previously identified the measurement of its interest rate risk profile on this 12 month forward basis (see the Debt Management Strategy documents provided in Centra's response to CAC/Centra I-14). Given the level and frequency of present and future financings, a 4 or 6 year guideline is not practical.

[20] PUB/CAC I-5 lines 14-16.

2.1 Moral Hazard

Mr. McCormick has suggested that a "moral hazard" exists such that consumers bear additional costs[21] and that "Centra has no employees" to protect it from Manitoba Hydro.[22]

Mr. McCormick's inference that there exists a "moral hazard" or that the Corporation is careless or motivated to harm consumers is baseless. The claim that Centra has no employees and therefore needs protection from Manitoba Hydro is frivolous.

The reference to a financial advantage "enjoyed by Centra" implies that management and/or shareholders are enriched by purposely over-estimating financing costs. This is fundamentally wrong.

Mr. McCormick fails to acknowledge that the retained earnings and net income of Centra are held for the benefit of ratepayers. To the extent that interest costs are higher or lower than forecast, the difference, along with all other differences, flows to retained earnings. Retained earnings are not distributed as dividends to private shareholders (as may be the case in jurisdictions with a rate-base rate of return methodology) or used for any purpose other than managing the risks and revenue requirements on behalf of Centra's customers. To the extent that there are higher contributions to retained earnings as a result of this difference, there will be lower future rate increase requirements. Centra views this no differently than the impact on earnings of weather or any other revenue and expense variable.

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[21] In footnote 24 of his Written Evidence, Mr. McCormick cites a definition of **moral hazard** as "a concept in economic theory which 'arises because an individual or institution does not take the full consequences and responsibilities of its actions, and therefore has a tendency to act less careful than it would otherwise would, leaving another party to hold some responsibility for the consequence of those actions.'" Having defined moral hazard, Mr. McCormick then suggests on page 9 of his Written Evidence that:

> "the moral hazard is that Centra is not disadvantaged in adopting an interest rate forecast methodology based on a particular sample of forecasters that consistently produces forecasts of interest rates that exceed actual experience."

On page 22 of his Written Evidence, Mr. McCormick stated:

> "I also wonder when, if ever, the conditions will exist which would make retrospective testing 'beneficial' to Centra. The moral hazard here, relates to the cost being borne by the consumer while the benefit is enjoyed by Centra."

In response to PUB/CAC I-1 page 3, Mr. McCormick's states:

> "Considering Centra's financial advantage in the just last 4 years of over $10 million, which was quantified in PUB/Centra I-42 (b), it seems perfectly reasonable from Centra's viewpoint, as indicated in PUB/Centra II-141 (b), that 'a process to retrospectively test the accuracy of forecasters to assess their inclusion in future forecasts is not beneficial at this time.'"

[22] As cited by CAC in the preamble to CAC/Centra I-18: "CAC wishes to better understand the practices related to financing Centra, and whether there are any policies in place, in the absence of employees to protect its interests, to avoid it being financially disadvantaged or exposed to higher levels of risk relative to those experienced by Hydro."

The reduction in actual finance costs through the past few years has been to the benefit of all of Centra's ratepayers, for in the absence of these advantageous results, Centra may have had to seek more frequent and/or higher rate increases.

2.2 Updated Changes to the Interest Rate Forecast are Immaterial for 2013/14

Mr. McCormick's opinion that the underlying data used to develop the financial forecasts is "materially different from current forecasts readily available in the market" is unsubstantiated.

The following table provides a summary of the comparative interest rates for 2013/14 (excluding the 1.0% provincial debt guarantee fee):

	IFF12	2013 Spring EO	Change
3 Month Canadian T-Bill	1.30 %	1.05 %	(0.25)%
CDOR03	1.65 %	1.35 %	(0.30)%
Government of Canada 10 Year+ (fixed)	2.55 %	2.50 %	(0.05)%
All-in Manitoba 10 Year+ (fixed)	3.30 %	3.50 %	0.20 %

While the 2013 Spring Economic Outlook 3 month Canadian T-Bill rate shows a 25 basis point reduction over IFF12 for 2013/14, the all-in 10 Year+ interest rate forecast has risen 20 basis points from 3.30% to 3.50%. For the 2013/14 test year, the revenue requirement is not affected by the 20 basis point increase in the forecasted 10 Year+ long term interest rate as the new long term debt financing is forecasted in IFF12 to occur at the end of the fiscal year.

As evidenced in Centra's updated response to PUB/Centra I-9(b), the inclusion of the interest rates from the 2013 Spring Economic Outlook would reduce the revenue requirement by less than one tenth of one percent. Centra views this change to be immaterial to the revenue requirement.

It is important to recognize that the 25-30 basis point change in the short term interest rate forecast between the fall 2012 and spring 2013 stands in sharp contrast to the circumstances at the previous Centra GRA. Then, in the midst of the financial crisis, the change between IFF08 and the 2009 Economic Outlook for 2009/10 was over 300 basis points.

	IFF08	2009 Spring EO	Change
3 Month Canadian T-Bill	3.95 %	0.80 %	(3.05) %
CDOR03	4.05 %	0.90 %	(3.15) %
Government of Canada 10 Year+ (fixed)	4.70 %	3.15 %	(1.65) %
Manitoba Hydro/ Centra 10 Year+ (fixed)	5.30 %	4.75 %	(0.55) %

Centra acknowledged that the interest rate change was material at the previous Centra hearing and accordingly amended its Application at that time.

2.3 Interest Rate Movements During the Past Month

Forecasts do change through time in response to changing market conditions. In his response to PUB/CAC I-8, Mr. McCormick cited May 2013 interest rate forecasts, including the May 8, 2013 forecast from CIBC. The *CIBC Economic Insights* (Appendix 1 of this Rebuttal Evidence) document accompanying this forecast is noteworthy as it not only indicates the ongoing changes occurring within forecaster modeling algorithms, but also provides an estimate of the impact associated with ongoing central bank monetary policy interventions (emphasis added):

> "If you've been caught off guard by today's ultra-low bond yields, join the club. Only those who had wrongly bet on a double-dip recession were calling for a return to 10-year rates at 1.7% or less, yet that's what happened, in both the US and Canada. The reason for the forecast miss is that this bond market rally has been like no other, so models and historical analogies had to be thrown out the window." … "That points to quantitative easing's deliberately distorting effect on the yield curve as a key factor behind today's bond market levels. Estimates on how much supply has been taken off the market's shelves through QE suggest that 10-year yields in the US are at least 100 basis points lower than they would be otherwise, and since Canada's market has moved in lockstep, we've been dragged down to a similar degree." … "We see the Fed raising rates a half-year ahead of current market projections."

The Corporation monitors financial markets on an ongoing basis. As one approaches an actual financing decision, the focus transitions from forecasts to a review of real time financial market conditions. The following table summarizes some of the applicable interest rate movements that have occurred during the past month:

	May 11, 2013	June 11, 2013	Change
3 Month Canadian T-Bill	1.00 %	1.01 %	0.01 %
CDOR03	1.28 %	1.27 %	(0.01)%
Government of Canada 10 Year+ (fixed)	2.21 %	2.53 %	0.32 %
Manitoba Hydro/ Centra 10 Year+ (fixed)	3.17 %	3.48 %	0.31 %

Short term rates have remained anchored to their low interest levels due to continued monetary policy intervention by central banks (although the 3 month Canadian T-Bill rate has inched up to 1.01%). However, the yields for long bonds have begun to trend upward. The following table shows the comparison between the average interest rates for 2013/14 in the 2013 Spring Economic Outlook and the real time indicative rates as at June 11, 2013:

	2013 Spring EO	June 11, 2013	Difference
3 Month Canadian T-Bill	1.05 %	1.01 %	(0.04)%
CDOR03	1.35 %	1.27 %	(0.08)%
Government of Canada 10 Year+ (fixed)	2.50 %	2.53 %	0.03 %
Manitoba Hydro/ Centra 10 Year+ (fixed)	3.50 %	3.48 %	(0.02)%

Note that the actual indicative rates as at June 11, 2013 are already similar to the average 2013/14 forecasted rates, with long term interest rates already approaching or surpassing the forecast due to the recent escalation in the benchmark Government of Canada interest rates. It remains uncertain if the current rise in actual long term interest rates will continue and subsequently overshoot the average long term interest rates forecasted in the 2013 Spring Economic Outlook for 2013/14. Based on Bloomberg data sourced on June 11, 2013 the market expectation forward rate for the Government of Canada 10 Year+ rate for March 31, 2014 is 2.57% (and the forward rate for the 3 month Canadian T-Bill is 1.22%).

In this context, Mr. McCormick's recommended forecast Government of Canada 10 Year+ interest rate for the 2013/14 test year of 2.36%[23] (already 17 basis points below the actual market rate of 2.53% at June 11, 2013) seems unlikely to occur. The Corporation will continue to monitor real time financial market movements, as well as external interest rate forecasts as they refresh their forecasts in light of recent upward interest rate movements.

[23] PUB/CAC I-8.

2.4 Locking in Long Term Interest Rates

Mr. McCormick stated that he "does not see an urgency to lock in long term rates."[24] He also stated that as "attractive as recent rates have been, maintaining a short term debt balance while awaiting a market opportunity may save the consumers some interest costs, both in the near term while the short term facility and in the longer term, as and when, a market window provides a more beneficial long term rate."[25] In Mr. McCormick's response to PUB/Centra I-9 page 27 lines 18-21 he "raises the question of the price to be paid for the interest rate stability of issuing longer term debt, as opposed to issuing debt with a shorter term and facing, with some degree of concern or dread, the risk of higher interest rates at the point of refinancing." He then concludes by stating that "Our degree of concern or dread should be in decline."

The Corporation is of the view that it is inadvisable to wait on the sidelines while long term interest rates rise. The Corporation adjusts its financing activities in response to the interest rate environment. Given today's historically low, long term fixed interest rates, the recent trend upwards in long term interest rates and the market expectations of a rise currently being priced into the forward long term interest rates, the Corporation believes that it is important to reduce the long term average cost of debt by issuing long term debt before the yield curve steepens further.

As noted by CIBC in their May 8, 2013 *Economic Insights*, the impact of quantitative easing has been to keep interest rates artificially low. With the expectation that stimulus may be removed at some point in the near future, interest rates will begin to rise at a pace likely positively correlated with the pace of the removal of the stimulus. Given that short term rates have not increased in the last month, yet long term rates have seen a marked increase, it would seem that the expectation of stimulus removal is being priced into the long end of the yield curve.

Excessive reliance on short term debt, floating rate long term debt or shorter dated fixed rate financings leaves Centra vulnerable to volatile and increasing debt service costs if rates increase; every refinancing brings with it the risk of rising financing costs. Portfolios with a large component of short term financing are subject to a higher risk of increased financing costs than those that make greater use of longer term financing.

The importance of stability was underscored by Moody's Investors Service when they observed in their special commentary on provincial financings that "debt affordability has remained

[24] PUB/CAC I-6 lines 11-12. After reviewing some historical interest rate data, on page 28 lines 12-13 Mr. McCormick suggests that there is a continued trend for "lower rather than higher rates." Note the forecasted interest rates Chart 4 in the Debt Management Strategy show higher short and long interest rates in the future.

[25] PUB/CAC I-6 lines 32-35.

manageable, owing to the persistently low interest rate environment and the demand for Canadian government debt. … As the global economy recovers, we expect interest rates and government funding costs will rise. … Those provinces with higher debt burdens and greater reliance on short-term or variable rate debt financing will be particularly vulnerable."[26]

Stability is enhanced as the weighted average term of the portfolio lengthens.[27] To gain interest cost stability, the Corporation views Centra's debt on a portfolio basis. By breaking down Centra's financing requirements into a few smaller tranches, based on actual Manitoba Hydro issues, Centra is able to take advantage of the opportunities which Manitoba Hydro has in the marketplace. Basing Centra's long term advances on actual Manitoba Hydro long term debt issues is optimal on a consolidated basis as it ensures fair and equitable treatment for both gas and electric ratepayers through a cost recovery mechanism.

The Corporation will continue to utilize short term debt to borrow money from time to time for temporary purposes. This includes supporting Centra's seasonal working capital requirements and to bridge the timing between long term debt issues. Short term debt will not be used to permanently fund capital construction.

2.5 Summary of Centra's Recent Long Term Debt Financings

Treasury operations are performed on a consolidated basis for the Corporation, including Centra. The Corporation does not execute financings specifically for Centra. As indicated in the long term debt term sheets provided in the response to PUB/Centra I-43(b), the interest rates assigned to all of Centra's existing long term advances are based on actual MHEB financings. Since April 1, 2009 Centra has undertaken the following long term debt transactions:

[26] Moody's Investors Service, *Special Comment: Canadian Provinces Consolidating Finances in 2012*, March 8, 2012, page 5.

[27] The Manitoba Hydro weighted average term to maturities shown in the Debt Management Strategy document in Chart 6 align with the actual weighted average terms to maturities shown in Manitoba Hydro's response to PUB/MH I-35(h). Both presentations were prepared using the most outward obligation dates on any debt series (the latter of physical debt or forward rate swap maturity dates). In CAC/MSOS/MH II-148(b), the CAC/MSOS asked for "a similar schedule to that in PUB/MH I-35(h), prepared on the alternative basis, so that we may better understand the implication of the swap arrangements." Note that Centra's debt series are advanced from Manitoba Hydro to Centra without interest rate swaps.

1) **Issued new long term debt** for $30,000,000 of capital financing that had accumulated at September 1, 2009.
2) **Refinanced Debt Series CG5** that had a February 22, 2010 maturity of $75,000,000 and a 6.269% yield rate.
3) **Refinanced Debt Series CG4** that had a March 31, 2010 maturity of $18,077,200 and a 5.530% yield rate.
4) **Issued new long term debt** for $30,000,000 of capital financing that had accumulated at March 31, 2010.
5) **Refinanced Debt Series CG1** that had a September 18, 2012 maturity of $62,670,600 and a 5.980% yield rate.

These financing provided Centra with an opportunity:

a) to reduce the weighted average interest rate as shown in Chart 5;
b) to extend the weighted average term to maturity as shown in Chart 6;
c) to minimize the concentration of interest rate refinancing risk by sub-dividing the $75 million and $60 million lump sum amounts into smaller tranches in different maturity segments; and
d) to rebalance its debt portfolio by introducing floating rate long term debt.

In his response to PUB/CAC I-7, Mr. McCormick compared Centra advances to the originating Manitoba Hydro debt issues and stated that "while the interest rates that are ascribed to these advances may be the same, the dates of the advances

Chart 5: Weighted Average Interest Rate (%)
(For the Fiscal Year Ended March 31)

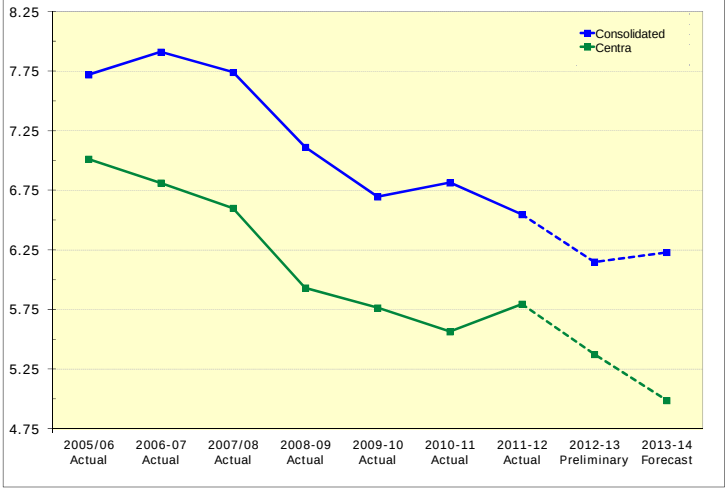
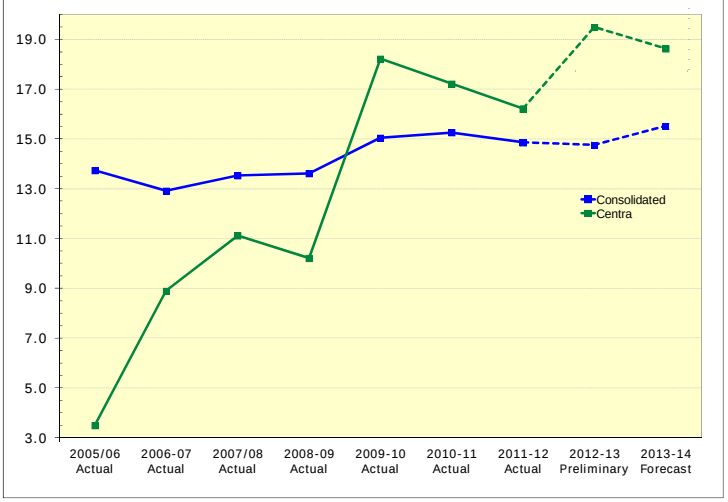


Chart 6: Weighted Average Term to Maturity of Long Term Debt (Years)
(For the Fiscal Year Ended March 31)



may vary."[28] He then observed that "market conditions can change in over 4 months. With the passing of time the rate at which the transaction was initially funded may no longer be representative of the market conditions when Centra was funded." Mr. McCormick also noted that Centra had utilized the front end of ultra-long issues that had been secured by the Corporation. Upon a review of some of the terms, it was Mr. McCormick's opinion that the interest rates on CG10 and CG15 were unreasonable.[29] In order to address these observations and opinions, the following sections will provide an overview of the Centra financing since April 1, 2009.

2.6 The Issuance of New Long Term Debt with CG9

Given the level of capital financing that had accumulated in short term debt through 2009/10, at September 1, 2009 short term debt of $30 million that had been used for capital bridge financing was converted to long term fixed rate debt with CG9. The remaining balance of short term debt at September 30, 2009 was $97 million. The forecasted financing had a term to maturity of 20 years.[30] At September 1, 2009, the most recent new Manitoba Hydro long term debt issues that were issued for new cash requirements and available for assignment were as follows:

Series	Principal	Issue Date	Maturity Date	Yield[31]	Years
C107	$100 million	June 2, 2009	Sept 4, 2012	CDOR03 + 0.420%	3.3
FK-2	$300 million	June 5, 2009	March 5, 2040	5.175%	30.8
FM-4	$100 million	Sept 1, 2009	Sept 1, 2014	CDOR03 + 0.484%	5.0

As FK-2 was the most recent fixed long term debt issue available for assignment to Centra, on September 1, 2009, Centra converted $30 million of cumulative capital financing in the following manner:

[28] For example as was noted by Centra in its response to CAC/Centra I-19 footnote 5: "intercompany long term debt CG10 in the amount of $35 million was issued February 22, 2010 for a five year term maturing February 22, 2015 with a coupon and yield rate of CDOR03 + 0.484%. This issue originated as Manitoba Hydro FM-4 ($100 million principal, issued September 1, 2009 with a September 1, 2014 maturity)."

[29] PUB/CAC I-7 lines 30-31. Also PUB/CAC I-4 lines 6-8: "Mr. McCormick would view the spread or margin of 48.4 basis points from the benchmark rate as unreasonable for a 5 year floating rate Manitoba credit instrument issued in spring 2010." Also in his response to PUB/CAC I-7 lines 7-11: "Mr. McCormick is of the view that a straight pass through of a rate derived from a Manitoba BA based floating rate is more appropriate. Mr. McCormick is of the view that a reasonable spread or margin over benchmark for an issue in the market similar to series 10 would have been in the range of 18 to 23 basis points."

[30] Centra's forecasted new long term debt financings have a 20 year term to maturity. This forecasted 20 year term to maturity is aligned with the 10 year+ Canadian interest rate forecast which utilizes the average of 10 and 30 year information. Actual financings will vary from forecast. During the past number of years, the Corporation's actual long term financing has included issuance in various terms throughout the yield curve and it is the Corporation's intention to continue with this flexible practice.

[31] The yields shown in this table show Manitoba Hydro's actual all-in contract prices for the specified debt series and include any associated credit spreads and transactions costs.

Series Name	Amount	Yield Rate	Term	MHEB Series
CG9	$30 million	5.175%	30 years	FK-2

At September 1, 2009 the indicative market conditions in effect for a 30 year financing was 4.776%[32] reflective of the fact that long term yields were dropping during this time. Nonetheless, with this financing, using assigned interest rates and terms to maturity, Centra lowered the overall weighted average of the long term debt portfolio while extending the weighted average term to maturity.

2.7 The Refinancing of CG5 with CG10, CG11 and CG12

Due to an inversion in the yield curve for fixed rate financing in the long end of the yield curve, it was more cost effective for the Corporation to issue 40 year, 50 year and 53 year ultra-longs than to issue debt in the 20-30 year space. These ultra-long debt issues were in keeping with the extended asset service lives for Manitoba Hydro's long-lived assets. As Centra's new long term debt was forecast to be for a 20 year term, the assignment to Centra utilized the front end of the originating fixed rate debt issues.

Centra Debt Series CG5 had a February 22, 2010 maturity of $75 million and a 6.269% yield rate. The forecasted refinancing of CG5 had a term to maturity of 20 years and an interest rate for rate setting purposes of 4.00%.[33] At February 22, 2010 the most recent new Manitoba Hydro long term debt issues that were issued for new cash requirements and available for assignment were as follows:

Series	Principal	Issue Date	Maturity Date	Yield[34]	Years
FM-4	$100 million	Sept 1, 2009	Sept 1, 2014	CDOR03 + 0.484%	5.0
FN	$200 million	Oct 27, 2009	March 5, 2050	4.726%	40.0
C109	$50 million	Nov 13, 2009	March 5, 2063	4.638%	53.3
C110	$125 million	Nov 23, 2009	March 5, 2060	4.629%	50.3

Accordingly, on February 22, 2010 Centra refinanced CG5 in the following manner:

[32] The Bloomberg C30230y rate for Province of Manitoba on September 1, 2009 was 4.716% + 0.060% transaction costs = 4.776% all-in yield.

[33] The interest rate for this forecasted refinancing was 5.30% in the original filing for the 2009/10 & 2010/11 Centra GRA (all interest rates shown are excluding the provincial debt guarantee fee). Centra's May 2009 update had a forecasted long term interest rate of 4.75%. As per Board Order 128/09, the long term interest rate forecasts for 2009/10 and 2010/11 were 4.00%.

[34] The yields shown in this table show Manitoba Hydro's actual all-in contract prices for the specified debt series and include any associated credit spreads and transactions costs.

Series Name	Amount	Yield Rate	Term	MHEB Series
CG10	$35 million	CDOR03 + 0.484%[35]	5 years	FM-4
CG11	$30 million	4.726%	20 years	FN
CG12	$10 million	4.638%	27.5 years	C109
Weighted Average		**4.439%**	**14 years**	

With this portfolio refinancing, the weighted average term to maturity was 14 years with an initial weighted average interest rate of 3.974%. Using the fixed equivalency of 3.14% for CG10, on a cash flow basis over the entire debt streams of the portfolio refinancing, the effective yield rate was 4.439%. At February 22, 2010 the indicative market conditions in effect for a 15 year financing was 4.890%.[36] With this portfolio refinancing, using assigned interest rates and terms to maturity, Centra reduced the concentration of interest rate refinancing risk by sub-dividing the $75 million lump sum amount into smaller maturity segments with different maturity dates and lowered its relative cost of financing by approximately 45 basis points (4.890% - 4.439% = 0.451%). In addition to extending the term to maturity of the Centra debt portfolio, this portfolio refinancing also reduced Centra's overall weighted average interest rate as the 6.269% yield rate for CG5 was refinanced at February 22, 2010 with an effective yield rate of 4.439%. This refinancing also introduced long term floating rate debt into the Centra debt portfolio.

Mr. McCormick's suggestion (on page 36 of his Written Evidence on line 12-15) [37] that Centra debt series CG10 was not based on an actual transaction in incorrect.

As Centra indicated in its response to CAC/Centra I-19 footnote 5:

> "intercompany long term debt CG10 in the amount of $35,000,000 was issued February 22, 2010 for a five year term maturing February 22, 2015 with a coupon and yield rate of CDOR03 + 0.484%. This issue originated as Manitoba Hydro

[35] At the time of debt issuance, the Corporation is economically indifferent between fixed or floating long term debt of the same term to maturity. For example, intercompany long term debt CG10 in the amount of $35 million was issued February 22, 2010 for a five year term maturing February 22, 2015 with a coupon and yield rate of CDOR03 + 0.484%. This issue originated as Manitoba Hydro FM-4 ($100 million principal, issued September 1, 2009 with a September 1, 2014 maturity). At the original issue date, using implied forward interest rates within the capital markets, the floating rate long term debt price of CDOR03 + 0.484% had an equivalent all-in yield rate of 3.14%. The resultant initial weighted average yield rate for the combined CG5 refinancing was **3.974%.**

[36] The Bloomberg C30215y rate for Province of Manitoba on February 22, 2010 was 4.830% + 0.060% transaction costs = 4.890% all-in yield.

[37] On page 36, lines 12-15 of Mr. McCormick's Evidence, he states: "From the recently received description contained in note 5 of CAC/Centra I-19, the 48.4 basis point spread was mathematically derived based on the assumption therein set out to achieve a theoretical point of indifference related to the interest costs of the debt series described therein." On page 34 of his written evidence in footnote 86, Mr. McCormick also states that the "response to CAC/Centra I-14(p) and note 5 in CAC/Centra I-19, seems to suggest that the 48.4 basis point spread is a manufactured rate calculated to create an economic equivalence in a swap transaction, rather than a rate reflecting the new issue market at the date of transaction."

> FM-4 ($100 million principal, issued September 1, 2009 with a September 1, 2014 maturity)."[38]

Mr. McCormick stated in response to PUB/CAC I-7 that he relied upon Appendix 48 from the 2010/11 & 2011/12 Electric GRA in researching Manitoba Hydro debt issues and that he had located the term sheets for FM and FM-4. Having seen these terms sheets and FM4's explicitly stated floating contract rate of CDOR03 + 0.484%, Mr. McCormick's conclusion in response to PUB/Centra I-4 that FM-4/ CG10 was "lacking a specific precedent of identical term and identical issue date to validate his opinion" is unfounded.

Instead of relying on the actual Manitoba Hydro term sheets for the transacted financing and the assigned rates, Mr. McCormick instead provided a limited sample of Province of Manitoba floating rate debt issues[39] and then came to "the view that a reasonable spread or margin over benchmark for an issue in the market similar to series 10 would have been in the range of 18 to 23 basis points."

Unfortunately, this analysis eliminated key information regarding the financial market conditions in the early stages of the financial crisis. For example, in response to sharply escalating margins and investor appetite, the use of floating rate notes with shorter dated maturities became more prevalent. During that time, these matured floating rate issues had elevated margins which provided a more fulsome context to the discussion of the FM-4 margin. For example, C102 issued by Manitoba Hydro on January 15, 2009 with a 1.5 year term to maturity, had a contract price of CDOR03 + 42 basis points. C107 issued June 2, 2009 with a 3.3 year term to maturity had a contract price of CDOR03 + 42 basis points. Within the context of these financial market conditions, the FM-4 financing which was executed in September 2009 with a 5 year term to maturity had a relatively attractive rate of CDOR03 + 48.4 basis points. The financial market conditions continue to be volatile and margins on longer dated floating rate long term debt remain elevated.[40]

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[38] The CG10 term sheet supplied by Centra in response to PUB/Centra I-43(b) on page 5 also states: "Long term inter-company advance Series CG10 was issued to Centra Gas Manitoba by the MHEB in order to partially refinance long term inter-company advance Series CG5 that had a February 22, 2010 maturity of $75,000,000. The interest rate was assigned based on MHEB Series FM-4."

[39] Mr. McCormick did not identify all of the provincial debt issues in his analysis. As stated in his response to PUB/Centra I-4 (lines 12-16), "Mr. McCormick observes that there also were other Manitoba floating rate debt instruments issued in 2010 and 2011, but for shorter maturities, ranging from 1.2 to 3.1 years, and which have since matured. Believing that the difference in term would arguably make them less comparable, he has not collected their spread or margin information."

[40] As noted in Centra's response to CAC/Centra I-14 footnote 6, "As at May 9, 2013 the indicative asset swap pricing for 5, 10 and 30 year floating rate long term debt is approximately CDOR03 + 23 basis points; CDOR03 + 45 basis points; and CDOR03 + 76 basis points respectively."

2.8 The Refinancing of CG4 with CG13

Centra Debt Series CG4 had a March 31, 2010 maturity of $18 million and a 5.530% yield rate. The forecasted refinancing of CG4 had a term to maturity of 20 years. Accordingly, on March 31, 2010 Centra refinanced CG4 in the following manner:

Series Name	Amount	Yield Rate	Term	MHEB Series
CG13	$20 million	4.638%	27.5 years	C109

At March 31, 2010 the indicative market conditions in effect for a 30 year financing was 4.799%.[41] With this refinancing, using assigned interest rates and terms to maturity, Centra lowered its relative cost of financing by approximately 16 basis points (4.799% - 4.638% = 0.161%). In addition to extending the term to maturity of the Centra debt portfolio, this portfolio refinancing also reduced Centra's overall weighted average interest rate as the 5.530% yield rate for CG4 was refinanced at March 31, 2010 with a yield rate of 4.638%.

2.9 The Issuance of New Long Term Debt with CG14

Centra's short term debt requirements are typically at or near their lowest point within the fiscal year at year end, with the floating rate percentage increasing to the upper target and policy boundaries during Q2 and Q3 as natural gas inventories increase in preparation for the winter heating season. At March 31, 2010 the short term debt balance prior to conversion to long term debt was $46.5 million. With the debt portfolio rebalancing that occurred in February – March 2010, short term debt of $30 million that had been used for capital bridge financing was converted to long term fixed rate debt with CG14. The remaining balance of short term debt at March 31, 2010 was $16.5 million. The forecasted financing had a term to maturity of 20 years. Accordingly, on March 31, 2010 Centra converted $30 million of cumulative capital financing in the following manner:

Series Name	Amount	Interest Rate	Term	MHEB Series
CG14	$30 million	4.629%	25 years	C110

At March 31, 2010 the indicative market conditions in effect for a 30 year financing was 4.799%.[42] With this refinancing, using assigned interest rates and terms to maturity, Centra lowered its relative cost of financing by approximately 17 basis points (4.799% - 4.629% = 0.170%). In addition, this financing extended the term to maturity of the Centra debt portfolio. Combined with the remaining $16.5 million short term debt balance and after the introduction of

[41] The Bloomberg C30230y rate for Province of Manitoba on March 31, 2010 was 4.739% + 0.060% transaction costs = 4.799% all-in yield.

$35 million of floating rate long term debt with CG10, the aggregate percentage of short and floating rate debt at March 31, 2010 was 16.4%.[43]

2.10 The Refinancing of CG1 with CG15, CG16 and CG17

Centra Debt Series CG1 had a September 18, 2012 maturity of $62.7 million and a 5.980% interest rate. The forecasted refinancing of CG1 had a term to maturity of 20 years. At that time, the most recent new Manitoba Hydro long term debt issues for that were issued for new cash requirements and available for assignment were as follows:

Series	Principal	Issue Date	Maturity Date	Yield[44]	Years
FN-2	$75 million	March 28, 2012	March 5, 2050	3.629%	38.0
GA	$300 million	June 5, 2012	March 5, 2043	3.413%	30.8
FN-3	$50 million	July 12, 2012	March 5, 2050	3.281%	37.7
C129	$50 million	July 31, 2012	Sept 5, 2052	3.178%	40.1
GC	$296 million	Sept 6, 2012	Sept 6, 2022	CDOR03 + 0.4985%	10.0

As Centra had sufficient long term floating rate debt within its debt portfolio, fixed rate long term debt was selected for assignment. Accordingly, on September 18, 2012 Centra refinanced CG1 in the following manner:

Series Name	Amount	Interest Rate	Term	MHEB Series
CG15	$20 million	3.178%	10 years	C129
CG16	$20 million	3.281%	21 years	FN-3
CG17	$20 million	3.413%	30 years	GA
Weighted Average		**3.329%**	**20.3 years**	

With this portfolio refinancing, the weighted average term to maturity was 20.3 years with an initial weighted average interest rate of 3.291%. On a cash flow basis, over the entire debt streams of this portfolio refinancing, the effective yield rate was 3.329%. At September 18, 2012 the indicative market conditions in effect for a 20 year financing was 3.529%.[45] With this portfolio refinancing, using assigned interest rates and terms to maturity, Centra reduced the concentration of interest rate refinancing risk by sub-dividing the $60 million lump sum amount into smaller maturity segments with different maturity dates and lowered its relative cost of

[42] The Bloomberg C30230y rate for Province of Manitoba on March 31, 2010 was 4.739% + 0.060% transaction costs = 4.799% all-in yield.

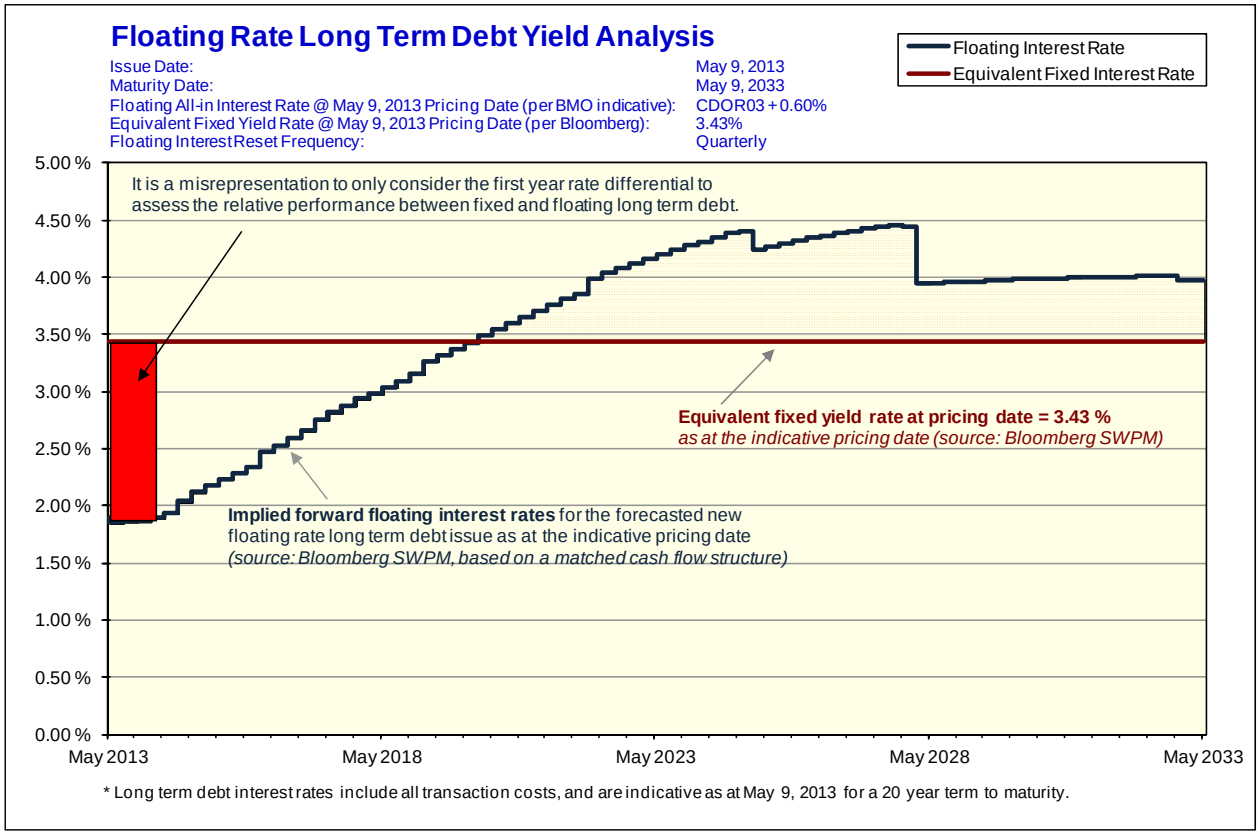
[43] For numerical information regarding Centra's debt structure by quarter, please see Centra's response to CAC/Centra I-18 Attachment 1, and for a graphical depiction please see Charts 1 and 2 in Centra's response to CAC/Centra I-19.

[44] The yields shown in this table show Manitoba Hydro's actual all-in contract prices for the specified debt series and include any associated credit spreads and transactions costs.

financing by approximately 20 basis points (3.529% - 3.329% = 0.200%). In addition to extending the term to maturity of the Centra debt portfolio, this portfolio refinancing also reduced Centra's overall weighted average interest rate as the 5.980% yield rate for CG1 was refinanced at September 18, 2012 with an effective yield rate of 3.329%.

2.11 Yield Performance and Measurement (CAC/Centra 14p)

As described in Centra's response to CAC/Centra I-14(p), at the date of debt origination, the Corporation is economically indifferent between fixed or floating rate long term debt for the same term to maturity. It is incorrect to represent floating rate long term debt as having less cost to the consumer than fixed rate long term debt and it is a misrepresentation to only consider the first year rate differential (shown in red) to assess the relative performance between fixed and floating rate long term debt.



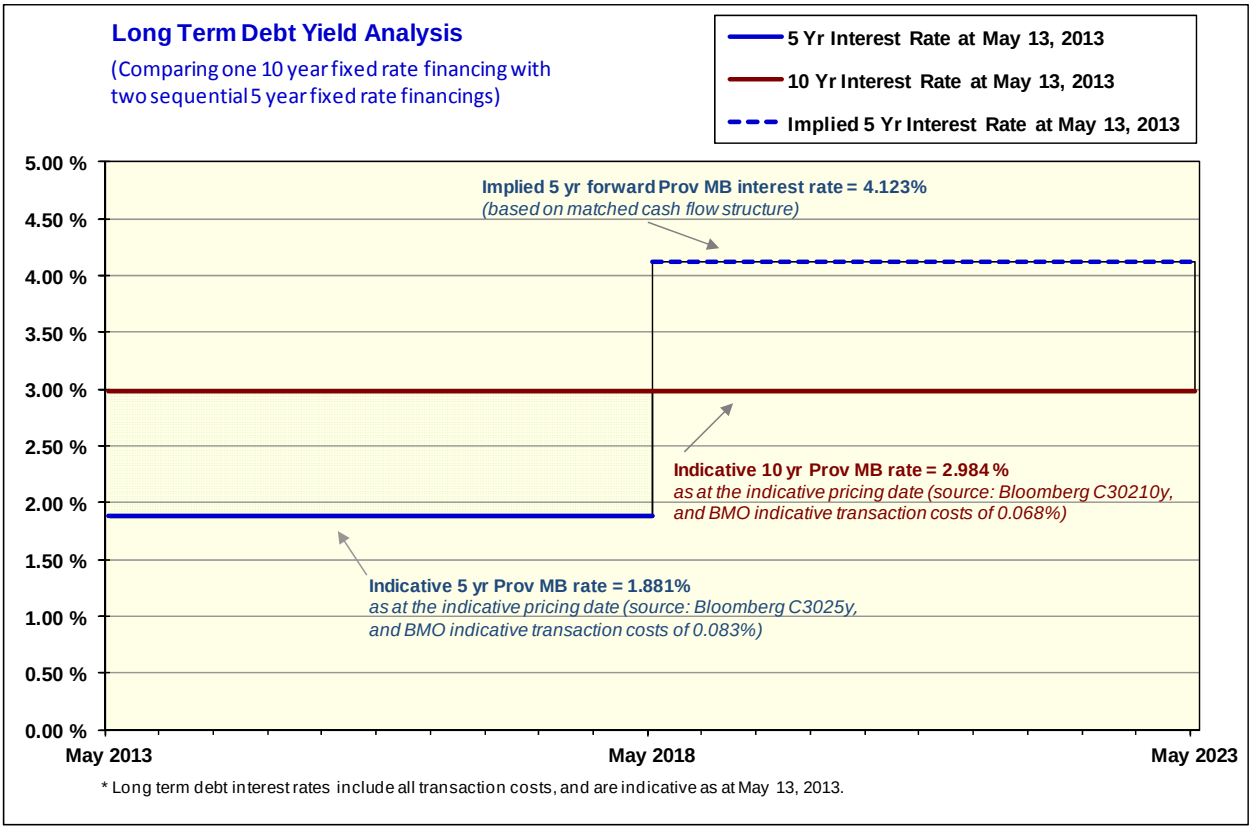
On page 41 of his Written Evidence, Mr. McCormick stated that "Centra explains this calculated

[45] The Bloomberg C30220y rate for Province of Manitoba on September 18, 2012 was 3.469% + 0.060% transaction costs = 3.529% all-in yield.

indifference point with an example that focuses on its interest rate forecast as the driver." To the contrary, Centra explicitly stated on the chart that the information was sourced from Bloomberg SWPM screens. This real time traded and executable Bloomberg information is drawn from the participants within the capital markets and is not driven by Centra's interest rate forecast.

Floating rate debt has higher interest rate risk than fixed rate debt due to its inherent exposure to interest rate fluctuations at the quarterly interest rate reset dates. Depending upon subsequent financial market movements, actual interest reset rates for floating rate debt may be higher or lower than the original implied forward interest rates.

The same concept also applies to the refinancing considerations when deciding between varying debt terms to maturity along a defined debt stream. Mr. McCormick discusses this matter in his response to PUB/Centra I-5, wherein he discussed the concept of having two serial or sequential 5 year financings as an alternative to a single 10 year financing. In this context, the choice is essentially between a 10 year fixed rate financing versus a 10 year floating rate financing that has a single interest rate reset date at 5 years. In order to assist further with this topic area, Centra has produced the following chart depicting the long term debt yield analysis



for his May 13, 2013 date, complete with indicative pricing, estimated transaction costs and the implied 5 year forward Province of Manitoba interest rate. In order to complement the Bloomberg information sourced by Mr. McCormick for the 5 and 10 year terms as at May 13, 2013 Centra also added BMO's indicative transaction costs to the estimated interest rates. In so doing, the estimated rates more comparable to the all-in yield rates. Centra has also calculated the all-in implied 5 year forward Province of Manitoba yield rate based on a matched cash flow structure.

2.12 Refinancing Risk and Interest Rate Risk

Centra's refinancing risk has been significantly reduced through the debt management activities undertaken by the Corporation during the past few years as Centra's legacy debt has been refinanced. See Centra's response to CAC/Centra I-19.

"Mr. McCormick would prefer a policy which, in addition to setting a limit on maturities in a 12 month period, also placed a concentration limit on some longer period, perhaps between 4 or 6 years." [46] He also provided debt maturity charts depicting calendar year information. The Corporation follows fiscal year financial reporting, with the current portion of long term debt being the long term debt that is maturing in the 12 months from the balance sheet date. The Corporation has previously identified the measurement of its interest rate risk profile on this 12 month forward basis (see the Debt Management Strategy documents provided in Centra's response to CAC/Centra I-14).

Given the level and frequency of present and future financings, a 4 or 6 year guideline is not practical.

2.13 Conclusions

The following is a summary of Centra's positions regarding its interest rate forecasting and debt management practices:

- Centra utilized current interest rate forecasts during the development of the initial Application. The Corporation has provided an update of its forecast interest rates. The changes for 2013/14 are minor and do not materially impact the revenue requirement. Mr. McCormick's opinion regarding the materiality of the difference is unfounded.

- The interest rate forecast is unbiased as it is not developed with the intent of selecting or encouraging one outcome over others. From a risk management perspective, the

[46] PUB/CAC I-5 lines 14-16.

externally produced source information provides beneficial insight into the expressed range and distribution of potential interest rates. Centra does not support removing forecasters from the pool in order to purposely bias the combined forecast. Mr. McCormick's opinion that the Board should remove Informetrica in order to produce a lower forecast result demonstrates selection bias.

- Centra believes that it is a mischaracterization to refer to Centra's ability to take advantage of the prolonged low interest rate environment as "a chronic uncorrected upward bias in the results of the forecast methodology when compared to actual results."

- Centra has complied with Directive No. 9 interest rate forecasting adjustments. Directive No. 9(d) on the retrospective testing of interest rate forecasters was extensively canvassed at the 2010/11 & 2011/12 Electric GRA. Centra considers that Directive No. 9 has been settled.

- Mr. McCormick's recommended forecast Government of Canada 10 Year+ interest rate for the 2013/14 test year of 2.36% (already 17 basis points below the actual market rate of 2.53% as at June 11, 2013 and 21 basis points below the Bloomberg forward Canada 10 Year+ interest rate for March 31, 2014 of 2.57%) is unlikely to occur. Note that the rate described by Mr. McCormick does not include transaction costs and credit spreads.

- Mr. McCormick's proposed strategy to seek near term cost savings by maintaining a higher weighting of short term debt in the capital structure, is both risky and ill-timed given the expectation of rising interest rates. The Corporation is of the view that it is inadvisable to wait on the sidelines while long term interest rates rise. The Corporation will continue to utilize short term debt to borrow money for temporary purposes. This includes supporting Centra's seasonal working capital requirements and to bridge the timing between long term debt issues.

- The interest rates assigned to all of Centra's existing long term advances are based on actual MHEB financings. CG10 and CG15 were part of portfolio refinancing and Centra was able to outperform indicative market conditions in effect on the assignment date for the weighted average interest rates and weighted average term to maturities.

- Centra's refinancing risk has been significantly reduced through the debt management activities undertaken by the Corporation during the past few years.

ECONOMIC INSIGHTS
May 8, 2013

The Safe Asset That Isn't

by Avery Shenfeld

Economics

Avery Shenfeld
(416) 594-7356
avery.shenfeld@cibc.ca

Benjamin Tal
(416) 956-3698
benjamin.tal@cibc.ca

Peter Buchanan
(416) 594-7354
peter.buchanan@cibc.ca

Warren Lovely
(416) 594-8041
warren.lovely@cibc.ca

Emanuella Enenajor
(416) 956-6527
emanuella.enenajor@cibc.ca

Andrew Grantham
(416) 956-3219
andrew.grantham@cibc.ca

"We see the Fed raising rates a half-year ahead of current market projections..."

http://research.cibcwm.com/res/Eco/EcoResearch.html

If you've been caught off guard by today's ultra-low bond yields, join the club. Only those who had wrongly bet on a double-dip recession were calling for a return to 10-year rates at 1.7% or less, yet that's what happened, in both the US and Canada. The reason for the forecast miss is that this bond market rally has been like no other, so models and historical analogies had to be thrown out the window.

Looking at other asset classes gives a clue to what's behind this past year's rally. Typically, government bonds love weak economic news, since sluggish growth means low short term rates for longer, and little inflation pressure. Japan's protracted period of 1% ten-year rates was the poster child for that sort of bull market for bonds. It came alongside other asset market performance that was consistent with economic malaise, including equity and real estate markets that never recovered their former glory.

Yet these other signposts of economic worry are simply not present this time. US equities are setting new highs, hardly a signal of trouble ahead, and its housing prices are on the rise. Corporate spreads, including those on high-yield (now not-so-high yield) bonds have narrowed. Demand for Apple's massive issue was equally massive, but even the frontier market Rwanda borrowed at a rate less than Italy would have not so long ago. All of those phenomena typically are associated with economic optimism.

That points to quantitative easing's deliberately distorting effect on the yield curve as a key factor behind today's bond market levels. Estimates based on how much supply has been taken off the market's shelves through QE suggest that 10-year yields in the US are at least 100 basis points lower than they would be otherwise, and since Canada's market has moved in lockstep, we've been dragged down to a similar degree.

The other clue lies in looking at yields in Germany—lower still than those in North America. There's been no ECB version of QE, at least not yet. But there has been a fear factor plaguing the sovereign and bank debt of Eurozone countries. The rush to the safety of German issues has so depressed yields that it's created demand for not-so-abysmally low yields elsewhere, including Canada.

While government bonds are considered a safe asset, buying long-dated Government of Canada or US Treasury bonds at these ultra-low rates could prove to be anything but safe. It's been painful to be short, but locking in money for a decade at what will likely be a negative real yield will be equally painful.

We see the Fed raising rates a half-year ahead of current market projections (see pages 7-8), and the market will fear that instead of just raising overnight rates aggressively, the central bank will either shorten term or pare its holdings in order to balance the impact of rising rates across the curve.

Even a snap back to a historically low 2½% 10-year yield will bring significant capital losses. The bottom line: government bonds make a nice dating partner now, but don't get married to those positions.

MARKET CALL

- The market, and economists, got too gloomy about Canada's prospects, and upside surprises in Q1 reports have seen the loonie regain most of its earlier lost ground. But we see the tone of economic reports turning softer again over the summer, prompting a new and perhaps slightly larger depreciation. We expect a return to stronger C$ levels come 2014 as resource prices gather succour from improved global growth.

- We've also left intact our forecast of a Q1 2015 timing for the first rate by the Bank of Canada, although the odds of a hike in late 2014 have admittedly improved given an upgraded picture for Q1 2013 economic growth. We will wait for the first pronouncements from incoming Governor Poloz and evidence on Q2 growth before making any formal adjustments to that projection. But we moved up our forecast for the first Fed hike from mid-2015 to very early that year, as our analysis of demographic trends points to an earlier achievement of a 6.5% jobless rate (see pages 7-8).

- Bond yields came off recent lows in the wake of a stronger than expected payrolls report stateside. While the climb in yields will be choppy, given our call for softer GDP reports in Q2/Q3, bonds are vulnerable once eyes focus on prospects for faster growth when US fiscal tightening lightens up in 2014.

INTEREST & FOREIGN EXCHANGE RATES

		2013			2014				2015
END OF PERIOD:		**7-May**	**Sep**	**Dec**	**Mar**	**Jun**	**Sep**	**Dec**	**Mar**
CDA	Overnight target rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.25
	98-Day Treasury Bills	0.97	0.95	0.95	0.95	0.95	0.95	1.05	1.25
	2-Year Gov't Bond	0.98	1.00	1.00	1.20	1.40	1.45	1.50	1.85
	10-Year Gov't Bond	1.82	2.00	2.40	2.55	2.70	2.80	2.85	2.95
	30-Year Gov't Bond	2.48	2.50	2.90	3.00	3.05	3.10	3.15	3.25
U.S.	Federal Funds Rate	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.25
	91-Day Treasury Bills	0.03	0.15	0.15	0.15	0.15	0.15	0.15	0.20
	2-Year Gov't Note	0.22	0.30	0.40	0.45	0.60	0.80	1.10	1.30
	10-Year Gov't Note	1.78	2.00	2.45	2.60	2.70	2.75	2.80	2.95
	30-Year Gov't Bond	3.00	3.05	3.60	3.70	3.75	3.80	3.90	4.00
Canada - US T-Bill Spread		0.94	0.80	0.80	0.80	0.80	0.80	0.90	1.05
Canada - US 10-Year Bond Spread		0.04	0.00	-0.05	-0.05	0.00	0.05	0.05	0.00
Canada Yield Curve (30-Year — 2-Year)		1.51	1.50	1.90	1.80	1.65	1.65	1.65	1.40
US Yield Curve (30-Year — 2-Year)		2.78	2.75	3.20	3.25	3.15	3.00	2.80	2.70
EXCHANGE RATES	CADUSD	1.00	0.95	0.97	0.98	0.99	1.00	1.02	1.01
	USDCAD	1.00	1.05	1.03	1.02	1.01	1.00	0.98	0.99
	USDJPY	99	101	103	101	103	100	98	98
	EURUSD	1.31	1.25	1.24	1.23	1.23	1.25	1.28	1.27
	GBPUSD	1.55	1.48	1.49	1.49	1.50	1.52	1.56	1.55
	AUDUSD	1.02	0.96	0.99	1.01	1.03	1.04	1.06	1.05
	USDCHF	0.94	0.98	0.99	1.01	1.02	1.00	1.00	1.01
	USDBRL	2.01	1.93	1.95	1.94	1.97	2.01	2.05	2.05
	USDMXN	12.03	12.50	12.50	12.52	12.65	12.69	12.75	12.75

Forecast Update: Eyes on the Prize

Avery Shenfeld, Emanuella Enenajor and Andrew Grantham

Investors face a patch of mildly disappointing economic news ahead, but need to keep their eyes on the longer term prize. The US and Canada both opened 2013 at a decent, if unexciting 2½% pace, which surprised on the downside in the US and on the upside in Canada. Still ahead is the full bite of this year's fiscal restraint, and growth rates in both countries could run below 2% in the second and third quarters. But the surprise thereafter will be all on the plus side, if less so in Canada in terms of domestic growth, but perhaps more so in Canada in terms of profits and equity performance.

Globally, we're increasingly optimistic about the ability of heretofore sad-sack economies, those of the Eurozone and Japan, to contribute more meaningfully to global growth in 2014. While we retain our 3.0% global growth forecast for 2013, we've upped our next year target by two ticks to 4.4% (Table 1). That upside surprise poses a material risk to today's ultra-low bond yields (see page 1).

A Policy Turn in Europe

Europe is a clear swing factor in these projections, shifting from recession in 2013 to growth next year. On the ground, there's not much to cheer; the central bank's recent rate cut won't do much, given that a steady drop in lending rates has been more than countered by business investment pessimism, leaving loan volumes to business tumbling. Without support from a targeted program to buy the weaker sovereign debt, and with negligible progress towards a banking union, lending rates remain elevated in Italy, Spain and Portugal.

But the politics of austerity is changing. Several countries have stepped away from earlier fiscal targets (Chart 1), and appear to be gaining the assent of Germany in adopting a softer line on restraint. While some of that is simply due to revenue shortfalls, the momentum towards milder spending restraint is likely to accelerate after the German elections. That will leave more room for growth to emerge against the backdrop of easier fiscal policy and a weaker euro in 2014.

Canada's Mixed Picture

Upwardly revised data for Canadian January GDP and retail sales, accompanied by fresh news on February/March, more than reversed all of the downgrades we had made to our Q1 forecast. With Q1 headed for a 2.7% gain, we lifted our 2013 forecast by two ticks to 1.7%. That annual figure was dented by weak growth late in 2012, and captures headwinds from fiscal policy and a turn in home building that will extend into 2014. It's only our optimism about global growth, and its push to exports and capital spending, that has us sticking to a stronger 2.4% outlook for Canada next year (Table 2).

While that will still trail the US pace in both years, you don't invest in real GDP. What counts for equities is nominal GDP and profits. With resource prices lifted on better growth in 2014, Canada's nominal GDP will be much closer in line with American results at a roughly 5%

Table 1

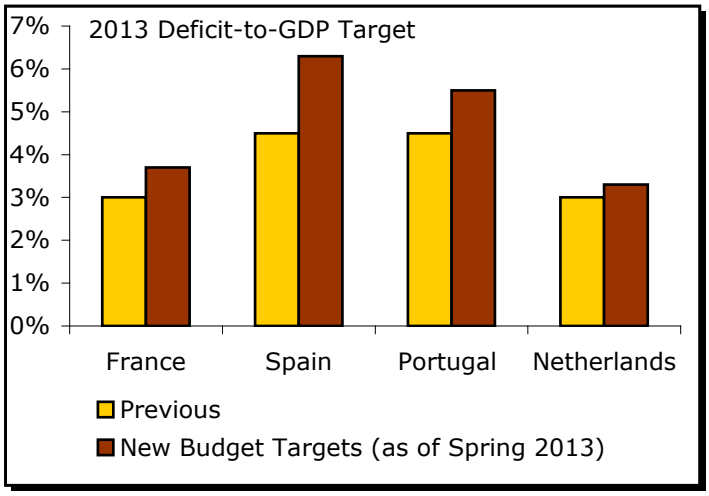
Real GDP Growth Rates

	2012A	2013F	2014F
World*	3.2	3.0	4.4
US	2.2	2.0	3.3
Canada	1.8	1.7	2.4
Euroland	-0.5	-0.7	1.2
Japan	2.0	1.2	2.0
China	7.8	7.8	8.4

*at Purchasing Power Parity

Chart 1

Europe Accedes to Wider Deficits



Source: Eurostat, Reuters, CIBC

Table 2

Canada Forecast Detail

	12:4A	13:1F	13:2F	13:3F	13:4F	14:1F	2012A	2013F	2014F
GDP At Market Prices ($Bn)	1,833	1,849	1,862	1,883	1,909	1,931	1,818	1,876	1,973
% change	1.9	3.4	2.8	4.6	5.7	4.7	3.1	3.2	5.2
Real GDP ($2007 Bn)	1,664	1,675	1,682	1,690	1,698	1,708	1,658	1,686	1,726
% change	0.6	2.7	1.8	1.9	1.8	2.4	1.8	1.7	2.4
Final Domestic Demand	2.6	0.7	1.1	1.3	1.5	1.6	1.9	1.4	1.5
Household Consumption	2.7	1.9	2.0	2.2	2.1	1.5	1.9	2.1	1.7
Total Govt. Expenditures	2.4	-1.5	-1.3	-1.0	-0.8	-0.7	-0.6	-0.4	-0.5
Residential Construction	0.8	-2.0	-1.0	-1.5	-2.0	-2.5	5.8	-1.1	-2.4
Business Fixed Investment*	3.3	1.1	2.5	3.7	5.1	8.3	5.1	2.6	6.4
Inventory Change ($2007 Bn)	2.7	4.8	5.7	5.6	7.8	7.5	5.5	6.0	6.0
Exports	1.2	8.3	5.2	6.7	5.3	8.0	1.6	3.5	7.6
Imports	-1.0	3.0	3.3	4.4	5.6	4.7	2.9	2.5	4.6
GDP Deflator	1.5	0.7	1.0	2.6	3.8	2.2	1.3	1.5	2.7
CPI (yr/yr % chg)	0.9	0.9	0.8	1.4	1.9	1.7	1.5	1.3	2.1
Core CPI (yr/yr % chg)	1.2	1.3	1.3	1.6	1.9	1.7	1.7	1.5	1.8
Unemployment Rate (%)	7.2	7.1	7.3	7.4	7.2	7.0	7.3	7.2	6.8
Employment Change (K)	103	33	-2	41	69	78	201	188	261
Housing Starts (AR, K)	202	174	183	186	182	178	215	181	178

* M&E plus Non-Res Structures and Intellectual Property and NPISH

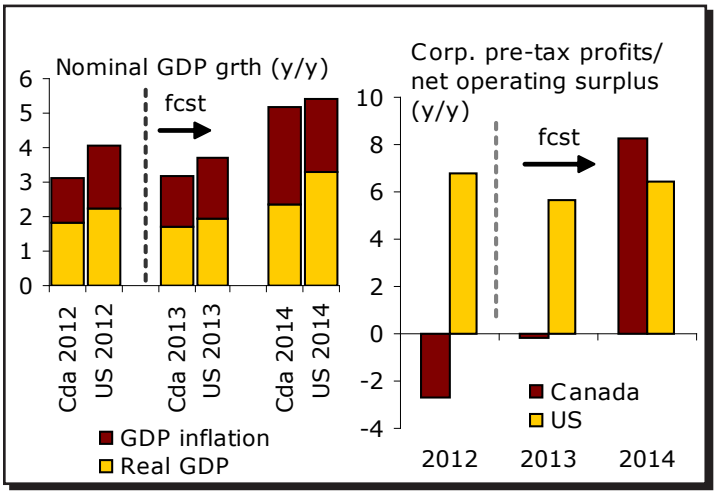
pace, and corporate profits should outgun those stateside (Chart 2).

With all the focus on the drag from government austerity in Europe, and tax hikes and sequestration cuts in the US, pessimistic Canadians might almost feel left out. But fiscal drag is very much a part of why Canada's growth rate is set to disappoint this year.

Budget plans for 2013/14, adjusting public accounts estimates with how they might translate into the national (GDP) accounts, show real purchases of goods and services, including capital, falling by roughly 1% in this fiscal year, subtracting about 0.3%-points from GDP. Add in tax hikes and other measures, and the drag adds up to something close to 0.4% points (Chart 3).

Chart 2

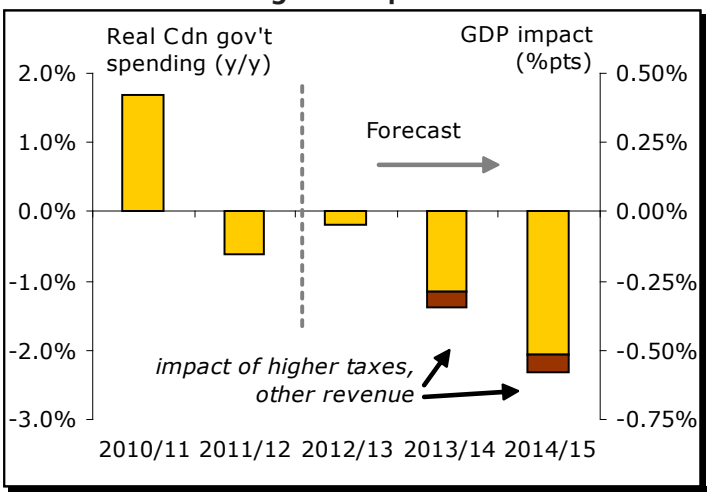
Resource Price Gains to Drive Canadian Nominal GDP and Profits



Source: Statistics Canada, CIBC

Chart 3

Canadian Fiscal Drag to Deepen



Source: CIBC, Federal & provincial budgets, Statistics Canada

Unlike the US and Europe, fiscal drag will remain a barrier to growth in 2014. Assuming it remains on plan, the federal government will be looking for a 0.7% of GDP improvement in the deficit, stripping out what the economy itself will provide, according to PBO estimates. That considerable headwind is a reason why we see monetary policy remaining on hold through 2014 to provide an offset through continued low short rates.

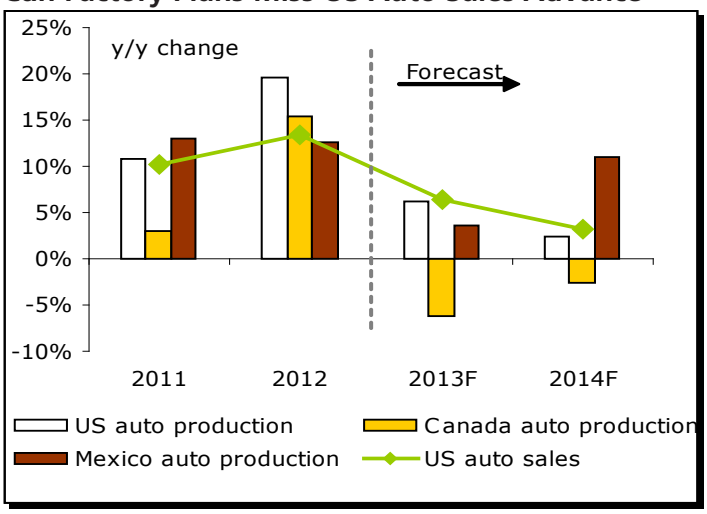
The benefit of low rates in Canada is, however, not as powerful as what we are seeing stateside, with consumer credit crawling at a growth rate more typical of recessionary times. Real consumption is being held in line with real incomes, the latter having been abetted by a temporary run of very weak CPI data, stretching the consumer's dollar.

That leaves the economy leaning on exports and capital spending. The former has seen a one-time lift from a rebound in mining and oil production after 2012 disruptions. Indeed, the resource sector has accounted for two-thirds of economic growth in the last six months (Chart 4, left). But big ticket resource projects are few and far between these days (Chart 4, right). Uncertainties over future pipeline availability and softer prices for metals point to an outright drop in capital budgets for 2013. Better global growth should help turn pricing and capital spending into a positive for 2014.

Elsewhere, factory exports could remain disappointing, with the auto sector in particular being held back by a Canadian dollar that we see weakening to five cents below parity this year, but returning to that level come 2014 as commodities rebound. Plant closures, both completed and upcoming, and less success in winning new facilities, mean that despite rising US vehicle sales, and higher North American production, Canadian assembly plans point to reduced real output in both 2013 and 2014 (Chart 5).

Chart 5

Cdn Factory Plans Miss US Auto Sales Advance



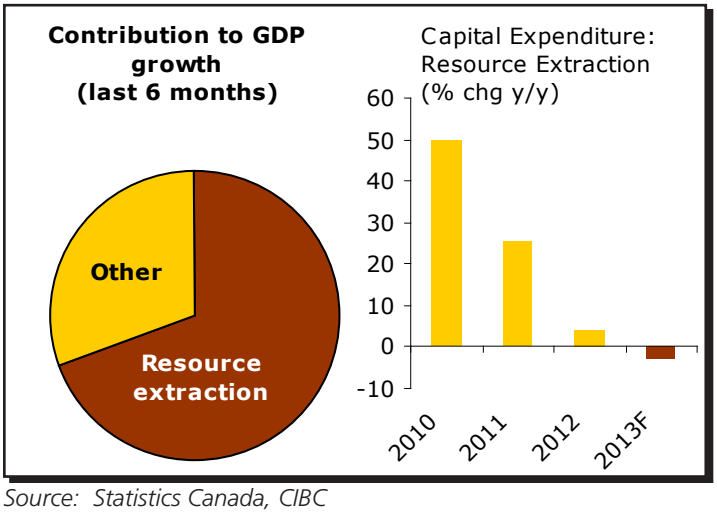
Source: Wards Auto, CIBC

US: Looking Through the Fiscal Drag

Fresh data for March trade point to a small upward revision to Q1 GDP, and recent job gains have been encouraging. But by and large, readings on late Q1 and early Q2 activity have been less robust, and we look for sub-2% growth over the middle two quarters of 2013 as a result. These quarters will feel the hit from sequestration spending cuts (Chart 6, left), and the consumer response to the drain on savings from higher taxes that kicked in at the start of the year.

Chart 4

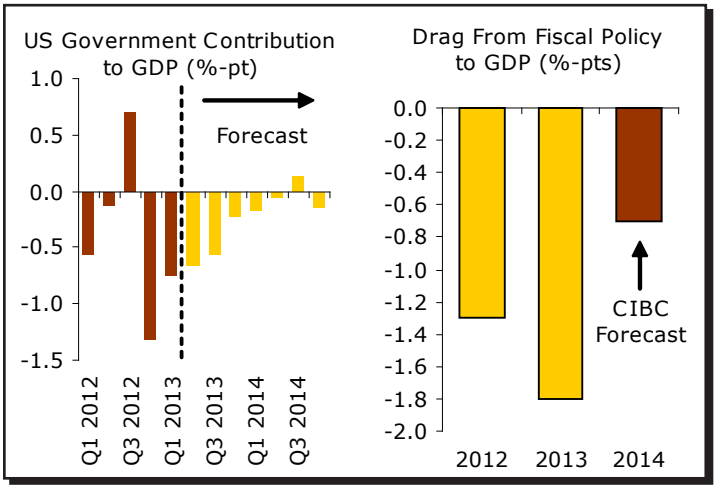
Resource Output Rebounds (L), But Investment Outlook Still Gloomy (R)



Source: Statistics Canada, CIBC

Chart 6

Government Remains a Significant Drag in the Near Term (L), But That Eases in 2014 (R)



Source: BEA, CBO, CIBC

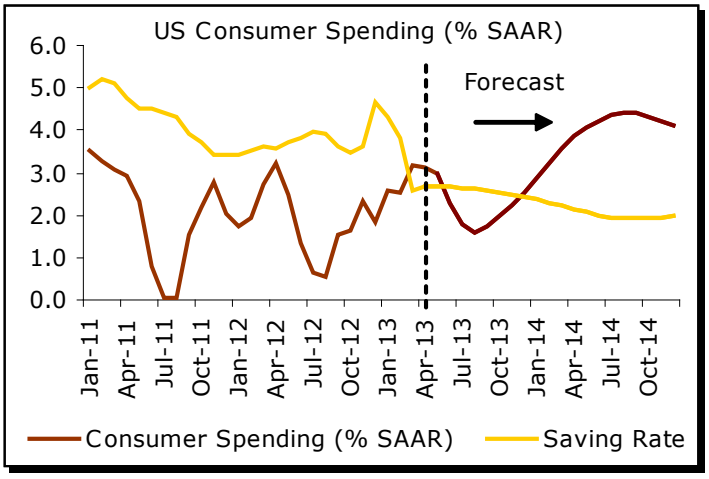
While the subsequent year's budget has not been set in stone, chances are that the year-on-year fiscal drag will be considerably lighter (Chart 6, right). Obama's proposal, for example, is in line with that direction, and while its details were considered DOA at Congress, horse trading between Democrats and Republicans could well end up at a similar level of net restraint, since the focus is now more on paring longer term deficits. If our estimates prove accurate, they imply an acceleration in growth, all else equal, of more than a full percentage point.

Clearly, the household sector, through both consumption and housing, has been key to the improvement in underlying fundamentals. Some point to the weakness in the first quarter savings rate as a reason for seeing that momentum tapped out. Far from it. First, low interest rates are designed to hold back the savings rate, which we do not see backing up from current levels (Chart 7). Second, job creation from the multiplier effect will, come 2014, give households additional income support, allowing real consumption to accelerate in the face of a steady savings rate.

As for housing starts, with 1.3 million a reasonable target, one still well below the last cycle's excesses, there's room for a further 30% advance over the next few years.

Chart 7

Savings Remain Low as Consumption Accelerates



Source: BEA, CIBC

At a 3.3% pace for growth in 2014, the US will hit the 6.5% unemployment threshold for a Fed hike before the end of that year (see pages 7-8). Even if that's not an automatic trigger, we would look for the Fed to hike rates just after the turn of the year, about a half year ahead of market expectations today, with the Bank of Canada on a similar calendar.

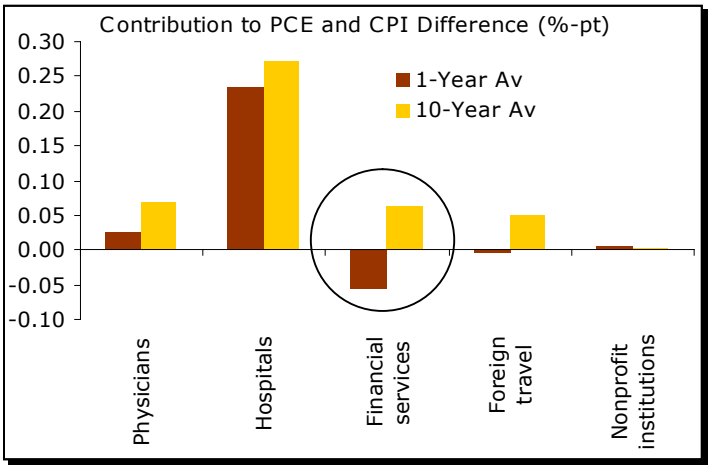
Some point to the recent drop in core PCE as a reason for the Fed to accelerate its bond purchase program, or as a leg of support for a longer run of low bond yields. But note that the core CPI has barely budged. Among the items included in the PCE, but not the CPI, financial services typically helps push PCE higher, but narrow lending spreads have it acting as a downward force on PCE (Chart 8).

Even if spreads remain steady, a year from now they will no longer be a source of disinflation in the PCE. We therefore expect that CPI and PCE will be running close enough to 2% by the time the Fed thinks of hiking at the end of 2014.

For now, sluggish growth through the summer months could give comfort to bonds, and hold back enthusiasm for stocks. But those keeping their eyes on the longer term prize will be using those months to begin to shift weight towards equities that can benefit from 2014's surprising vigour.

Chart 8

US Inflation: Key Items in PCE But Not CPI



Source: BEA, CIBC

US: From Baby Boom to Participation Rate Bust

Emanuella Enenajor and Andrew Grantham

Economists may be patting themselves on the back, having accurately predicted the US economy's 2012 growth rate. But the praise stops there, as unemployment rate forecasts have been off the mark. The jobless rate ended the year at 7.8%, well below the 8.1% the street had been expecting, with an unforeseen exodus of workers from the labour force putting downward pressure on the jobless rate.

What the market might be missing is that, with baby boomers leaving the workforce, the falling participation rate is increasingly being driven by engrained demographic trends, rather than cyclical forces. Those factors will also dampen longer-term US growth. And with slower trend growth, it won't take much hiring to stoke inflation once the economy perks up again. With those demographic forces persisting, we could approach the Fed's 6½% by late 2014—sooner than most, including Fed members themselves, are expecting.

Why the Jobless Rate is Dropping

It's well documented that the recent drop in jobless rate has partly reflected falling labour force participation. While roughly 65% of the population was working or actively looking for work when the jobless rate peaked in October 2009, that share is down to 63.3% today. So there is a smaller pool of available labourers, putting downward pressure on the jobless rate.

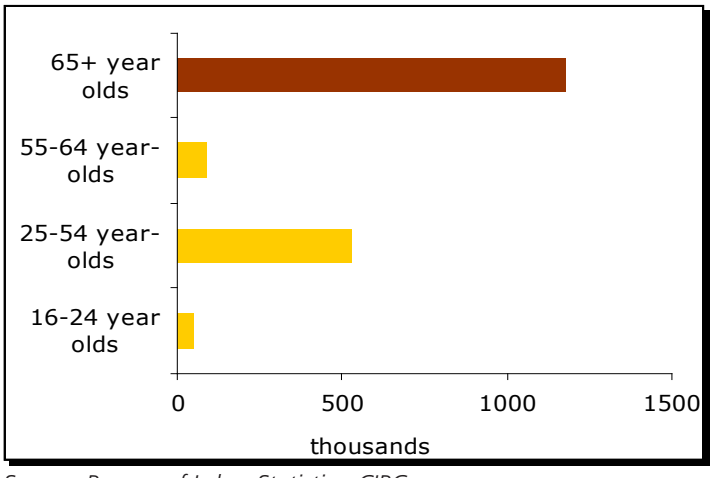
But the reasons for that shrinking workforce are less well understood. In the past year, roughly 1.8 million individuals exited the labour pool. A quick glance at the composition of that change shows a stunning demographic shift, with roughly two thirds of the exits driven by older workers (Chart 1) who comprise less than a fifth of the total population. These older individuals will not likely be drawn back to the job search if activity picks up.

With the US population aging, the share of prime working-age individuals (25-54), who have the highest participation rate, is gradually falling (Chart 2). That demographic shift has been the key driver of the fall in the participation rate over the past year, as the increasing share of older individuals in the population, with lower average labour force participation, has driven the aggregate participation rate lower. Compare that to earlier in the recovery, when a drop in the participation rate of similar magnitude was due primarily to cyclical factors, as workers became increasingly discouraged over job prospects (Chart 3).

With broader measures of the jobless rate still tracking near the 9% mark, there is clearly still slack in the labour market. But looking ahead, demographic trends could keep the participation rate from showing any recovery, let alone getting back to its pre-recession levels.

Chart 1

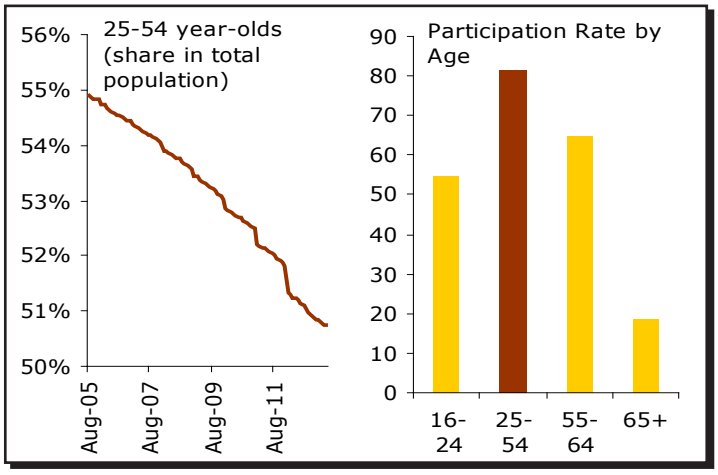
Who are the 1.8 mn People That Left the Labour Force Last Year?



Source: Bureau of Labor Statistics, CIBC

Chart 2

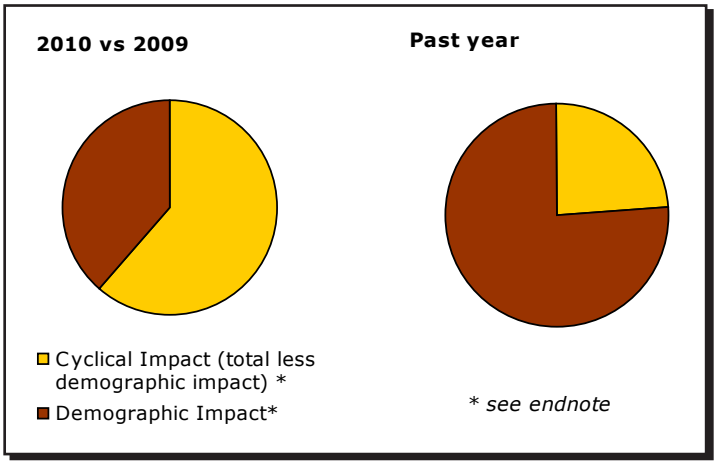
Prime Working Age Individuals Increasingly Scarce



Source: Bureau of Labor Statistics, CIBC

Chart 3

Participation Rate Drop: Increasingly a Baby Boom Story



Source: Bureau of Labor Statistics, CIBC

Six-and-a-Half: Sooner Than You Think

Although older workers are staying in the labour force longer, that is more than offset by an aging population and a greater number of young people staying in school longer. As such, even assuming that participation rates outside of the youngest and oldest age brackets (i.e. within the 25-54 age group) recover to pre-recession levels, overall participation in the US labour market would keep falling due to demographic trends. And that's assuming participation in that core 25-54 group starts to pick up right away. In reality, it may not happen until we see strong and sustained growth, which we don't expect until 2014 (Chart 4).

As a result, labour force participation will continue to fall this year, and may only post a mild recovery thereafter. That's assuming a smooth re-entry of discouraged workers, and no sudden influx of immigration. With that profile, even job growth tracking the pace of recent years would see the jobless rate reach 6.5% by February 2015. That's before the mid-2015 market consensus. Add in the stronger economic growth and hiring we expect for next year, and the unemployment rate should hit the 6.5% threshold in October 2014. While that may not mean an instant rate hike, a lower jobless rate could pressure wages higher and stoke fears of inflation accelerating down the road. That should see a forward-looking Fed nudge rates higher just after the turn of the year—a half-year before the mid-2015 date that markets expect.

The labour market clearly isn't fully healed, with nearly 12 million jobless and many more on the sidelines waiting to see a more engrained recovery before they dip their toe in the labour market again. But for fixed income markets, the risk of a selloff isn't in a sudden return to pre-crisis conditions—rather, it's any clear sign that the economy is moving in the right direction in a sustained fashion.

With stronger employment growth and demographic effects bringing the unemployment rate below 6.5% before the end of 2014, the surprise for next year could be how abruptly the Fed changes its monetary policy tune.

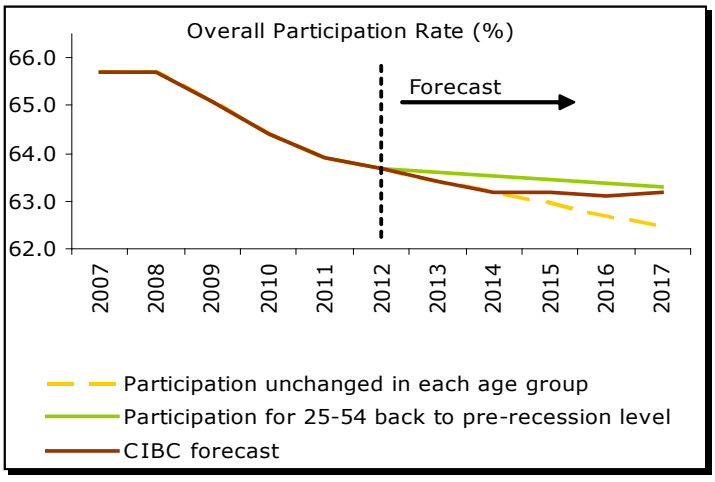
Endnote:

$$LFPR_t - LFPR_{t-1} = \sum_i \{[LFPR_t^i - LFPR_{t-1}^i]p_t^i + [p_t^i - p_{t-1}^i]LFPR_{t-1}^i\}$$

where the change in the ^{i} aggregate LFPR can be broken down into the change in each demographic group's LFPR (weighted by the population share in the current period) plus the change in each demographic group's population share (weighted by the group's prior-period LFPR). See Hotchkiss, Julie 2009. Changes in the Aggregate Labor Force Participation Rate. FRB of Atlanta Economic Review 94, no. 4: 1-6

Chart 4

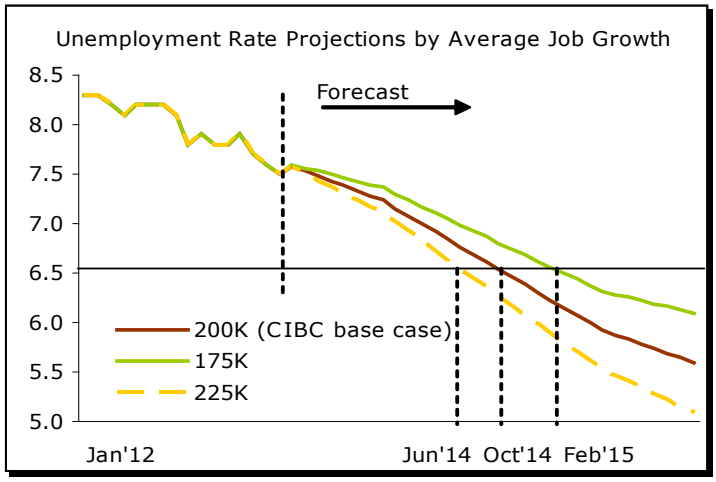
Aggregate Participation Rate Will Fall Even as Discouraged Workers Return



Source: Census Bureau, BLS, CIBC

Chart 5

Unemployment to Reach 6.5% in 2014



Source: BLS, CIBC

Where is the GTA Condo Market Heading?

Benjamin Tal

Counting cranes is a new pass-time in Toronto given the city's latest claim to fame as the urban centre with the most high-rise real estate projects in North America. Are we in a bubble? It takes more than counting cranes to provide a credible answer. The GTA condo market is a multi-dimensional market that is often misrepresented for the sake of simplicity. Zooming in on the condo market without a good understanding of the context of the broader housing market in the area is a common error that can easily lead to misdiagnosis. A closer look reveals a reasonably balanced market, but a market that has not yet faced its ultimate test.

The Big Shift

At first glance the picture is alarming. Condo pre-construction sales in the GTA were down by 24% (year-over-year) in the first quarter of 2013 and are more than 10% below their long-term average. Builders, on average, are able to pre-sell only 20% of their units in the first month following the launch of a new project—less than half the rate seen in the past few years (Chart 1, left). Yet, developers continue to break ground. At close to 60,000 units in construction, condo activity is currently at a record high (Chart 1, right).

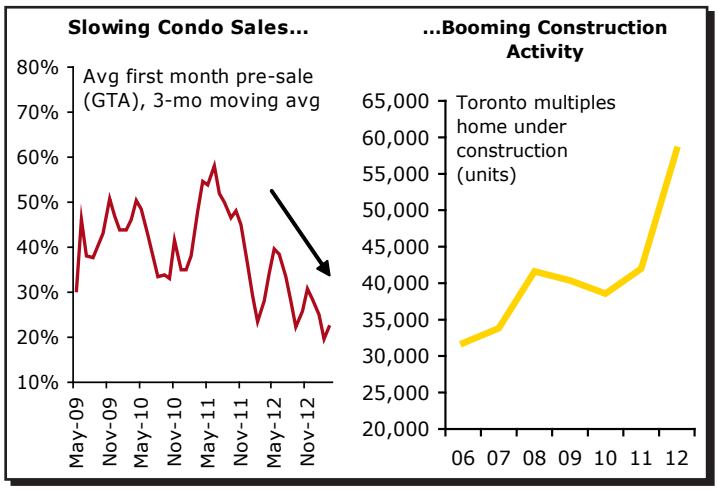
But looking at today's condo market in isolation is an error that even a casual observer should not make. The recent surge in condo activity is, in many ways, a direct consequence of the structural shift in the GTA's housing mix, whereby the condo market compensated for the lack of growth in low-rise housing. This shift from low-density to high-density housing has been directed by provincial intensification policies under the "Places to Grow Act", encouraging a more sustainable approach to urban development by restricting land availability for the low-rise market. In many cases, local interests in the Greater Golden Horseshoe area are not aligned with the province's goal of intensification—leading to significant delays in the approval process—further limiting supply.

So significant has been the move from lateral to vertical developments that currently, multiple units account for a record-high 75% of all housing starts in the GTA. That is 20 percentage points above the long-term average.

Yet, a casual examination of the available inventories in the market reveals none of this drama. At just under 1,600, the number of newly completed & unoccupied units in the GTA market is comfortably close to its long-term average (Chart 2, left) , and it is, in fact, below that threshold when adjusted for population growth. But the right side of Chart 2 tells the real tale. The relative stability of total available inventories masks rising inventories in the condo market and falling inventories in the single and semi-detached market. The high level of volatility in condo

Chart 1

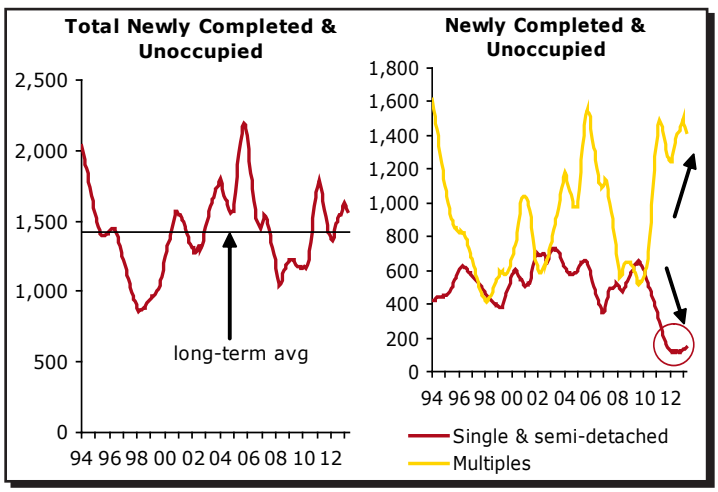
Is There Something Wrong With This Picture?



Source: RealNet Canada, CMHC, CIBC

Chart 2

Unalarming Available Inventories (L) Mask Two Opposing Trajectories (R)



Source: CMHC, CIBC

inventories is nothing new. What is new is the dramatic dive in the number of single & semi detached units, which is now at its lowest level on record. No surprise then that virtually all the increase in new home prices in the GTA over the past two years came from the low-rise market. In fact, per square foot, the price gap between low- and high-rise units is at a record high.

The Rental Factor

The surge in condo activity also reflects the fact that due to a multitude of reasons such as rent control and preferences, condo rentals replaced apartment building as the main source of rental units. In fact, since 2007 virtually all the increase in units available for rent came from the condo market, with 22% of the stock of condos and (estimated) one-third of the flow (new construction) currently for rent (Chart 3). Still the vacancy rate in the condo space is around 1% while rent is estimated to be rising at an inflation-beating 3%.

Important here is that in response to affordability issues and growing investor demand, condo builders have reduced the average unit size by almost 15% since 2009. This trend has two important implications: first, the move towards smaller units might represent short-term thinking and could result in a mismatch among the type of units supplied and ultimately demanded for occupancy by growing young families that are priced out of the single-detached market, and by aging baby boomers. Second, the consensus in the building industry is that we have reached the minimum average unit size that the market will tolerate, suggesting that builders will no longer be able to improve affordability in any meaningful way.

Can They Build It?

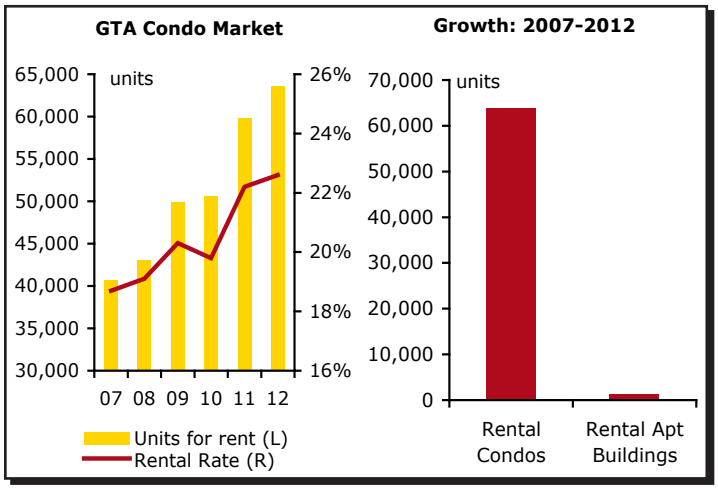
While the big shift from lateral to vertical developments can easily explain the recent trajectory of the condo market in the GTA, can it explain its magnitude? The short answer is no. A glance at Chart 4 reveals a record-high gap between total housing starts and completions in the GTA with starts rising strongly in both 2011 and 2012. Based on the average length of condo construction it is reasonable to expect 2013 to see the number of condo completions rising to just under 20,000. But the big story will be in 2014 when, in theory, completions can reach close to 35,000. Given that over the past 10 years the number of condo completions averaged less than 15,000 we are clearly in uncharted territory.

Such a level of completions is viewed by many in the industry as unachievable due to capacity limitations. Yes, in the 1970s the industry was able to complete as many as 25,000 high-rise units in a given year, but those were apartment buildings that required a much simpler skill set to build than today's new condos. Financing is also becoming an issue with the rapid pace of development causing many lenders to think twice before extending credit, even when the usual threshold of 70% pre-construction sales has been reached. We estimate that condo developers currently face a $2-3 billion financing gap—mainly when it comes to tier-2 players and/or the luxury condo space.

Accordingly, and based on many discussions with developers, we project that 2013 will see 18,000 condo

Chart 3

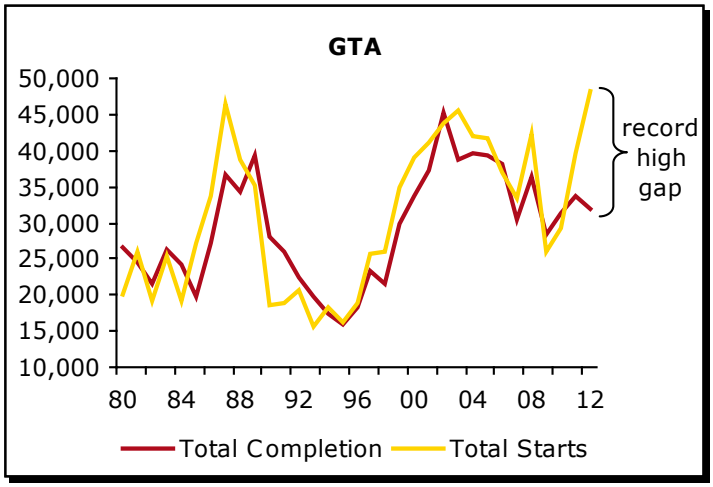
Condos For Rent



Source: CMHC, CIBC

Chart 4

Huge Gap Between Starts and Completion



Source: CMHC, CIBC

completions, followed by 23,000 completions in 2014. The practical implication of such a scenario is potentially large-scale delays in project delivery in the coming two years.

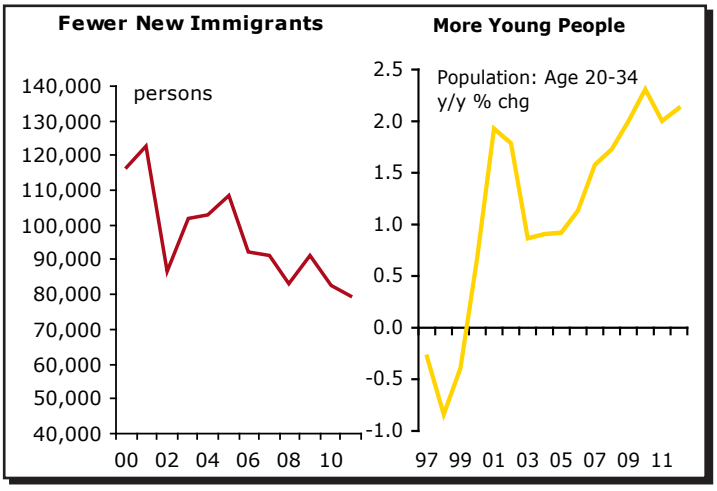
If They Build It, Will They Come?

So far the number of completions has kept up with the increase in household formation. But that will not be the case going forward. Two opposing forces will determine demand for condo units in the coming years. Immigration is key since new immigrants are twice as likely to live in a condo relative to non-immigrants. And here the trend is becoming less friendly, with the city currently receiving 20,000 fewer new immigrants a year than it did on average over the past decade. In fact, the GTA is currently accounting for just over 30% of all new immigrants arriving to Canada, down from 45% as recently as 2006 (Chart 5, left). Helping to offset this trend is the rapid rise in the number of young people in the GTA. At north of 2% year-over-year growth, their number is now rising at the fastest rate in more than two decades (Chart 5, right).

Based on these trends and adjusting for the rising share of growth in one-person households and the larger than average household size among new immigrants, we estimate that household formation in the GTA will average 31,000 in the coming few years—not fast enough to account for the projected rise in total (low- and high-rise) unit compilations (Chart 6). Overbuilding, however, does not mean an inevitable crash. As past experience reveals, more often than not it leads to a gradual slowing in supply—a process that has already begun (Chart 7).

Chart 5

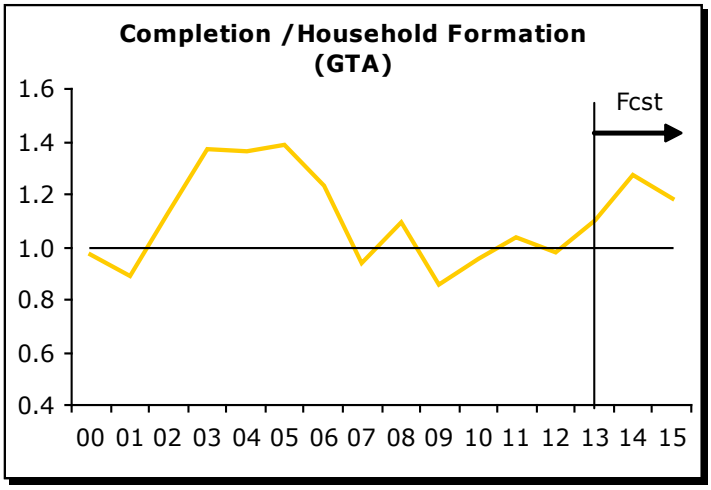
GTA's Demographic Picture



Source: Statistics Canada, CIBC

Chart 6

Completions Will Outpace Household Formation in Coming Years

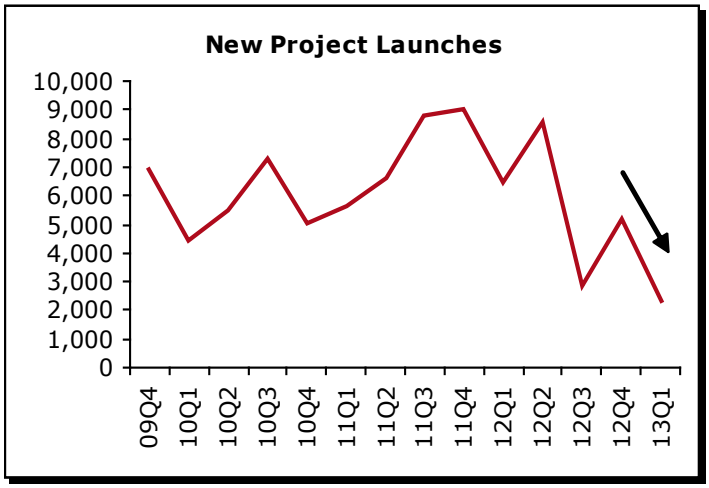


Source: CMHC, Statistics Canada, CIBC

So the picture that is emerging is that 2014-15 will be a turning point in the condo market. With the notable increase in supply we expect to see rental conditions easing, and a gradual increase in vacancy rates, a slowing in rent inflation and some downward pressure on prices. Key for such a trajectory will be the response of condo investors to any increase in supply. If the majority of investors are heavily leveraged (say less than 20% down-payment) and are in the market for the short-term, then we will face the risk of a mass exit with a more notable impact on prices. Our assessment is that's not the case and that the majority of investors will be able to absorb the changing rental market conditions without being forced to sell.

Chart 7

Builders Are Scaling Down



Source: RealNet Canada, CIBC

ECONOMIC UPDATE

CANADA	12Q4A	13Q1F	13Q2F	13Q3F	13Q4F	14Q1F	2012A	2013F	2014F
Real GDP Growth (AR)	0.6	2.7	1.8	1.9	1.8	2.4	1.8	1.7	2.4
Real Final Domestic Demand (AR)	2.6	0.7	1.1	1.3	1.5	1.6	1.9	1.4	1.5
All Items CPI Inflation (Y/Y)	0.9	0.9	0.8	1.4	1.9	1.7	1.5	1.3	2.1
Core CPI Ex Indirect Taxes (Y/Y)	1.2	1.3	1.3	1.6	1.9	1.7	1.7	1.5	1.8
Unemployment Rate (%)	7.2	7.1	7.3	7.4	7.2	7.0	7.3	7.2	6.8

U.S.	12Q4A	13Q1A	13Q2F	13Q3F	13Q4F	14Q1F	2012A	2013F	2014F
Real GDP Growth (AR)	0.4	2.5	1.9	1.9	3.0	3.7	2.2	2.0	3.3
Real Final Sales (AR)	1.9	1.5	2.2	1.9	3.0	3.9	2.1	2.0	3.4
All Items CPI Inflation (Y/Y)	1.9	1.7	1.5	1.8	2.1	2.1	2.1	1.8	2.3
Core CPI Inflation (Y/Y)	1.9	1.9	1.8	1.8	1.9	1.9	2.1	1.9	2.0
Unemployment Rate (%)	7.8	7.7	7.6	7.6	7.4	7.2	8.1	7.6	6.8

CANADA

A firmer-than-expected start to the year has seen us significantly boost our Q1 GDP call to 2.7% (from 1.5% only a month ago). Although some of that simply brought forward growth we had expected later in the year, it leaves 2013 on track for a 1.7% pace, two ticks above our earlier expectations. Inflation data have continued to come in on the soft side and with ongoing retail competition putting downward pressure on prices, we have nudged down our forecast this year.

UNITED STATES

2013 may not have started with quite the bang we were expecting, although we could still see a small upward revision to Q1. But slower growth is still likely in Q2/Q3 with those quarters seeing the biggest bite from fiscal policy. Better jobs figures for April make us hopeful for only a modest slowdown rather than a sharper slump which some feared as March data rolled in. The unemployment rate continues to fall due largely to demographic factors—a trend we now see continuing and bringing unemployment to 6.5% before the end of 2014.

65

PUB/CAC I - 1
Reference: Evidence of J .D. McCormick, Page 6 Q. 8, PUB/Centra I-10 (a)

Please provide a summary table that details each of the directed changes in interest rate forecasting in Order 128/09 and comment on Centra's compliance.

Response:

(i) Directive 9 (a) The use of all forecasts based on comparable average period data basis	Centra appears to be broadly compliant with respect to paragraph 9 (a). The caveats that I attach to this comment are, that: (1) based on the forecasters' source documents presented in PUB/Centra I-6 and CAC/Centra I-6, I am unable to independently confirm, that the data points are end period or period average[1] for IHS Global, Conference Board, Informetrica; and; (2) mechanically, (i) there were problems with some missing data points[2] (which shorten the period for which one may calculate an average); (ii) a failure to use the same methodology to develop inputs[3]; and, (iii) in my view some confusion in the choice of the best method to bridge discontinuous data points[4].
(ii) Directive 9 (b) The use and alignment of current date forecasts, excluding stale dated and superseded forecasts	With respect to the use and alignment of current date forecasts, Mr. McCormick notes that the dates of the forecasts used to develop Table 1 and Table 2, in PUB/Centra I-6, are much more contemporaneous to each other than in 2009, and he suspects, but cannot independently confirm that they were timely when the fall update was first prepared. Regrettably, the fall update is based upon many forecasts which today, with the passage of many months, can only be viewed as having been superseded. As such, Mr. McCormick would view Centra as currently non compliant.

[1] By way of example, many of the other forecasters provide a comment as to type of data presented, end period or period average, including Desjardins, Table 11, CAC/Centra I-6 (a) page 3 of 27, Laurentian CAC/Centra I-6 (a) page 11 of 27, National CAC/Centra I-6 (a) page 12 of 27, Royal CAC/Centra I-6 (a) page 16 of 27, Scotia CAC/Centra I-6 (a) page 19 of 27 and TD CAC/Centra I-6 (a) page 20 of 27.
[2] CIBC 1Q 2014 in table 1 and Table 2, and Conference Board 1 Q 2015 in Table 2, see CAC/Centra II-46 and CAC/Centra II-47
[3] National 2 Q 2013 in Tables 1 & 2
[4] National 3 Q and 4Q 2013 in Tables 1 & 2

(iii) Directive 9 (c) Utilization of forecasted long term interest rates which align with the period in which Centra intends on issuing new or refinancing existing long term debt	Mr. McCormick's reply on this particular clause of paragraph 9, hinges on the meaning of the word "period". Had the Board intended "period" to refer to a financial year, Centra's efforts seem broadly compliant. Had the Board intended to be more precise, so that "period" would refer to the particular calendar quarter in which Centra forecast that a financing might take place, Mr. McCormick would view the use of a forecast rate representing the average for the fiscal year, as less compliant, when the more precise forecast for the specific calendar quarter is readily available[5] having been a necessary step to calculating the fiscal year forecast rate. So when Centra is refinancing a known maturity, for example May 15, 2015, and forecasts that it will undertake a new financing or reopen an existing financing in May of 2015, Mr. McCormick would prefer to use the 2Q 2015 forecast values, rather than the fiscal 2015/16 forecast value. If Centra is using the spread free 3 month T-bill based Short Term Debt facility and is amassing $10 million, $20 million or $40 million in capital expenditures and the spending forecast creates uncertainty as to the specific quarter during which the new financing would be executed, Mr. McCormick would accept the use of the fiscal period forecast rates as reasonable. Please refer to Q. 30 in Mr. McCormick's written evidence beginning at page 44.

[5] See Mr. McCormick's evidence at page 44 and the response to Q. 30 which discusses that matter.

(iv) Directive 9 (d) A process to retrospectively test the accuracy of forecasters to assess their inclusion in future forecasts	Centra appears not to be compliant with respect to directive 9 (d). In Mr. McCormick's view, Centra is unwilling to undertake this task. Considering Centra's financial advantage in the just last 4 years of over $10 million, which was quantified in PUB/Centra I-42 (b), it seems perfectly reasonable from Centra's viewpoint, as indicated in PUB/Centra II-141 (b), that "a process to retrospectively test the accuracy of forecasters to assess their inclusion in future forecasts is not beneficial at this time." In PUB/Centra II-141 (b), Centra: (a) seeks to defer any retrospective testing, for a "full business cycle"; (b) fears that "retrospective testing ... could potentially weaken or bias the Corporation's viewpoints in terms of understanding the spectrum of possibilities and mitigating the risk"; and, (c) seeks to rely on the "cost of service regulation" to mitigate "the need for retrospective testing for rate setting purposes" In addition to these and other cautionary comments, Centra indicated that it considered matters "resolved" in page 4 of 5 Letter of April 1, 2013, Mr. Czarnecki to Mr. Singh. As a father, Mr. McCormick has some experience in reviewing the quality of performance when someone is compelled to undertake tasks which they are unwilling to undertake or do not consider beneficial at the time, such as household chores or homework. In those circumstances it is difficult to compel stellar performance. Mr. McCormick is of the view that a process to test retrospectively the accuracy of the interest rate forecasts is timely, beneficial and central to the function of determining the fair and reasonable rates. "Revenue requirement under a *Cost of Service* methodology takes into account forecasts of finance expense and net income by management based on management judgment as opposed to a formulaic approach. The forecasts have to be acceptable to the regulator, if not, the regulator amends the forecasts in establishing revenue requirement and rates. Allowable costs ... form the basis for determining revenue requirement." See page 63 of Board Order 135/05

(v) Directive 9 (e) The use of only statistically independent forecasts	Centra appears to be broadly compliant with respect to directive 9 (e), subject to the caveat that, with Centra's initial desire to hide the identities of certain of the worthy forecasters, Centra could include statistically dependent forecasts, without that being discovered.
(vi) Directive 9 (f) A proposed process to update the forecast in advance of the hearing if warranted.	Centra appears not to be compliant with respect to directive 9 (f). Being unsure of the specific meaning of directive (f) which the Board intended, if the Board was only seeking to have Centra return with a proposed process, Mr. McCormick has been unable to identify any such proposal on the record. If the Board was seeking to put Centra on notice that the Board wanted Centra to provide an update in the interest rate forecasts when changes in financial markets warranted, at best it would appear that Centra has mandated a process to provide that update only after intervener evidence has been filed, which only serves to frustrate any testing of the updated material. Although, Mr. McCormick does not recall any statement in the record that Centra believes its fall update is the process, perhaps Centra considers its fall 2012 update to its spring forecast as being an adequate process to update the forecast in advance of the hearing. Mr. McCormick would not share that view. In undertaking the spring update, Centra, by its conduct, appears internally to have identified a change which it determined would be more than adequate to warrant an update. We attempted to engage Centra in discussion and quantification of the threshold change which it felt warranted an update, but were unsuccessful in getting that quantification. Mr. McCormick sees nothing to suggest that Centra has determined to share with us, its quantified thresholds of changes in forecast inputs, which would warrant an update nor the established period in which to deliver an update.

PUB/CAC I - 2
Reference: Evidence of J.D. McCormick, Page 9 Q.10 PUB/Centra I-18 (2008/09 & 2009/10 GRA)

Please summarize the proposal to retrospectively test forecasters and the criteria to be employed to improve interest rate forecasts.

Response:

Mr. McCormick's criteria for inclusion of a forecaster into the pool of worthy forecasters is that the accuracy of the resulting near term interest rate forecast be enhanced by the inclusion of that forecaster.

Applying the criteria to the existing pool, selected by Centra, changes the question slightly to, 'does the inclusion of this forecaster enhance the accuracy of the resulting near term interest rate forecast?'

Having been denied the opportunity to review Centra's proposed testing process or analysis of the relative contributions of its selected worthy forecasters, the development of which was ordered in Directive 9 (d) of Order 128/09, Mr. McCormick's proposal to address the persistent upward bias in the interest rates forecasts is simply to remove at least one of the highest forecasters from the pool of worthy forecasters selected by Centra.

The determination of whether to remove one, or more than one, forecaster would relate to the degree of over forecasting and the relative impact of the change in near term interest rate forecasts by removing one on the forecast rates.

In the IR process, Centra, the proponent of this interest rate forecast methodology, was afforded the opportunity to assist in the quantification of the degree of error caused by various factors, but declined to do so[6]. Centra's reply was to note variances that were "primarily associated with ... financial market changes."

In the IR process, Centra, the sponsor of its selection of the most worthy forecasters from the available pool of forecasters, was afforded the opportunity to assist in the quantification of the degree of error caused by various factors, but declined to do so by not providing any analysis on the various topics requesting, including the process of including or excluding forecasters[7].

[6] CAC/Centra II-52 (b) and (c).
[7] CAC/Centra I-13 (b) through (e) and CAC/Centra II-51 (c)

PUB/CAC 1-3
Reference: Evidence of J.D. McCormick, Page 27 Q.19

a) What is the minimum and optimal number of forecasters Centra should utilize for interest rate forecasting for rate-setting purposes?

Response:

Mr. McCormick is unable to identify a positive integer that would represent either the minimum or optimal number of forecasters that Centra should utilize for interest rate forecasting purposed.

Were there a single forecaster with a perfect track record of forecasting period average interest rates[8], Mr. McCormick would recommend that that forecaster be relied upon to the exclusion of all others until its forecasts went amiss.

Failing perfection of a single forecaster, were there a single forecaster with a track record of very low error rates in forecasting the period average interest rates in various quarters, 'standing head and shoulders' above the rest of the worthies, Mr. McCormick would recommend that that forecaster be relied upon to the exclusion of all others until its forecasts went amiss.

In the event that there is no single forecaster with very low error rates, Mr. McCormick would recommend that pairs of forecasters be tested to determine the pair with the lowest aggregate error, and then a iterative process be undertaken to determine which, if any, additional forecasters can be added to the mix resulting in a reduction of overall error between forecast and actual results.[9]

Mr. McCormick notes that in his evidence in the Manitoba Hydro 2010/11 & 2011/12 GRA, as discussed on page 9 of his evidence in this proceeding, he identified that for a particular period he found that the average of the Scotia and National forecasts had a very small aggregate forecast error.

Mr. McCormick expects that a combination of several forecasters will be able to provide diversity of opinion and lower forecast error than the large pool employed by Centra currently.

Mr. McCormick also notes that it is not necessary that all forecasters contribute to the t-bill forecast and the 10 year plus forecast. He would support independently testing forecasters for each of the two tasks. In a similar manner, in earlier proceedings, it appeared that certain forecasters were excluded from

[8] Mr. McCormick would also embrace a forecaster of end period interest rates, if the averaging of which would lead to a perfect track record of forecasting period average interest rates.
[9] Mr. McCormick also commented on this topic in PUB/CAC/MSOS I-19 in the 2009/10 Centra GRA.

the 2 year forecast but employed in assisting in forecasts for 3 or more years.[10] That segmentation seems to have been lost in the current forecast.

b) Please elaborate on the specific criteria that Centra should utilized to select a forecaster.

Response:

Mr. McCormick would suggest that the ability to contribute to the accuracy of the resulting forecast is the prime criteria. Clearly, in addition to contributing to the accuracy of the resulting near term interest rate forecast, the forecaster's input data should be consistently available so as to avoid data manipulation problems, and, should cover the interest rates being forecast generally for the period of the forecast.

c) Based on the specific criteria, what if any of the current forecasters should be excluded from the forecast methodology?

Response:

In his evidence, Mr. McCormick indicates that in his opinion, Informetrica should be removed from the calculation of near term interest rates. The criteria that Mr McCormick employed in making this recommendation was accuracy.

As discussed in CAC/Centra II 52, the forecasts and actual interest cost presented in the table in PUB/Centra I-42 varied by 8% to 23% in the periods therein indicated. The average annual variance[11] was 14% of forecast interest costs. In CAC/Centra II-52, Mr. McCormick attempted to have Centra identify and quantify the several causes of the variance. Mr. McCormick is of the view that in addition to the persistent upward bias of forecasters, certain other causes may have contributed to the interest cost forecast variance. These other causes may include factors such as undertaking a floating rate debt issue when a more expensive fixed rate debt issue had been included in the forecast, and, forecasting excess levels of debt. Centra did not provide the identification of various contributing factors; but rather, noted without quantification that variances "are primarily associated with these significant financial market changes".

[10] See CAC/MSOS/MH II 161 (c) from the 2010 Hydro GRA

[11] The February 2010 $75 million refinancing and the March 2010 $50 million financing were originally forecast to be done at 5.3% as 20 year maturities. See CAC/MSOS/Centra I-5 (f). These financings were done at 4.7260% and 4.6380%. In footnote 4 to CAC/Centra I-19, Centra notes the Board Order 128/09 authorized rate of 4%.

Mr McCormick would seek to remove Informetrica, as the highest forecaster, so as to bring the forecast into better line with recent historic experience. Mr. McCormick is confident that removing Informetrica would not change the forecast by the 23% variance recorded in 2011/12. Were forecast error the only factor, clearly additional high forecasts would need to be removed to reduce the interest rate forecast error component in the interest cost forecast error.

Mr. McCormick notes that, should Centra not be persuaded to adopt retrospective testing to improve its forecast, the Board, with its understanding of the persistent upward bias of the forecast methodology, can take that knowledge and adjust the revenue requirement to reflect the uncorrected bias.

PUB/CAC I - 4
Reference: Evidence of J.D. McCormick, Page 36 lines 5-15 Q.24

Please comment on the reasonableness of the 48.4 basis spread and provide supporting analysis.

Response:

Mr. McCormick would view the spread or margin of 48.4 basis points from the benchmark rate as unreasonable for a 5 year floating rate Manitoba credit instrument issued in spring of 2010.

The table below provides the initial dates of issue and maturity for a number of recently issued and currently outstanding series of Manitoba floating rate instruments.

Series	Principal	Issue	Maturity	Coupon	Years
56344znx3	$ 250,000,000	30/11/2009	31/10/2013	M CDOR plus 20	3.9
56344zpa1	$ 145,000,000	18/01/2010	17/04/2014	Q CDOR plus 18	4.2
10	$ 35,000,000	22/02/2010	22/02/2015	BA plus 48.4	5.0
56344zpe3	$ 100,000,000	04/05/2010	04/05/2015	Q CDOR plus 23	5.0
56344zpm5	$ 625,000,000	06/05/2011	15/09/2016	Q CDOR plus 15	5.4
56344zpt0	$ 300,000,000	18/04/2012	03/04/2017	Q CDOR plus 25.5	5.0
56344zpz6	$ 404,000,000	03/12/2012	02/04/2018	Q CDOR plus 24	5.3
56344zqb8	$ 380,000,000	21/05/2013	02/04/2019	Q CDOR plus 12	5.9

Mr. McCormick observes that there also were other Manitoba floating rate debt instruments issued in 2010 and 2011, but for shorter maturities, ranging from 1.2 to 3.1 years, and which have since matured. Believing that the difference in term would arguably make them less comparable, he has not collected their spread or margin information.

Mr. McCormick also observes that the greatest spread or benchmark margin of a 5 year floating rate issue in 25.5 basis points, some 22.9 basis points less than the rate allocated to Series 10. The average spread or margin over benchmark of these 7 floating rate issues is approximately 20 basis points.

While lacking a specific precedent of identical term and identical issue date to validate his opinion, but recognizing that Manitoba would likely choose to finance within windows of market opportunity, Mr. McCormick is of the view that a reasonable spread or margin over benchmark for an issue in the market similar to series 10 would have been in the range of 18 to 23 basis points.

To assist the Board in quantification of the impact of this unreasonable 48.4 basis point spread or margin over benchmark, which is attached to a $35 million principal financing, Mr. McCormick estimates the annual excess interest cost is between $88,900[12] and $106,400[13] per year in each of the 5 years for an aggregate excess interest cost of between $444,500 and $532,000.

Mr. McCormick also observes that a 45 basis point spread or margin over benchmark is indicated for the floating rate portion of the financing intended for March 2014. The indicated maturity of this issue is in 2034[14], being approximately 20 years. Mr. McCormick reviewed certain Bloomberg data on over 40 floating rate issues undertaken by Manitoba in the last few years and determined that the initial term was not longer than the 5.9 year term of 2019 series in the table above, and that the average maturity at issue was between 3 and 4 years[15]. As such, Mr. McCormick is of the view that Manitoba would enter the capital markets for floating rate debt for a term materially shorter and at spreads materially lower than the 20 year term and 45 basis point spread or margin over benchmark indicated in CAC/Centra I-14 (p).

Mr. McCormick would suggest that rather than locking in a spread or margin over benchmark of 45 basis points for 20 years, one might plan to undertake a series of 5 year floating rate issues as it appears that spreads or margins over benchmark between 12 basis points and 25.5 basis points are frequently available.

Based on this analysis, Mr. McCormick is of the view that in calculating the revenue requirement in respect of the forecast $15,000,000 principal amount 2014 floating rate issue, the Board should include in the revenue requirement, interest cost an amount reflecting a 20 basis point spread or margin over benchmark, rather than a 45 basis point spread. The annual savings in respect of this change would be $37,500[16], with an aggregate excess interest savings of $750,000, over the 20 year life of the instrument.

[12] (.00484-.0023)*$35,000,000 = $88,900.
[13] (.00484-.0018)*$35,000,000 = $106,400
[14] On page 10 of 10 in CAC/Centra I-19, Centra observes "Actual financing terms will vary from forecast ... it is not anticipated that the full $30 million will be advanced with a 2033/34 maturity." No other maturity date was provided for the unquantified portion which might be advanced with a different maturity.
[15] Details of a 2009 floating rate MTN are found in CAC/MSOS/Centra I-8 (k) in the 2009 Centra GRA. That reply indicated "The initial coupon rate on the aforementioned floating rate note was 1.24152%." and that "The one month banker's acceptance rate on the date of issue was 1.14429%.
[16] (.0045-.0020)*$15,000,000 = $37,500

PUB/CAC I - 5
Reference: Evidence of J.D. McCormick, Pages 37-38 Q.26 CAC/Centra I-14 (e)

a) Please provide your assessment of the level of refinancing risk faced by Centra now given the changes in the debt issues since 2009.

Response:

Generally, my assessment of the level of refinancing risk has been lower and continues to be lower than the views expressed by Centra. The one exception to that general statement would be that Centra appears to be more willing than Mr. McCormick would be to concentrate the maturity of high proportions of its long term debt into relatively short time periods, while Mr. McCormick would prefer to take advantage of the normal yield curve and stagger maturities[17].

In CAC/MSOS/Centra I-6 (d) in the 2009 GRA, we inquired as to under "what, if any circumstances would the applicant refinance maturing obligations with floating rate debt?" Rather curiously, we were advised:

> ***"The additional floating rate exposure that would arise from refinancing fixed long term debt with floating rate debt would subject Centra to significant refinancing risk***, particularly during the period of build-up of gas in storage. Given the variability of the cash flows, this increased floating rate exposure would also increase the possibility of having floating rate debt in excess of our 30% target at the fiscal year end. As such, Centra will continue to deliver the economic benefits of floating rate debt by the revolving line of credit and ensure that a prudent level of interest rate stability is maintained for debt servicing costs through long-term fixed rate financing." [Emphasis added]

The curiosity arises as this answer was provided in March 2009, and in February 2010, Centra refinanced a maturing fixed rate series with $35 million of floating rate debt. Apparently, Centra willing accepted in 2010 the risk that they identified in 2009. In CAC/Centra I-19, at page 8 of 10, we are now advised that the very thing that was a "significant refinancing risk" became "an opportunity ... to rebalance its debt portfolio by introducing floating rate long term debt."

Mr. McCormick notes that as Centra has entered into long date financings, the near term risk ebb has been deferred. Mr. McCormick would also note that as the most distant year forecast 10 Year + Canada rate has fallen from 6% to most

[17] See Mr. McCormick's evidence dated May 15, 2009, and in particular page 3 line 3, and the discussion at Q 14 beginning at page 15.

recently 4.65%, the expectation of harm from a future refinancing has been reduced by 135 basis points.

b) Please comment on the appropriateness of the policy to have 15% of the long term debt portfolio maturing within a fiscal year to address refinancing risk.

Response:

Having a policy that will prevent having 39.5%[18] of a corporation's debt maturing in one year is a good step forward. This "good step forward" begins from what appeared to Mr. McCormick to be a complete policy vacuum. This "complete policy vacuum" allowed a disproportionate percentage of Centra's debt to mature in short periods of time. While this "good step forward" was necessary, Mr. McCormick does not think it is sufficient and would offer some suggested improvements.

Using the documents now on the record to facilitate the discussion, the best starting point is the chart on page 7 of 13 in the Debt Management Strategy document which is part of CAC-Centra I-41. That chart shows a period of very high interest rates beginning in the late 1970's and reaching a pinnacle in the early 1980's. Clearly, it would have been painful to refinance any long term debt during those years.

Using the Government of Canada Marketable Bonds, Average Yields, Over 10 Years, Monthly series, to help define that period of high interest rates, that series crossed over the 10% level in August of 1979 and did not drop back into single digits until February 1986, a period of over 6 years. During this period yields reached a pinnacle of 17.66% in September 1981. The really ugly period in the middle of those 6 years, in which interest rates for these bonds were over 12.5%, ran from September 1980 to and including October 1982[19].

The refinancing risk issue has at least two elements. In one respect, refinancing risk can arise if one puts "too many eggs in one basket" or time period. Looking at another facet of refinancing risk, it can simply be that there is a pending maturity at some future date and currently the future level of interest rates is unknown and may be higher.

[18] See CAC/Centra/ I-14 (e) as at March 31, 2009.
[19] There were a few months, during the six years of double digit interest rates in which bond yields in this series popped up to rates over 12.5% in advance of this September 1980 to October 1982 period, but within the September 1980 to October 1982 period they were consistently over 12.5% at month end.

In respect of refinancing risk, the fiscal year is an artificial construct and largely irrelevant to the issue of the number of "eggs" in the basket. The markets respond to host of economic events, in our country and internationally, and pay no attention to March, June or December year ends.

The table below sorts the data found in CAC/Centra/ I-14 (e) as at March 31, 2014, by actual or forecast maturity date, and shows the concentration of debt in two interesting periods of not more than one year and a day.

Series	Principal	Issue	Maturity	Coupon	% Debt	1 Year+
17	$20,000	18/09/2012	18/09/2042	3.41%	6.2%	
9	$30,000	01/09/2009	05/03/2040	5.1754%	9.2%	
13	$20,000	31/03/2010	30/09/2037	4.6380%	6.2%	
12	$10,000	22/02/2010	22/08/2037	4.6380%	3.1%	
7	$50,000	22/11/2006	05/03/2037	4.5055%	15.4%	24.6%
14	$30,000	31/03/2010	31/03/2035	4.6290%	9.2%	
New	$15,000	15/03/2014	31/03/	fixed	4.6%	
New	$15,000	15/03/2014	31/03/2034	float	4.6%	18.5%
16	$20,000	18/09/2012	18/09/2033	3.2810%	6.2%	
8	$30,000	29/10/2002	29/10/2032	6.3000%	9.2%	
11	$30,000	22/02/2010	22/02/2030	4.7260%	9.2%	
15	$20,000	18/09/2012	18/09/2022	3.1780%	6.2%	
10	$35,000	22/02/2010	22/02/2015	BA plus 0.484%	10.8%	
	$325,000				100.0%	

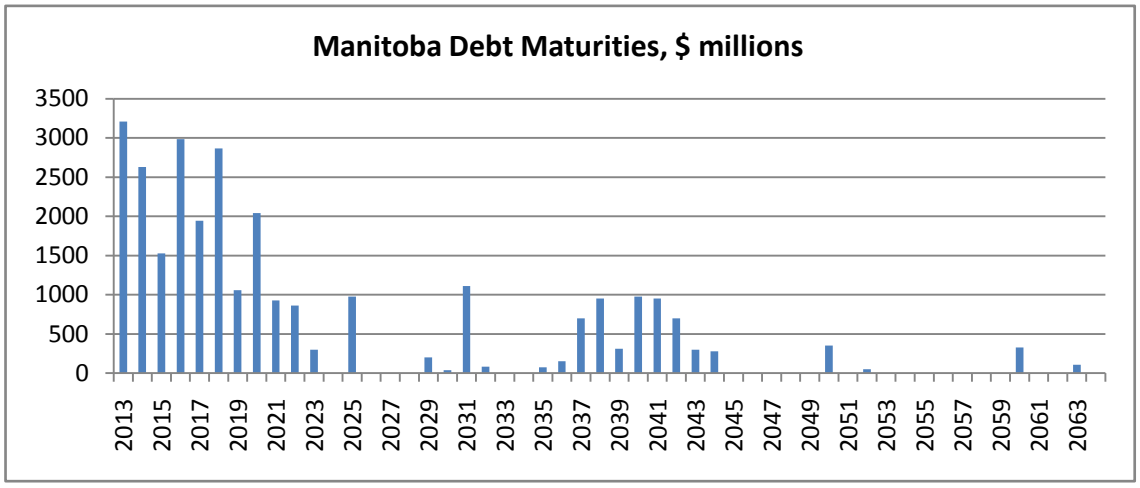
As Centra's new policy is a "fiscal year" policy, the fact that it has concentrated 24.6% of its debt into calendar 2037 is not a problem for it "policy wise". In fact, the 3 debt instruments maturing in 2037 mature in a period of a mere 209 days.

Similarly, the 18.5% of the outstanding debt, as at March 31, 2014, that may mature in the year and a day between March 2034[20] and March 2035, is not an issue "policy wise" as one of the issues is to mature, across the policy's artificial boundary, in a different fiscal year.

If we recall that the "ugly" period of the late 1970s and early 1980s lasted over 6 years, we might be distressed to learn that over 58% of Centra's debt will mature within a period of slightly less than 5 years between October 29, 2032 and

[20] On page 10 of 10 in CACC/Centra I-19, Centra observes "Actual financing terms will vary from forecast ... it is not anticipated that the full $30 million will be advanced with a 2033/34 maturity." No other maturity date was provided for the unquantified portion which might be advanced with a different maturity.

September 30, 2037[21]. Mr. McCormick claims no special knowledge into the interest rate environment in the mid 2030s. Manitoba has issues maturing out to 2060[22] and 2063[23] participation in which would seem reasonable for a utility with particularly long life assets[24]. Manitoba also has issued debt maturing in 2020, 2021, 2025 and 2029. The chart below shows Manitoba's debt distribution by calendar year. Approximately 52% of the $28 billion of debt will mature prior to 2019.



For comparison the chart below shows Centra's debt distribution by calendar year, including the forecast March 2014 issues which are forecast to mature in 2034[25]. Approximately 51% of Centra's debt will mature prior to 2035.

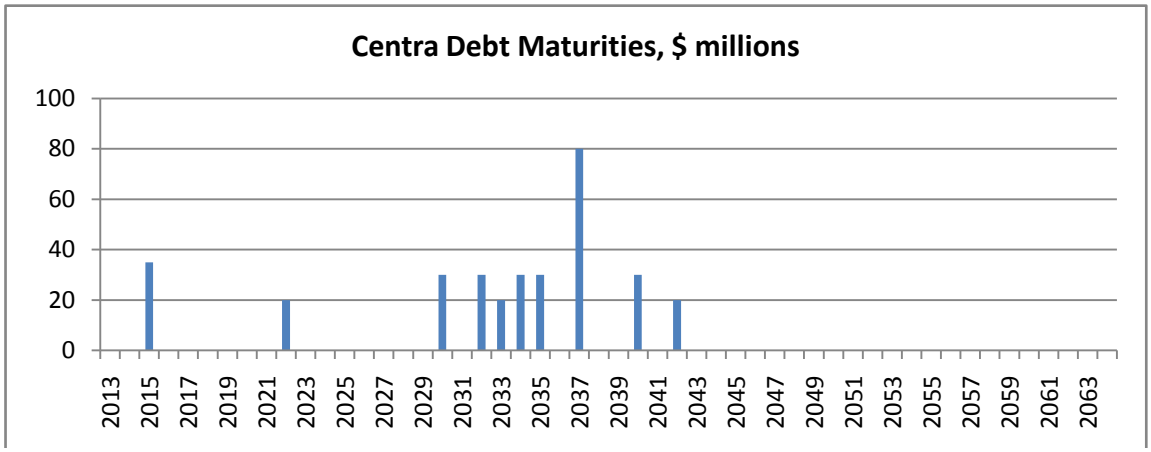
[21] The table below provides the year in which Centra's March 31, 2014 forecast debt matures. Approximately 51% of the $325 million of debt will mature prior to 2035

[22] Mr. McCormick notes that Hydro has participated in Series C110 maturing in 2060, a period of 50 years at time of issue, while Centra Series 14 issue has an identical interest rate based on the same series but is outstanding for a materially shorter period, being only a 25 year maturity

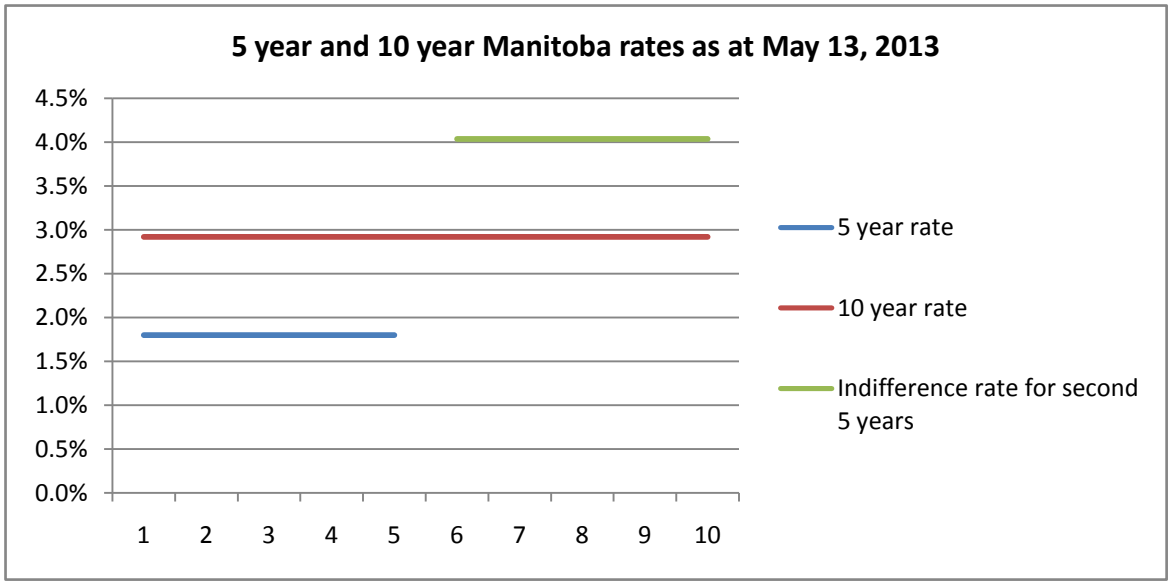
[23] Mr. McCormick notes that Hydro has participated in Series C109 maturing in 2063, a period of 53 years at time of issue, while Centra Series 12 issue has an identical interest rate based on the same series but is outstanding for a materially shorter period, being only a 27.5 year maturity.

[24] The differences in the relative life of the Hydro and Centra assets appear to be recognized in that while both Hydro and Centra have had the interest rates from these ultra long financings assigned to the debt related to cash advanced to them, the advances to Hydro have been for longer terms.

[25] On page 10 of 10 in CAC/Centra I-19, Centra observes "Actual financing terms will vary from forecast ... it is not anticipated that the full $30 million will be advanced with a 2033/34 maturity." No other maturity date was provided for the unquantified portion which might be advanced with a different maturity.



The second element or facet of the refinancing risk issue is the risk of higher interest rates at that pending maturity date. In Q.34 of Mr. McCormick's evidence he provided the May 13, 2014 5 year and 10 year Manitoba yields. At that time, 5 year money was yielding approximately 1.80%. A 10 year financing was indicated to yield 2.92%, a difference of 1.12%. As a periodic proponent of shorter and staggered debt maturities[26], for the first 5 years consumers would enjoy a certain 1.12% benefit over the then prevailing 10 year rate. The uncertain "risk" is that no one can know the prevailing 5 year rate 5 years out.



Ignoring present value calculations, if the 5 year rate 5 years in the future were equal to 4.04%, the aggregate interest cost of the single 10 year financing would

[26] PUB/CAC/MSOS I-21 in the 2009 Centra GRA

equal the cost of the two serial 5 year financings. An increase in 5 year rates from 1.80% to 4.04% is substantial, about 2.24%.

We do not seem to have any forecasts of 5 year debt, 5 years out on the record. The one long forecast included in PUB/Centra I-6 attachment 1, page 28 of 29 offers a 10 year + Canada rate for periods to 2030. The average 10 year + Canada rate is 2.8% for 2013, and 5 years hence, the 10 year + Canada rate forecast is 4.5%, an increase of 1.7%. The shorter end of the yield curve can be more volatile than the longer end, but that does not seem to be forecast as 90 day commercial paper, over the same period is forecast to rise from 1.8% to 3%, an increase of 1.2%. Using the 90 day commercial paper rate forecast, and the 10 year + Canada rate forecast as boundaries, Mr. McCormick would view the serial or sequential 5 year financings as an attractive alternative to the 10 year fixed rate financing.

In conclusion, Mr. McCormick would prefer a policy which, in addition to setting a limit on maturities in a 12 month period, also placed a concentration limit on some longer period, perhaps between 4 or 6 years.

PUB/CAC I - 6
Reference: Evidence of J.D. McCormick, Page 40 lines 8-11 Q.27, footnote 102.

Please discuss the role of short-term debt, given current market conditions, and to what extent should Centra look for more attractive future market conditions, before committing to longer-term interest offerings.

Response:

Mr. McCormick views the short term debt facility as one of several routes to obtain cash. It might be viewed as a tool to get the job done, or to continue with the golf analogy, a club in the golfer's bag.

Recent pronouncements by the Bank of Canada seem to suggest that the liquidity in the market will continue in the near term. As such, Mr. McCormick does not see an urgency to lock in long term rates. He also notes that the decline in rates the 2012 financings in series 15-17 was accomplished at better rates than the 2010 financings. Forecasters are anticipating rising rates in the near term, although with less rapid increases and targeting lower rates 2 years out, than they were targeting in prior years.

As opposed to prefunding debt requirements, and having no balance outstanding in short term debt, Mr. McCormick would suggest it may be possible, and even one of the purposes of the short term debt facility, to use short term debt to provide cash while awaiting an opportune market window.

CAC/Centra I-19, at page 5 of 10, provides a quote from an earlier Hydro proceeding which spells out Hydro's then current view of the purpose of the short term debt facility. "Manitoba Hydro uses its short term debt line to fund seasonal working capital requirements and **to bridge the timing between long term debt issues**. It is inappropriate to utilize the Corporation's overdraft credit facilities and Commercial Paper Program to permanently fund capital construction that should more appropriately be financed through debt." [Emphasis added] Based on the data in CAC/Centra I-18, Hydro and Centra appear to be leaving this short term debt "club" in the "golf bag". Mr. McCormick, even as a very poor golfer, recognizes that if he leaves the right "club" in the bag, it will cost him a stroke.

As attractive as recent rates have been, maintaining a short term debt balance while awaiting a market opportunity may save the consumers some interest costs, both in the near term while using the short term facility and in the longer term, as and when, a market window provides a more beneficial long term rate.

PUB/CAC I - 7
Reference: Evidence of J.D. McCormick, Page 43 Q.29 footnote 105.

Please provide a table of Centra debt issues and the respected linked Manitoba Hydro debt series and coupon rate for those issues that appear to not have a clear link and provide commentary with respect to the implications to Centra. Please also provide any recommended interest rate that should be applied to the respective Centra debt issues.

Response:

Please see the tables in the body of this reply, which identify two major issues that could make a further review of the ascribed interest rates relevant.

In attempting to assess issues "that appear to not have a clear link" it was necessary to attempt to collect data on all the debt issues, but in some cases that information was not readily available. As such, Mr. McCormick is unable to advise the Board that further review would not lead to additional discoveries.

Mr. McCormick relied upon: (1) Appendix 48 in the 2010/11 GRA filed in response to PUB/MH I-35 (f) which provides certain information related to Hydro debt series occasionally funded from the same Manitoba financing; (2) term sheets for the outstanding Centra issues contained in PUB Centra I-43, and, (3) certain information drawn from the Manitoba 18K as at March 31, 2012. Mr. McCormick would observe that certain information related to debt issues undertaken since the date of those documents, was unavailable, as was certain information requested in the IR process.[27]

Mr. McCormick is of the view that series CG 10 and 15 present rates which, based on his data sources, are not reasonable. Before addressing those particular series, some general comments are in order.

In one case, CG8, it appears that the entire principal of the financing may have been passed through directly to Centra. This may be inferred from the matching of the principal amount in the term sheet and the 18 K disclosure. In other series, the matter is not so simple as Centra only receives a portion of the proceeds of a larger issue.

In several instances, advances from the same debt series appear to have been made to Hydro and to Centra. While the interest rates that are ascribed to these advances may be the same, the dates of the advances may vary. Clearly, market conditions over periods of up to 4 months will also vary. The table below

[27] For example, see CAC/Centra I-12 (h and k) and 14 (j).

provides the calculation of the variance of issue dates with respect to 5 series of Centra debt.

Series	Centra Principal	Centra Issue	Hydro Issue	Variance in Days	Rate	Source
9	$ 30,000,000	01/09/2009	05/06/2009	88	5.1754%	FK 2
11	$ 30,000,000	22/02/2010	27/10/2009	118	4.7260%	FN
12	$ 10,000,000	22/02/2010	13/11/2009	101	4.6380%	C109
13	$ 20,000,000	31/03/2010	23/11/2009	128	4.6380%	C109
14	$ 30,000,000	31/03/2010	13/11/2009	138	4.6290%	C110

Mr. McCormick observes that market conditions can change in over 4 months. With the passing of time the rate at which the transaction was initially funded may no longer be representative of the market conditions when Centra is funded.

Mr. McCormick also observes that certain Centra issues with identical coupons to longer Hydro issues are funded from the same source. The table below provides the calculation of the variance of maturity dates with respect to 4 series of Centra debt.

Series	Centra Principal	Centra Maturity	Hydro Maturity	Variance in Years	Rate	Source
11	$ 30,000,000	22/02/2030	05/03/2050	20.0	4.7260%	FN
12	$ 10,000,000	22/08/2037	05/03/2063	25.6	4.6380%	C109
13	$ 20,000,000	30/09/2037	05/03/2063	25.4	4.6380%	C109
14	$ 30,000,000	31/03/2035	03/05/2060	25.1	4.6290%	C110

Mr. McCormick notes that these advances to Centra have materially shorter maturities than those advances to Hydro. Mr. McCormick understands that some categories of Hydro assets may have service lives beyond any of the Centra assets. It is possible that there may be a justification for a slightly different interest rate for Centra based on the shorter maturity, although yield curves are often relatively flat at the long end. As there may also be slight changes in the market conditions between the two different dates of advance, and the maturities are different, these two factors may combine to suggest that Centra's interest might warrant a different rate. In certain circumstances, these factors may also cancel each other out.

In CAC/MSOS/MH II 144 (f), Hydro indicated that with respect to the C109 placement, there was a "pricing inversion in the financial markets at that time, the all-in cost to Manitoba Hydro for this debt issue was 0.155% less than the

indicative pricing for a 30 year fixed rate public issue on" the date of issue. A pricing inversion may mean that in being allocated the same rate for a shorter term, Centra got a bargain. The period during which this "pricing inversion" was in effect was not specified, and as such the inversion may have impacted other "parked" issues so as to make the rates ascribed to the Centra debt series attractive.

In the time allowed to reply to these IRs, Mr. McCormick was not able to review all the market data to arrive at a conclusion of beneficial, fair or unfair treatment of Centra in each of the debt series. Mr. McCormick will not be offering a recommendation, at this time, with respect to the rates assigned to Centra on the 5 series mentioned in the tables included to this point in this reply.

Mr. McCormick is interested in the "parking policy" under which debt terms are locked in for a period of time, to be assigned to Centra. Perhaps Centra is being granted an option on the particular series of debt, or perhaps Hydro is being granted a put. The policies under which debt is "parked" waiting for assignment, are not, to my knowledge on the record. Considering the fair and reasonable test, Mr. McCormick would suggest that "parking" debt should not allowed for an unlimited period. He also wonders whether and under what circumstances it should be permitted after a significant market event.

Mr. McCormick is also interested in the decision by Centra to limit its choice of maturity to a period much shorter than the financings being undertaken. A review of the Centra annual financials indicates assets with service lives longer than 2042. Mr. McCormick wonders why a term matching Centra's longest service life asset category[28], perhaps for a $5 or $10 million principal amount, was not undertaken.

Prior to these general comments, Mr. McCormick indicated that he wished to address the rates ascribed to CG 10 and 15.

On page 21 and 22 of 31 of Appendix 48[29] in the 2010/11 Hydro GRA, filed in response to PUB/MH I-35 (f), Hydro provides certain information related to Series FM and FM-4, including an issue and swap dates in September 2009. FM-4 was apparently used to fund Series 10. The various transactions were entered into to address a previously undertaken forward interest rate swap extending to September 2029, on debt series EL which was maturing. CAC/MSOS/MH II 144

[28] The March 31, 2012 Financial Statements for Centra indicate the "estimated service lives" of certain transmission and distribution assets extend to 65 years. See Appendix 5.4 in this application.
[29] Appendix 48 provides some details in addition to those provided in PUB/Centra I-43.

(e) in the 2010/11 Hydro GRA also indicated that series FM secured an additional $100 million in new cash. Mr. McCormick observes that there is nothing on the record to suggest that Centra was in any way connected with a Series EL, and owing to Centra's focus on fixed rate debt he infers that such a connection appears unlikely. In reply to PUB/Centra I-4 above, Mr. McCormick discusses the comparable Manitoba floating rate debt issues, and he will not repeat that analysis here. For these reasons, Mr. McCormick is of the view that a straight pass through of a rate derived from a Manitoba BA based floating rate is more appropriate. Mr. McCormick is of the view that a reasonable spread or margin over the benchmark for an issue in the market similar to series 10 would have been in the range of 18 to 23 basis points. As such, he would request that the Board reflect a 25 to 30 basis point reduction to the interest costs in respect of the annual interest costs in respect of the outstanding $35,000,000 principal[30].

With respect to series 15, Mr. McCormick notes the very limited description of the series from which the interest rate was assigned. Mr. McCormick observes that there is a December 1, 2021 Manitoba maturity for which indicative yields are available for September 2012, through Bloomberg. With $600,000,000 principal outstanding, there should be reasonable liquidity in this issue. During the week of September 17, 2012, this issue was noted at an indicated yield of approximately 2.65%. In light of the shorter maturity, Mr. McCormick would suggest that an additional 10 basis points might be added to reflect a term of an additional 9 months. Mr. McCormick would also add 5 basis points for an allowance for issue costs. As such, Mr. McCormick would recommend 2.80% as a reasonable rate for Series 15. To provide a reference point, Mr. McCormick notes that Bloomberg provided a 10 year Canada yield at 1.91%, allowing for a credit spread of approximately 85 basis points. For these reasons, he would request that the Board reflect a 38 basis point reduction to the interest costs in respect of the annual interest costs in respect of the outstanding $20,000,000 principal[31].

Mr. McCormick is of the view that the series CG 10 and15 interest rates are not be reasonable.

[30] $35,000,000 * 0.25%= 87,500 per annum, to $35,000,000 * 0.25%= 105,000 per annum
[31] $20,000,000 * 0.38%= 76,000 per annum, or $760,000 over the life of Series 15. As such, he would request that the Board reflect a 25 to 30 basis point reduction to the interest costs in respect of the annual interest costs in respect of the outstanding $35,000,000 principal31.

PUB/CAC I - 8
Reference: Evidence of J.D. McCormick, Page 20 Q.15 & Page 45 Q.30

a) Please provide a recommended forecast long-term interest rate for the 2013/14 test year with supporting methodology.

Response:

Mr. McCormick's recommended forecast long-term interest rate for the 2013/14 test year is 2.36%. Mr. McCormick has found it easier to describe the methodology by explaining the T-bill calculation first. This also provides an update to include certain May forecasts by several banks. The following table provides the data points available from the named forecasters, each of which supply end period forecasts.

T bill		Dec-12	Mar-13	Jun-13	Sep-13	Dec-13	Mar-14	Jun-14	Sep-14	Dec-14	Mar-15
CIBC	08/05/2013			0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	1.05%	1.25%
Dejardins	30/05/2013	0.92%	0.97%	0.95%	1.00%	1.00%	1.00%	1.00%	1.20%	1.50%	
Laurentian	11/04/2013	0.92%	0.96%	0.96%	1.00%	1.05%	1.05%	1.05%	1.10%	1.60%	
RBC	May-13	1.05%	0.98%	1.00%	1.00%	1.00%	1.05%	1.10%	1.25%	1.55%	
Scotia	30/05/2013	0.93%	0.98%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.10%	
TD	02/05/2013		0.98%	0.95%	0.95%	0.95%	0.95%	0.95%	1.05%	1.40%	

Opening and closing data points are averaged to estimate a period average T-bill rate. The following table provides the averages of the data points above, and the period average data points of the Bank of Montreal. It also provides the 2013/14 and 2014/15 T bill rates.

T bill		Mar-13[32]	Jun-13	Sep-13	Dec-13	Mar-14	Jun-14	Sep-14	Dec-12	Mar-14
BMO	31/05/2013	0.95%	0.99%	1.00%	1.00%	1.00%	1.00%	1.25%	1.50%	[33]
CIBC	Period average	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	1.00%	1.15%
Dejardins	Period average	0.95%	0.96%	0.98%	1.00%	1.00%	1.00%	1.10%	1.35%	
Laurentian	Period average	0.95%	0.96%	0.98%	1.03%	1.05%	1.05%	1.08%	1.35%	
RBC	Period average	0.95%	1.01%	0.99%	1.00%	1.02%	1.05%	1.13%	1.30%	
Scotia	Period average	0.95%	0.99%	1.00%	1.00%	1.00%	1.00%	1.00%	1.05%	
TD	Period average	0.95%	0.97%	0.95%	0.95%	0.95%	0.95%	1.00%	1.23%	
	Quarterly average		0.96%	0.98%	0.98%	0.99%	1.00%	1.04%	1.16%	1.24%
	Annual average					0.98%				1.11%

[32] The March 2013 values for each forecaster, are the actual period average value presented in the BMO forecast.
[33] Mr. McCormick notes that Centra has had access to longer forecasts than are available to the public.

The calculation of the long forecast would use a similar process, but it would require the averaging of the 10 year and 30 year forecasts to arrive at a 10 + rate as the first step. The table below presents the averaged 10 and 30 year rates for the quarters presented.

10 Year +	Jun-13	Sept-13	Dect-13	Mar-14
CIBC	2.16%	2.22%	2.45%	2.71%
Dejardins	2.18%	2.28%	2.44%	2.61%
Laurentian	2.20%	2.33%	2.54%	2.69%
National	2.18%	2.29%	2.44%	2.62%
RBC	2.17%	2.19%	2.26%	2.40%
Scotia	2.18%	2.24%	2.34%	2.58%
TD	2.13%	2.21%	2.39%	2.58%
Quarterly Average				2.60%
Annual Average				2.36%

To calculate the average for the June quarter we used the March period end data point from one of the forecasts. As National Bank did not offer a current forecast for June period end value, we averaged the March actual value and their September forecast to estimate a June value.

The 2.36% 2013/14 10 year + value presented above, when rounded down to 2.35% would represent a 20 basis point reduction in forecast long term debt rates compared with the values presented in PUB/Centra II-141 (a). Although not requested, Mr. McCormick would expect the extension of the analysis to 2014/15 would result in a similar reduction of forecast long rates.

For comparative purposes, the T-bill rates for 2013/14 and 2014/15, of 0.98% and 1.11%, could be compared with 1.3% and 2.1% for the respective years found in Table 1 in PUB/Centra II-141. These updated forecasts would indicate a change of approximately 30 basis points for 2013/14 and approximately 100 basis points for 2014/15.

b) For each of the new forecast long term debt issues (CAC/MSOS1-14(p)) please provide the recommended forecast interest rate and supporting methodology.

Response:

Mr. McCormick is unclear as to the item referenced, but assumes that it is the CAC/Centra i-14 (p) and refers to the $15 million fixed rate 20 year maturity and the $15 million floating rate maturity.

With respect to the floating rate instrument, Mr. McCormick can only address the base rate and the spread or margin under which the instrument would be issued. The application is premised upon a 2.1% forecast T-bill rate and a 45 basis point spread or margin. That would suggest an interest rate in the range of 2.55%[34] for the issue in 2014/15. Mr. McCormick, for believes the better view based on more current forecasts would lead the Board to adopt a T-bill forecast of 1.1% and the more typical spread or margin of observed Manitoba floating rate offerings of 18 to 23 basis points. This analysis would suggest an interest rate in the range of 1.3%.[35] As such, Mr. McCormick would anticipate that the full year interest cost for the $15 million floating rate issue contained in the application, might be reduced by approximately half, or approximately $187,500.

With respect to the forecast fixed rate $15,000,000 financing, term matters a great deal, as one can see from the range in May 13, 2013 Manitoba yields on page 51 of Mr. McCormick's evidence. In that table, the then 5 year rate was 1.8% and the 20 year rate was 3.49%. On page 10 of 10 in CACC/Centra I-19, Centra observes "Actual financing terms will vary from forecast ... it is not anticipated that the full $30 million will be advanced with a 2033/34 maturity." No other maturity date was provided for the unquantified portion which might be advanced with a different maturity. As such, there is some substantial uncertainty as to when the fixed rate maturity would occur.

With that uncertainty, but recognizing that the ability to forecast accurately is harder with a longer forecast, Mr. McCormick would recommend that rather than using the fiscal 2013/14 forecast of 2.55% 10 year + Canada debt, plus the appropriate credit spread, the Board should include in the rates, interest costs based on the 2.60% March 2014 quarterly average rate which can be seen in the table above, plus the appropriate credit spread. This 5 basis point change would represent $7,500 annual cost for consumers, until the actual rate for this financing becomes known and integrated into the rates in the next GRA, perhaps 4 years in the future.

[34] This estimate ignores and variance between CDOR and T-bills and costs of issue.
[35] This estimate ignores and variance between CDOR and T-bills and costs of issue.

PUB/CAC I - 9
Reference: Evidence of J.D. McCormick, Page P 46-47 Q.32

To what extent should Centra incorporate short and medium term debt in its current debt portfolio and provide the estimated impact on finance expense?

Response:

Mr. McCormick notes that it is management which gets to pick the various terms and maturity under which it will finance the assets of its enterprise. Without regard to management's choice of terms and maturity selected, the Board has the ability and obligation to include in the rates, only that portion of the interest costs which it views as appropriate to arrive at just and reasonable rates. As such, Mr. McCormick would not seek to limit management authority in this regard, but will offer his views on whether the interest rates ascribed to and interest costs arising from the various debt instruments in the current and forecast debt portfolio should be included in the rates.

Background

Centra, is indirectly owned by the Province of Manitoba, and pays a 1% fee in respect of short and long term advanced to it through Hydro.

Hydro has a number of avenues to access the cash that it needs to fund its operation. Hydro has a $500 million short term facility[36]. Hydro can and does issue bonds to the public, including Hydro Builder bonds. Manitoba raises cash through the sale of Debentures and MTNs of varying terms and varying rates. Each of these avenues to access cash, are simply tools to get the job of financing the utility done.

Three financing tools

For this discussion, Mr. McCormick will focus on the $500 million short term facility, floating rate debt, and long term fixed rate debt as three tools, available to Centra to obtain the cash it needs to fund its assets.

The $500 million short term facility has provided cash at the lowest cost of funds of these three finance tools. The $500 million short term facility once charged a BA based reference rate[37], and as a result of some more recent analysis is now

[36] CAC/MSOS/Centra 2-78 (f) " Hydro and its subsidiaries are managed by Manitoba Hydro on a consolidated entity basis. Centra has a revolving line of credit with Manitoba Hydro and all cash requirements to fund Centra operations or capital programs are advanced from Manitoba Hydro as needed."
[37] CAC/MSOS/Centra I-2 (a) in the 2009 GRA

charged to Centra on a 3 month T-bill basis with a true up[38] that clicks in when there is a precedent financing to compare to the benchmark.

Mr. McCormick's review of floating rate debt issues since 2000 has indicated the floating rate debt generally undertaken by the Province was for maturities averaging between 3 and 4 years, although there is a recent example of a maturity of approximately 5.9 years. Currently outstanding floating rate debt issues have been issued at BA based rates plus a spread or margin over benchmark averaging of approximately 20 basis points, and as low as 12 basis points.

The final financing tool, long term[39] fixed rate debt, has been issued by Manitoba generally for maturities as short as five years or as long as five decades.

At the date of issue, in a normal yield curve environment, floating rate debt and shorter maturities will be issued at lower yields than longer maturities.

In the prior proceedings, short term debt and floating rate debt have been lumped together in certain discussions owing to the similarity of the interest rate mechanism. In this discussion that approach may be appropriate as well. In Centra's case, financing through the spread free short term debt based on the 3 month T-bill rate[40], will have a lower rate than financing through a 5 or 20 year floating rate instrument based on 3 month BAs[41] plus a spread or margin over benchmark of 48.4 or 45 basis points.

Consumers with two credit cards with different interest rates would generally prefer to carry a balance on the card with the lower rate. In recent history, Centra seems to be selecting to finance using its "high rate credit card" at BAs plus 48.4, rather than its "low rate credit card" using the 3 month T-bill rate, which it enjoyed using until shortly after the 2009 GRA. Using the May 31, 2013 Bank of Canada data as a proxy for the rate difference, the "high rate credit card" cost 65%[42] more than the "low rate credit card."

This somewhat counterintuitive choice also appears to have affected Hydro. Were one to compare short term debt balances contained in the attachment to CAC/Centra I-18, on page 1 of 8, one would see that Centra carried balances at each quarter end from March 2004 to June 2006. Hydro's short term debt

[38] CAC/Centra I-11 page 3 of 3. See also CAC/Centra I-18 for tables showing short term debt quarter end balances for Hydro and Centra.
[39] Accountants segment debt into current and long term, categorizing all debt of greater than one year as long term.
[40] PUB/Centra I-6 page 4 of 5, May 31 2013 Bank of Canada Series V39065, indicates a 1.02% 3 month T bill rate
[41] May 31 2013 Bank of Canada Series V39071, indicates a 1.19% 3 month BA rate.
[42] ((1.19+0.484)-1.02)/1.02 = 64%

position for the comparable period is found on page 5 of 8. As Hydro, did not have an adequate Canadian dollar balance to cover the Centra balance of short term debt in each of the quarters, it would appear that Hydro had prefunded the Centra short term balance with other more expensive debt. In 24 of the 41 quarters presented in CAC/Centra I-18, Hydro has lower balances in short term debt than Centra, appearing to have prefunded the short term debt needs of Centra.

At the time of the 2009 GRA, Centra had been allocated cash on the basis of only two of the three financing tools, the short term debt facility, and long term fixed rate financings. Today, access to the $500 million short term debt facility has been severely restricted; floating rate financings at unreasonably high spreads have been used for the first time in a decade[43]; and, the balance is covered with long term fixed rate debt of extended maturities. The shortest fixed rate maturity is 2022.

Portfolio management

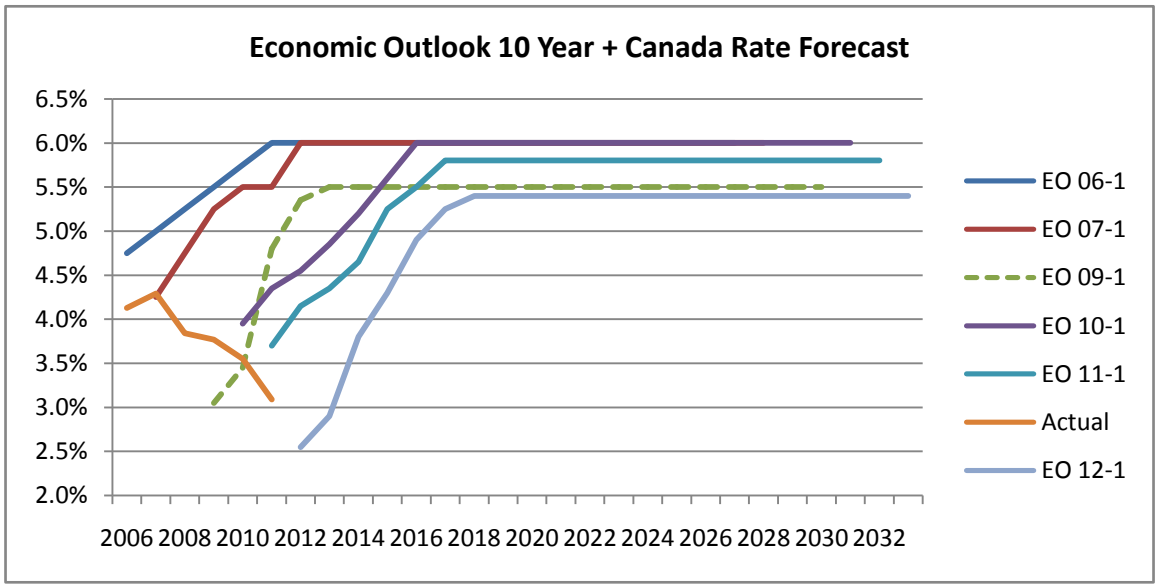
This question brings together many of the aspects of the debt portfolio management.

It implicitly raises the question of the price to be paid for the interest rate stability of issuing longer term debt, as opposed to issuing debt with a shorter term and facing, with some degree of concern or dread, the risk of higher interest rates at the point of refinancing. Our degree of concern or dread should be in decline, as the forecast of 10 year + Canada rates the fiscal years 2018/19 and beyond, in Attachment 1 to CAC/Centra I-12, indicates a then constant forecast of 4.65% for 10 year + Canada rates, compared to the 5.5% rate that had been forecast in the 2009 Economic Outlook.

While Mr. McCormick, and the older folk among us, will remember the pinnacle rates of the late 1970's and early 1980's, which are presented in a chart in the most recent debt management strategy, let us now look to the long term interest rate forecast information in some of the recent Economic Outlook documents. The chart below provides the calendar year "10 year + Canada" forecast rates from EO 06-1 through E0 12-1 with the exception of EO 08, which Mr.

[43] When such a change was suggested in 2009 in Centra's view it would represent a "significant refinancing risk" and later in 2010, after Centra had done the financing, it became "an opportunity ... to rebalance its debt portfolio by introducing floating rate long term debt."

McCormick was unable to find quickly on line. The chart also provides the actual data for the period 2006 to 2011, as the shorter declining slope line[44].



The message of the actual line is that, while the market may have looked attractive in much of the last few years, an even more attractive reference rate environment awaited issuers as time passes and the rates fell. While awaiting the availability of the Economic Outlook for 2013, to estimate a 2012 actual value, Mr. McCormick averaged the annual data for two Bank of Canada data series. While slightly different in methodology, the average value for average yield of the Bank of Canada data (a) series V39055 Government of Canada marketable 10 years bonds, and (b) series V39056 long term bond for fiscal 2012/13 is 2.46%. Mr. McCormick views this value as suggestive that the trend to lower rather than higher rates continued.

Like the other forecast charts Mr. McCormick has documented in his evidence, each of these forecast lines shows increasing values over the early periods. Depending on the forecast year, it might take between 5 and 7 years to reach the ultimate value then forecast. In three of the Economic Outlooks, the maximum long term interest rate is 6%. In the other years, it varies, and is 5.4%, 5.5% or 5.8%. So each of these forecasts[45] would agree that for any period they forecast

[44] As with many of the forecasts charted in this evidence, this actual line shows the persistent upward bias. The EO 07 2007 value of 4.25% was very close to the reported actual of 4.29%, and the EO 09 2009 and 2010 values of 3.05% and 3.45% were below the reported actual values of 3.77% and 3.55%. Actual calendar year data for 2012 awaits the publication of the EO 2013/14.

[45] Attachment 1 to CAC/Centra I-12, provides the fiscal years 2018/19 and beyond and indicates a then constant forecast of 4.65% for 10 year + Canada rates.

in looking out into the future of 2018 and beyond, the 10 year + Canada rate will range between 5.4% and 6%, a range of 60 basis points.

In other words, for any period beyond 7 years out from the time of our then forecast, there is no incremental refinancing risk, other than changing credit spreads and forecast error[46], as we would expect to finance off a long Canada base rate of between 5.4% and 6% [47].

Owing to the constant forecast values after the seventh year, all of these forecasts suggest, if we believe them, the refinancing risk does not change in the period after 7 and continuing to 20 years. As such, based on our forecast of constant future base rates, currently we should be indifferent to the refinancing risk in our selection of a 10 year or 20 year maturity.

Clearly, the shape of the current yield curve would be a factor[48] that must be considered. In considering setting a future maturity one would take note of the difference between the current yields of the various terms. On May 13, 2013, Mr. McCormick observed a term spread of approximately 57 basis points between 10 and 20 year Manitoba maturities.[49] The then term spread was approximately 112 basis points between 5 and 10 year Manitoba maturities.

Long term debt of intermediate maturities

Accountants separate debt into current and long term, categorizing all debt of greater than one year as long term.

Among the recent Centra financings, the $35 million 2015 floating rate maturity and the $20 million 2022 maturity are the shortest of the portfolio. Centra's other financings mature between 2030 and 2042. The 2014 forecast issues are to mature in 2034[50]. The resulting weighted average term to maturity, will be approximately 19 years, three years longer than Hydro, when in past Centra's weighted average term to maturity was much lower in than that of Hydro[51].

[46] The forecast error EO 06, 2008 forecast value of 5.25% compared to the actual 2008 value of 3.84% is 1.41%. The forecast error EO 09, 2011 forecast value of 4.8% compared to the actual 2011 value of 3.09% is 1.71%. The forecast error EO 06, 2011 forecast value of 6% compared to the actual 2011 value of 3.84% is 2.91%.
[47] 5.4% is the long term expectation found in EO 12-1 and 6% was the long term expectation found in EO 06, 07, and 10.
[48] In CAC/MSOS/MH II 147 (a) Hydro lists a number of factors it considers in financing decisions.
[49] See page 51 of Mr. McCormick's evidence.
[50] On page 10 of 10 in CAC/Centra I-19, Centra observes "Actual financing terms will vary from forecast ... it is not anticipated that the full $30 million will be advanced with a 2033/34 maturity." No other maturity date was provided for the unquantified portion which might be advanced with a different maturity. Mr. McCormick observes that forecasting long and financing short can lead to variance between forecast interest cost and actual interest cost.
[51] There is an unresolved discontinuity between the Hydro Weighted Average Term to Maturity values found in CAC/MSOS/MH II-148 in the 2010 Hydro GRA, and CAC/Centra I-14 Attachment 3. The matter is unresolved due

Under the asset matching principle,[52] one arguably might seek to finance assets with debt of similar term. In this way the business risk may be more congruent with the financing risk.

While Centra's assets have some categories with long service lives, included in those assets there will be some assets with short service lives. Those assets with short service lives could include assets that are anticipated to be replaced in near term having been installed perhaps 50 or 60 years ago and assets like trucks or computers that have shorter service lives. Financing these assets with 3 year or 5 year debt instruments would seem to fit with the "asset matching principle".

Centra has $35 million of floating rate debt maturing in 2015; the $20 million 2022 fixed rate maturity; and, forecasts a further $15 million floating rate maturity and a $15 million fixed rate maturity in 2034[53]. In Mr. McCormick's earlier appearances before this Board, he has recommended staggered maturities to address refinancing risk and shorter maturities to capture the benefit of the normal yield curve.

As an alternative to 20 year financings, which will increase the concentration of refinancing in the early 2030s, Mr. McCormick observes that a 5 year financing maturing in 2018 or 2019 would reduce that concentration and also allow consumers to benefit from the normal yield curve, which indicates lower rates for shorter maturities.

The chart below uses the interest rates found on page 51 of Mr. McCormick's evidence. For periods 1 through 5, it provides a line showing the May 13, 2013, 1.80% five year Manitoba rate and, for periods 1 through 10, the 2.92% 10 year Manitoba rate. During that period consumers would enjoy savings of 1.12% per annum on the outstanding principal. As the rate for 5 year financing, 5 years in the future is unknown, the line for periods 6 through 10, described as the "indifference rate" is set at 4.04%, being the sum of the 2.92% 10 year rate which might have applied throughout the term and the first 5 years of savings.

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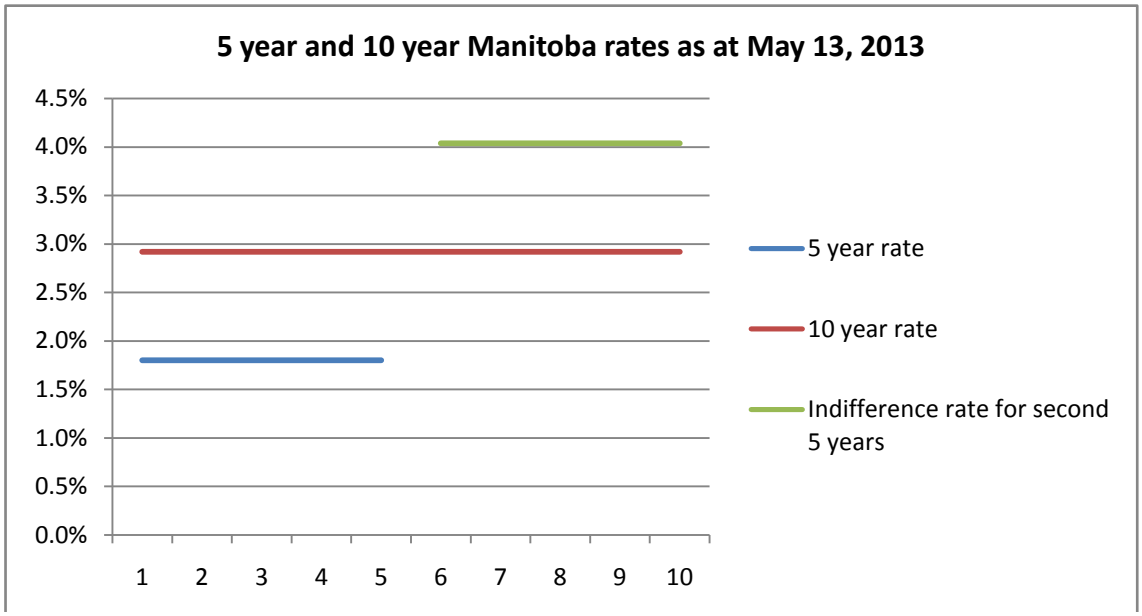
to the late delivery of the IR reply effectively preventing a subsequent series two question to resolve the issue. For example, the March 31, 2004 value in CAC/MSOS/MH II-148 is 10.1 years, as opposed to the 13.8 years indicated in CAC/Centra I-14 Attachment 3. All actual values through to an including 2010 fail to reconcile.

[52] See CAC/MSOS/Centra I-5 (g) "The maturity of a financing instrument should be similar to the useful life of the asset being financed. A company can minimize its risk from financing and maximize its capacity to use borrowed funds if it can match up the cash flows on the debt to those on the assets being financed. Accordingly, long lived fixed assets should be financed with long term debt."

[53] On page 10 of 10 in CAC/Centra I-19, Centra observes "Actual financing terms will vary from forecast ... it is not anticipated that the full $30 million will be advanced with a 2033/34 maturity." No other maturity date was provided for the unquantified portion which might be advanced with a different maturity.



Should the issuer be able to finance at a rate below 4.04% consumers would have benefited. If the future rate for 5 year money is above 4.04%, consumers would bear the cost. With the most recent indication of future 10 year + Canada yields at 4.65%; a persistent upward bias in forecasting; and, assuming a then normal yield curve, a 5 year fixed rate issue in 2014 may represent a reasonable choice, having regard to the relative weighted average term to maturity of long term debt of Centra and Hydro.

Summary

With respect to floating rate debt, Mr. McCormick is of the opinion that the spreads or margins over the benchmark rate of 48.4 basis points and forecast 45 basis points are unreasonable. Spreads of 18 to 23 basis points appear reasonable in that they can be observed in the recent Manitoba floating rate financings. These unreasonable spreads have affected interest cost on $35 million of principal in the 2012/13 forecast year, and with the intended 2014 $15 million financing, appear to be intended to affect the interest costs on approximately $50 million of principal in the 2014/15 financial year.

With respect to short term debt, Mr. McCormick would consider it reasonable to see a higher weighting of short term debt in the capital structure. The short term debt facility appears to provide the lowest cost of funds and based on recent

market conditions would represent an interest saving to consumers of approximately 17[54] basis points due to the spread between 3 month T bills and 3 month BAs, before giving effect to the 48.4 or 45 basis point spread or margin over benchmark applied to floating rate borrowings.

Estimate

Mr. McCormick regrets that he cannot provide the Board with the impact on finance expense of changes of short and medium term debt in Centra's debt portfolio. This is due in part to the interrelated nature of some of the changes. This is also due to the fact that Mr. McCormick concentrates on "Gross interest", having observed in the 2010 Hydro GRA, that a reduction of $8.1 million in Gross interest can, somewhat counter intuitively, lead to an increase in finance expense of $2.6 million. Apparently, gross interest and finance expense need not move in the same direction.

Mr. McCormick can assist the Board in estimating the change in gross interest, and has attempted that in the preceding discussion of Series 10 and Series 15 interest rates and costs, and comments with respect to the changes in forecasts in his evidence and these replies.

With respect to Centra's significant reduction in the use of the short term debt facility, should the Board view that as unreasonable, the change in gross interest would depend upon whether the Board indicated that the offsetting correction was to the recent issues of floating rate debt or fixed rate long term debt. Mr. McCormick discussed above, the variance in interest where the offsetting correction was to the floating rate debt. If the offsetting correction is to fixed rate long term debt, the adjustment would be based on the difference between the T-bill rate and the fixed rate on the series of long term debt which the Board considered unreasonable, in whole or in part, for Centra's debt portfolio.

[54] May 31 2013 Bank of Canada Series V39071, indicates a 1.19% 3 month BA rate, less, May 31 2013 Bank of Canada Series V39065, indicates a 1.02% 3 month T bill rate.

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PUB/CENTRA I-9(Revised)

Subject: **Tab 4 Integrated Financial Forecast & Economic Outlook**

Reference: **Tab 4 Appendix 4.1**

b) Please indicate the financial impact of utilizing the updated variables in the Spring 2013 Economic Outlook on 2013/14 revenue requirement items.

ANSWER:

The following table shows the financial impact on 2013/14 revenue requirement items associated with updating finance expense with the Spring 2013 Economic Outlook interest rates.

Centra Gas Manitoba Inc.
2013/14 General Rate Application

PUB/Centra I-9(b) (Revised)
June 14, 2013
($000)

Summary of Total Finance Expense
Comparison of Spring 2013 Economic Outlook Interest Rates with Original Application (IFF12)

	2013/14 Update	2013/14 IFF12	2013/14 Difference
Forecasted 3 Month Canadian T-Bill Interest Rate (exc. 1% PGF)	1.05%	1.30%	-0.25%
Forecasted CDOR03 Interest Rate (exc. 1% PGF)	1.35%	1.65%	-0.30%
Forecasted 10 Year+ Interest Rate (exc. 1% PGF)	3.50%	3.30%	0.20%
Interest on Long Term Debt	12,503	12,544	(41)
Interest on Short Term Debt	230	284	(54)
Total Interest on Debt	12,733	12,828	(95)
Add:			
Provincial Guarantee Fee	2,975	2,975	-
Amortization of Debt Discounts	-	-	-
Interest on Common Assets	2,990	3,020	(30)
Interest on Inventory	151	151	-
Total Additions	6,116	6,146	(30)
Deduct:			
Capitalized Interest	(111)	(113)	2
Carrying Costs on Deferred Taxes	(2,265)	(2,265)	-
Carrying Costs on Purchased Gas Variance Account	295	332	(37)
Other	328	368	(40)
Total Deductions	(1,753)	(1,678)	(75)
			-
Total Finance Expense	**17,096**	**17,296**	**(200)**

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PUB/CENTRA II-141

Reference: PUB/Centra I-6; CAC/Centra I-10(a) – Interest Rate Forecasts

b) Please provide the detailed narratives describing all of the updates and adjustments made to the interest rate forecasts in order to arrive at Centra's forecast for short term and long term interest rates, including the process for correcting end of period to average period data.

ANSWER:

Overview

The development of the Economic Outlook is a corporate activity with the information being used for a variety of corporate processes.[1] The information gathered in the Economic Outlook spans a broad array of key economic indicators, including the forecasting of short and long term interest rates.[2] The analysis reported in the Economic Outlook is based on a consensus view of several independent sources including Canada's primary financial institutions and several other independent sources, all of which are well known and respected. In addition to providing a consensus average for Centra's IFF base case, the Corporation's forecasting methodology also assists Centra with its risk mitigation efforts as it identifies the range between the highest and lowest projections within the utilized forecasts, as well as the distribution within the range.

1 As stated in the preface of the Economic Outlook provided in Appendix 4.1, "This information is used in several areas of the corporation; for example, in load forecasting, project evaluation, and financial planning." The Economic Outlook also has a number of end users, including Centra.

2 The report also provides tables, graphs, and written summaries for the following key economic indicators: Real Gross Domestic Product; Consumer Price Index; GDP Price Deflator; Population including Manitoba Aboriginal Population; Employment; Housing; and the C$/US$ exchange rate.

Forecast Reviews

The Economic Outlook is prepared in the spring of each year, which is the start of the Corporation's annual forecasting cycle, and is based on what was known and could reasonably be foreseen at the time of its preparation. Due to continued uncertainty and volatility of the current economic environment, the forecasts of key variables such as interest rates are reviewed in the summer and fall. As IFF12 was produced in late fall/ early winter, the fall interest rate forecast was utilized. In the event of significant changes in the macro-economy (such as those that occurred in the midst of the financial crisis), an IFF update may be published in advance of the next scheduled IFF. In these unusual circumstances, care must be exercised in order to avoid creating a forecast distortion by only adjusting one macro-economic variable (such as interest rates) without adjusting the IFF for the entire complex array of potentially dependent variables.

The Corporation monitors changing conditions throughout the year and provides variance explanations as part of its financial reporting. As the Corporation's rates are set under a cost of service methodology, with retained earnings held for the benefit of ratepayers along with the self-correcting ability to adjust the revenue requirement at the next GRA, consistent with Orders 128/09 and 5/12 there is no need to establish deferral accounts to accumulate interest rate/cost variances.[3]

[3] As per Order 128/09 dated September 16, 2009:

> "The Board does not agree with CAC/MSOS on the need for a deferral account for Finance Expense. The Board believes that the update provided for in this Order and the methodology changes proposed for future applications should adequately ensure that an appropriate interest rate is determined for rate setting purposes" (page 63).

As per Order 5/12 dated January 17, 2012 in response to a CAC/MSOS recommendation for an interest rate deferral account that would "capture the difference between forecast and actual finance costs, addressing forecast differences in interest costs" (page 87), the PUB stated that:

> "The Board believes that the adoption of an interest rate deferral account is not appropriate at this time" (page 89).

The Forecasters

For the purpose of the 2012 Economic Outlook, the forecasting sources include IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, BMO Nesbitt Burns, CIBC, Desjardins, Laurentian, Royal Bank of Canada, Scotiabank, National Bank of Canada, and TD Bank.[4] All of the forecasters utilize professionally trained and experienced economists who have their own proprietary processes and perspectives. These differing processes and perspectives will lead in most circumstances to differing recommendations and professional judgments.

It was previously recommended that Centra develop a "process to retrospectively test the accuracy of forecasters to assess their inclusion in future forecasts."[5] During the 2010/11 & 2011/12 Electric GRA, the rationale for the retrospective testing of interest rate forecasters was again extensively canvassed.[6] As part of Centra's 2011/12 Cost of Gas Application, on April 1, 2011 Centra described its position regarding the retrospective testing of interest rate forecasters in response to PUB/Centra 50 (b). In this response Centra cited a Bank of Canada working paper entitled "*Combining Canadian Interest-Rate Forecasts*" which

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4 The listing of these forecasters was provided in Appendix 4.1 on page 5 of the 2012 Economic Outlook (Spring). The Corporation does not have a view regarding the optimal number of sources within its pool of independent forecasters. The number of source forecasters was increased in the 2012 Economic Outlook with the addition of Desjardins and Laurentian (both are established Canadian financial institutions that provide near term macro-economic updates). Other forecasters considered at this time, but not added to the pool, included UBS Warburg, J.P. Morgan, Merrill Lynch, Deutsche Bank and Economap Strategic Economic Advisors. As the forecast for Spatial Economics is only produced in the spring, it was not utilized for the fall review due to the staledatedness of the information. No forecasters have been removed from the pool since the 2010 Economic Outlook (when Consensus Economics, Federal Finance and the Province of British Columbia were removed as their forecasts were not considered to be statistically independent).

5 PUB Order 128/09 Directive No. 9, dated September 16, 2009, page 137.

6 For further background and chronology pertaining to the topic of the Corporation's interest rate forecasting methodology and the retrospective testing of interest rate forecasters, see Centra's response to PUB/Centra I–10 from the 2013/14 Centra GRA.

reviewed more than 30 years of monthly Canadian interest rates.[7] Centra concluded that:

> "It is Centra's view that the collective economic opinion that currently exists within Centra's established portfolio of respected forecasters provides a valuable strength of diversity, and that a process to retrospectively test the accuracy of forecasters to assess their inclusion in future forecasts is not beneficial at this time."[8]

Since April 2011, the Corporation has broadened this strength of diversity by adding Desjardins and Laurentian to its pool of forecasters. Regarding retrospective testing of interest rate forecasters, it remains the Corporation's view that:

a) forecaster modeling algorithms are evolving since the financial crisis and that sufficient time through a full business cycle has not transpired to appropriately test the accuracy of these algorithms;

b) the established forecasting methodology, along with cost of service regulation mitigates the need for retrospective testing for rate setting purposes;

c) it is important for the Corporation to consider the broad range of respected forecaster opinion; and

d) retrospective testing, with the aim of pruning or weighting forecaster opinions could potentially weaken or bias the Corporation's viewpoints in terms of understanding the spectrum of possibilities and mitigating the risk.

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7 *"Combining Canadian Interest-Rate Forecasts"* by David Jamieson Bolder and Yuliya Romanyuk; Bank of Canada Working Paper 2008-34; September 2008. This working paper is available online at http://www.bankofcanada.ca/wp-content/uploads/2010/02/wp08-34.pdf. Manitoba Hydro/ Centra also conducted a telephone conference call with one of the authors of the working paper in spring 2011 in order: a) to review the research paper findings; b) to discuss the Corporation's view on the retrospective testing of its forecasters, and; c) to seek enhancements to the Corporation's interest rate forecasting methodology.

8 As excerpted from Centra's response to PUB/Centra 50 (b) from the 2011/12 Cost of Gas Application. On April 28, 2011 in PUB Order 65/11 the PUB did not recommend or redirect Centra to undertake retrospective testing of its interest rate forecasters.

Forecast Adjustments

Since the receipt of Order 128/09, the Corporation undertakes adjustments to third party forecast data, where necessary. For example, end of period source forecasts are converted to average period data by taking the simple average between the two end points.[9]

The interest rate forecasters are typically in one of two categories:

a) financial institutions (such as BMO, CIBC, and Royal Bank of Canada) that provide near term, publicly available forecasts;[10] or

b) macro-economic forecasters (such as Informetrica, IHS Global Insight, Conference Board and Spatial Economics) that provide forecasts spanning from the near term through to longer terms.

In the near term, the preponderance of forecasters provide data with quarterly (3 month) granularity while the long term forecasts may only provide annual (12 month) data. Although the granularity between quarterly and annual data sets are not the same, it is the Corporation's position that the combined interest rate forecast is made stronger with their

[9] Converting end of period forecasts to average forecasts is considered by the Corporation to be a computational adjustment and not a correction. The underlying assumption with these revisions is that a simple averaging of two end points is reasonable (it is conceivable that the weighted average through the time period may not equal the simple average). Therefore, given the circumstance where the external forecaster provided end of period information and did not specifically provide their average over the period, it is technically imprecise to indicate that the average calculated by the Corporation with this process represents the view of the external forecaster. As a practical matter, the Corporation considers the impact of these computational adjustments, and potential variations between simple and weighted averages, to be normally immaterial in the overall financial forecast.

[10] With the 2012 Economic Outlook, the Corporation took the initiative to deepen the information provided by these forecasters by obtaining extended interest rate forecasts from some of the financial institutions where available. Consequently, the Corporation received extended forecasts from BMO, Desjardins, Royal Bank of Canada, and TD Bank. As described in response to PUB/Centra II–141 (a), the Corporation has received permission from BMO and the Royal Bank of Canada to disclose the near term portion of their extended forecasts. However, the forecast for the periods beyond 2014 remain proprietary.

integration.[11] Annual calendar year information is adjusted to fiscal year information on a proportionate basis. The data for the fiscal year is then combined and averaged to derive the base interest rate forecast for the period.[12]

As described in response to PUB/Centra I–6, the Corporation's short term interest rate is the sum of the combined source forecasts for the Canadian 3 month T-Bill rate plus the 1% provincial debt guarantee fee.

The Corporation's Canadian long term interest rate is calculated by adding the appropriate credit spread to the Canadian 10 Year+ bond yield rate and the 1% provincial debt guarantee fee.[13]

[11] This follows the view described in the Bank of Canada's working paper entitled "*Combining Canadian Interest-Rate Forecasts*" wherein on page 2 of the paper the authors state that:

> "The concept of model averaging has a relatively long history in the forecasting literature. Indeed, there is evidence dating back to Bates and Granger (1969) and Newbold and Granger (1974) suggesting that combination forecasts often outperform individual forecasts. … even if misspecified models are combined, the combination may, and often will, improve the forecasts."

[12] Rounded to the nearest 5 basis points.

[13] For the Canadian long term interest rate forecast, the average of the 10 year and 30 year Canadian long bond data points are used as inputs into the Corporation's long-term interest rate forecast. The methodology for the credit spread between the benchmark Government of Canada bonds and the all-in cost to the Province of Manitoba, as well as the need to need to simultaneously consider both the benchmark rates and the credit spreads, was extensively canvassed at the 2010/11 & 2011/12 Electric GRA. For a general description of the Canadian 10 Year+ credit spread process, please see the Corporation's response to CAC/MSOS/MH I–135 (i) from the aforementioned proceeding.

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PUB/CENTRA II-141(Revised)

Reference: PUB/Centra I-6; CAC/Centra I-10(a) – Interest Rate Forecasts

d) Please re-file Table 1 and Table 2 with the most recently updated interest rate forecasts, as well as eliminating the forecasts from Bank A and Bank B, and recalculate the forecasted short term and long term interest rates.

ANSWER:

The 2013 Spring Economic Outlook (EO2013) is provided as Attachment 1. Copies of the source forecasts are provided as Attachment 2.

Tables depicting the sources used to derive the forecast of Canadian 3 month T-Bill rates and the Canadian 10 Year+ bond yield interest rates for each quarter of 2012/13 – 2014/15, as included in EO2013, are provided on the following pages.

Table 1 - Canadian 3-Month T-Bill Rate %

			2012			2013				2014				2015
	Fcst Date	End of Period or Average	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
BMO Nesbitt Burns	18-Mar-13	Average	0.98	0.98	0.97	0.94	0.95	0.95	0.95	0.95	0.95	1.20	1.45	
CIBC	18-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	1.03	1.20	1.45	1.73
Desjardins	26-Feb-13	End period	0.98	0.98	0.97	0.94	0.97	0.98	1.00	1.00	1.10	1.35	1.50	
Laurentian	14-Mar-13	End period	0.98	0.98	0.97	0.94	0.98	0.98	1.03	1.05	1.05	1.08	1.35	
National Bank	1-Mar-13	End period	0.98	0.98	0.97	0.94	0.99	0.98	0.98	1.10	1.34	1.57	1.81	
Royal Bank	4-Mar-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.03	1.08	1.18	1.40	
Scotiabank	28-Feb-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.05	
TD Bank	19-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	0.95	1.00	1.23	1.47
IHS Global Insight	12-Mar-13	Average	0.98	0.98	0.97	0.94	0.97	0.99	0.99	0.98	0.98	1.00	1.32	1.58
Conference Board	19-Mar-13	Average	0.98	0.98	0.97	0.94	0.96	1.02	1.17	1.36	1.47	1.63	1.83	2.07
Spatial Economics	29-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	2.50	2.50	2.50	2.50	2.90
Informetrica	8-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	1.20	1.20	1.20	1.20	1.90

	2012/13	2013/14	2014/15
EO2013 - Fiscal	1.00	1.05	1.45

NOTE 1: 2012 (Q2-Q4) and 2013 Q1 are actual data.
NOTE 2: The forecast for 2015 Q1 provided by BMO is proprietary and cannot be disclosed.

Table 2 - Canadian 10 Year+ Bond Yield Rate - %

	Fcst Date	End of Period or Average	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1
BMO Nesbitt Burns	18-Mar-13	Average	2.25	2.10	2.10	2.28	2.30	2.45	2.60	2.80	3.05	3.28	3.53	
CIBC	18-Mar-13	End period	2.25	2.10	2.10	2.28	2.31	2.50	2.64	2.76	2.88	2.96	3.03	3.16
Desjardins	26-Feb-13	End period	2.25	2.10	2.10	2.28	2.18	2.24	2.40	2.56	2.69	2.78	2.88	
Laurentian	14-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.33	2.54	2.69	2.89	3.20	3.46	
National Bank	1-Mar-13	End period	2.25	2.10	2.10	2.28	2.29	2.46	2.60	2.73	2.85	2.97	3.09	
Royal Bank	4-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.25	2.35	2.41	2.48	2.61	2.84	
Scotiabank	28-Feb-13	End period	2.25	2.10	2.10	2.28	2.16	2.28	2.51	2.78	3.06	3.26	3.43	
TD Bank	19-Mar-13	End period	2.25	2.10	2.10	2.28	2.22	2.33	2.44	2.58	2.74	2.84	2.93	2.81
IHS Global Insight	12-Mar-13	Average	2.25	2.10	2.10	2.28	2.25	2.38	2.53	2.67	2.80	2.89	2.92	2.96
Conference Board	19-Mar-13	Average	2.25	2.10	2.10	2.28	2.21	2.18	2.20	2.26	2.30	2.36	2.46	2.59
Spatial Economics	29-Jan-13	Average	2.25	2.10	2.10	2.28	3.40	3.40	3.40	4.30	4.30	4.30	4.30	5.10
Informetrica	8-Jan-13	Average	2.25	2.10	2.10	2.28	2.27	2.27	2.27	2.37	2.37	2.37	2.37	3.10
			2012/13				2013/14				2014/15			
EO2013 - Fiscal			2.20				2.50				3.05			

NOTE 1: 2012 (Q2-Q4) and 2013 Q1 are actual data.
NOTE 2: The forecast for 2015 Q1 provided by BMO is proprietary and cannot be disclosed.

Tables depicting the sources used to derive the forecast of Canadian 3 month T-Bill rates and the Canadian 10 Year+ bond yield interest rates for each quarter of 2012/13 – 2014/15, as included in EO2013 have also been reproduced based upon the following scenarios:

1. EO2013, excluding BMO and RBC;
2. EO2013, excluding BMO, RBC, and Informetrica;
3. EO2013, excluding Informetrica only;
4. EO2013, excluding National Bank only; and,
5. EO2013, excluding the high & low forecast in each quarter.

A summary of the fiscal year rates, and the impact of each scenario on the forecasts as included in EO2013, is as follows:

	3-Month T-Bill - Rate %			Canadian 10 Year+ Bond Yield Rate - %		
Scenario	**2012/13**	**2013/14**	**2014/15**	**2012/13**	**2013/14**	**2014/15**
EO2013 - All Forecasters	1.00	1.05	1.45	2.20	2.50	3.05
Excluding BMO (Bank A) & RBC (Bank B)	1.00	1.05	1.45	2.20	2.55	3.05
Excluding BMO & RBC & Informetrica	1.00	1.05	1.50	2.20	2.55	3.10
Excluding Informetrica (only)	1.00	1.05	1.45	2.20	2.55	3.10
Excluding National Bank (only)	1.00	1.05	1.45	2.20	2.50	3.05
Excluding High & Low forecast per quarter	1.00	1.00	1.35	2.20	2.45	2.95
Differential between EO2013 and Scenarios						
EO2013 - All Forecasters	-	-	-	-	-	-
Excluding BMO (Bank A) & RBC (Bank B)	-	-	-	-	0.05	-
Excluding BMO & RBC & Informetrica	-	-	0.05	-	0.05	0.05
Excluding Informetrica (only)	-	-	-	-	0.05	0.05
Excluding National Bank (only)	-	-	-	-	-	-
Excluding High & Low forecast per quarter	-	(0.05)	(0.10)	-	(0.05)	(0.10)

**Results are rounded to nearest 5-basis points*

Note that the elimination of the various source forecasts under each scenario did not materially impact the calculation of the forecasted short and long term interest rates for the 2013/14 Test Year.

The same scenarios were run using interest rates included in EO2012 (updated based on the fall 2012 review). A summary of the fiscal year rates, and the impact of each scenario on the forecasts in support of the 2013/14 Centra Gas General Rate Application, is as follows:

	3-Month T-Bill - Rate %			Canadian 10 Year+ Bond Yield Rate - %		
Scenario	**2012/13**	**2013/14**	**2014/15**	**2012/13**	**2013/14**	**2014/15**
EO2012 (fall review) - All Forecasters	1.00	1.30	2.10	2.15	2.55	3.20
Excluding BMO (Bank A) & RBC (Bank B)	1.00	1.30	2.20	2.15	2.55	3.10
Excluding BMO & RBC & Informetrica	1.00	1.20	2.00	2.15	2.50	2.90
Excluding Informetrica (only)	1.00	1.25	1.90	2.15	2.50	3.15
Excluding National Bank (only)	1.00	1.35	2.10	2.15	2.55	3.20
Excluding High & Low forecast per quarter	1.00	1.25	2.00	2.15	2.55	3.25
Differential between EO2012 (fall review) and Scenarios						
EO2012 (fall review) - All Forecasters	-	-	-	-	-	-
Excluding BMO (Bank A) & RBC (Bank B)	-	-	0.10	-	-	(0.10)
Excluding BMO & RBC & Informetrica	-	(0.10)	(0.10)	-	(0.05)	(0.30)
Excluding Informetrica (only)	-	(0.05)	(0.20)	-	(0.05)	(0.05)
Excluding National Bank (only)	-	0.05	-	-	-	-
Excluding High & Low forecast per quarter	-	(0.05)	(0.10)	-	-	0.05

**Results are rounded to nearest 5-basis points*

Scenario 1: Excluding BMO and RBC

Table 1 - Canadian 3-Month T-Bill Rate %

	Fcst Date	End of Period or Average	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1
CIBC	18-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	1.03	1.20	1.45	1.73
Desjardins	26-Feb-13	End period	0.98	0.98	0.97	0.94	0.97	0.98	1.00	1.00	1.10	1.35	1.50	
Laurentian	14-Mar-13	End period	0.98	0.98	0.97	0.94	0.98	0.98	1.03	1.05	1.05	1.08	1.35	
National Bank	1-Mar-13	End period	0.98	0.98	0.97	0.94	0.99	0.98	0.98	1.10	1.34	1.57	1.81	
Scotiabank	28-Feb-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.05	
TD Bank	19-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	0.95	1.00	1.23	1.47
IHS Global Insight	12-Mar-13	Average	0.98	0.98	0.97	0.94	0.97	0.99	0.99	0.98	0.98	1.00	1.32	1.58
Conference Board	19-Mar-13	Average	0.98	0.98	0.97	0.94	0.96	1.02	1.17	1.36	1.47	1.63	1.83	2.07
Spatial Economics	29-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	2.50	2.50	2.50	2.50	2.90
Informetrica	8-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	1.20	1.20	1.20	1.20	1.90
			2012/13				2013/14				2014/15			
EO2013 - Fiscal			1.00				1.05				1.45			

Table 2 - Canadian 10 Year+ Bond Yield Rate - %

	Fcst Date	End of Period or Average	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1
CIBC	18-Mar-13	End period	2.25	2.10	2.10	2.28	2.31	2.50	2.64	2.76	2.88	2.96	3.03	3.16
Desjardins	26-Feb-13	End period	2.25	2.10	2.10	2.28	2.18	2.24	2.40	2.56	2.69	2.78	2.88	
Laurentian	14-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.33	2.54	2.69	2.89	3.20	3.46	
National Bank	1-Mar-13	End period	2.25	2.10	2.10	2.28	2.29	2.46	2.60	2.73	2.85	2.97	3.09	
Scotiabank	28-Feb-13	End period	2.25	2.10	2.10	2.28	2.16	2.28	2.51	2.78	3.06	3.26	3.43	
TD Bank	19-Mar-13	End period	2.25	2.10	2.10	2.28	2.22	2.33	2.44	2.58	2.74	2.84	2.93	2.81
IHS Global Insight	12-Mar-13	Average	2.25	2.10	2.10	2.28	2.25	2.38	2.53	2.67	2.80	2.89	2.92	2.96
Conference Board	19-Mar-13	Average	2.25	2.10	2.10	2.28	2.21	2.18	2.20	2.26	2.30	2.36	2.46	2.59
Spatial Economics	29-Jan-13	Average	2.25	2.10	2.10	2.28	3.40	3.40	3.40	4.30	4.30	4.30	4.30	5.10
Informetrica	8-Jan-13	Average	2.25	2.10	2.10	2.28	2.27	2.27	2.27	2.37	2.37	2.37	2.37	3.10
			2012/13				2013/14				2014/15			
EO2013 - Fiscal			2.20				2.55				3.05			

NOTE 1: 2012 (Q2-Q4) and 2013 Q1 are actual data.

Scenario 2: Excluding BMO, RBC and Informetrica

Table 1 - Canadian 3-Month T-Bill Rate %

	Fcst Date	End of Period or Average	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1
CIBC	18-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	1.03	1.20	1.45	1.73
Desjardins	26-Feb-13	End period	0.98	0.98	0.97	0.94	0.97	0.98	1.00	1.00	1.10	1.35	1.50	
Laurentian	14-Mar-13	End period	0.98	0.98	0.97	0.94	0.98	0.98	1.03	1.05	1.05	1.08	1.35	
National Bank	1-Mar-13	End period	0.98	0.98	0.97	0.94	0.99	0.98	0.98	1.10	1.34	1.57	1.81	
Scotiabank	28-Feb-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.05	
TD Bank	19-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	0.95	1.00	1.23	1.47
IHS Global Insight	12-Mar-13	Average	0.98	0.98	0.97	0.94	0.97	0.99	0.99	0.98	0.98	1.00	1.32	1.58
Conference Board	19-Mar-13	Average	0.98	0.98	0.97	0.94	0.96	1.02	1.17	1.36	1.47	1.63	1.83	2.07
Spatial Economics	29-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	2.50	2.50	2.50	2.50	2.90

	2012/13	2013/14	2014/15
EO2013 - Fiscal	1.00	1.05	1.50

Table 2 - Canadian 10 Year+ Bond Yield Rate - %

	Fcst Date	End of Period or Average	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1
CIBC	18-Mar-13	End period	2.25	2.10	2.10	2.28	2.31	2.50	2.64	2.76	2.88	2.96	3.03	3.16
Desjardins	26-Feb-13	End period	2.25	2.10	2.10	2.28	2.18	2.24	2.40	2.56	2.69	2.78	2.88	
Laurentian	14-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.33	2.54	2.69	2.89	3.20	3.46	
National Bank	1-Mar-13	End period	2.25	2.10	2.10	2.28	2.29	2.46	2.60	2.73	2.85	2.97	3.09	
Scotiabank	28-Feb-13	End period	2.25	2.10	2.10	2.28	2.16	2.28	2.51	2.78	3.06	3.26	3.43	
TD Bank	19-Mar-13	End period	2.25	2.10	2.10	2.28	2.22	2.33	2.44	2.58	2.74	2.84	2.93	2.81
IHS Global Insight	12-Mar-13	Average	2.25	2.10	2.10	2.28	2.25	2.38	2.53	2.67	2.80	2.89	2.92	2.96
Conference Board	19-Mar-13	Average	2.25	2.10	2.10	2.28	2.21	2.18	2.20	2.26	2.30	2.36	2.46	2.59
Spatial Economics	29-Jan-13	Average	2.25	2.10	2.10	2.28	3.40	3.40	3.40	4.30	4.30	4.30	4.30	5.10

	2012/13	2013/14	2014/15
EO2013 - Fiscal	2.20	2.55	3.10

NOTE 1: 2012 (Q2-Q4) and 2013 Q1 are actual data.

Scenario 3: Excluding Informetrica only

Table 1 - Canadian 3-Month T-Bill Rate %

			2012			2013				2014				2015
	Fcst Date	End of Period or Average	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
BMO Nesbitt Burns	18-Mar-13	Average	0.98	0.98	0.97	0.94	0.95	0.95	0.95	0.95	0.95	1.20	1.45	
CIBC	18-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	1.03	1.20	1.45	1.73
Desjardins	26-Feb-13	End period	0.98	0.98	0.97	0.94	0.97	0.98	1.00	1.00	1.10	1.35	1.50	
Laurentian	14-Mar-13	End period	0.98	0.98	0.97	0.94	0.98	0.98	1.03	1.05	1.05	1.08	1.35	
National Bank	1-Mar-13	End period	0.98	0.98	0.97	0.94	0.99	0.98	0.98	1.10	1.34	1.57	1.81	
Royal Bank	4-Mar-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.03	1.08	1.18	1.40	
Scotiabank	28-Feb-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.05	
TD Bank	19-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	0.95	1.00	1.23	1.47
IHS Global Insight	12-Mar-13	Average	0.98	0.98	0.97	0.94	0.97	0.99	0.99	0.98	0.98	1.00	1.32	1.58
Conference Board	19-Mar-13	Average	0.98	0.98	0.97	0.94	0.96	1.02	1.17	1.36	1.47	1.63	1.83	2.07
Spatial Economics	29-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	2.50	2.50	2.50	2.50	2.90

	2012/13	2013/14	2014/15
EO2013 - Fiscal	1.00	1.05	1.45

Table 2 - Canadian 10 Year+ Bond Yield Rate - %

			2012			2013				2014				2015
	Fcst Date	End of Period or Average	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
BMO Nesbitt Burns	18-Mar-13	Average	2.25	2.10	2.10	2.28	2.30	2.45	2.60	2.80	3.05	3.28	3.53	
CIBC	18-Mar-13	End period	2.25	2.10	2.10	2.28	2.31	2.50	2.64	2.76	2.88	2.96	3.03	3.16
Desjardins	26-Feb-13	End period	2.25	2.10	2.10	2.28	2.18	2.24	2.40	2.56	2.69	2.78	2.88	
Laurentian	14-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.33	2.54	2.69	2.89	3.20	3.46	
National Bank	1-Mar-13	End period	2.25	2.10	2.10	2.28	2.29	2.46	2.60	2.73	2.85	2.97	3.09	
Royal Bank	4-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.25	2.35	2.41	2.48	2.61	2.84	
Scotiabank	28-Feb-13	End period	2.25	2.10	2.10	2.28	2.16	2.28	2.51	2.78	3.06	3.26	3.43	
TD Bank	19-Mar-13	End period	2.25	2.10	2.10	2.28	2.22	2.33	2.44	2.58	2.74	2.84	2.93	2.81
IHS Global Insight	12-Mar-13	Average	2.25	2.10	2.10	2.28	2.25	2.38	2.53	2.67	2.80	2.89	2.92	2.96
Conference Board	19-Mar-13	Average	2.25	2.10	2.10	2.28	2.21	2.18	2.20	2.26	2.30	2.36	2.46	2.59
Spatial Economics	29-Jan-13	Average	2.25	2.10	2.10	2.28	3.40	3.40	3.40	4.30	4.30	4.30	4.30	5.10

	2012/13	2013/14	2014/15
EO2013 - Fiscal	2.20	2.55	3.10

NOTE 1: 2012 (Q2-Q4) and 2013 Q1 are actual data.
NOTE 2: The forecast for 2015 Q1 provided by BMO is proprietary and cannot be disclosed.

Scenario 4: Excluding National Bank only

Table 1 - Canadian 3-Month T-Bill Rate %

			2012			2013				2014				2015
	Fcst Date	End of Period or Average	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
BMO Nesbitt Burns	18-Mar-13	Average	0.98	0.98	0.97	0.94	0.95	0.95	0.95	0.95	0.95	1.20	1.45	
CIBC	18-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	1.03	1.20	1.45	1.73
Desjardins	26-Feb-13	End period	0.98	0.98	0.97	0.94	0.97	0.98	1.00	1.00	1.10	1.35	1.50	
Laurentian	14-Mar-13	End period	0.98	0.98	0.97	0.94	0.98	0.98	1.03	1.05	1.05	1.08	1.35	
Royal Bank	4-Mar-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.03	1.08	1.18	1.40	
Scotiabank	28-Feb-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.05	
TD Bank	19-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	0.95	1.00	1.23	1.47
IHS Global Insight	12-Mar-13	Average	0.98	0.98	0.97	0.94	0.97	0.99	0.99	0.98	0.98	1.00	1.32	1.58
Conference Board	19-Mar-13	Average	0.98	0.98	0.97	0.94	0.96	1.02	1.17	1.36	1.47	1.63	1.83	2.07
Spatial Economics	29-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	2.50	2.50	2.50	2.50	2.90
Informetrica	8-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	1.20	1.20	1.20	1.20	1.90

	2012/13	2013/14	2014/15
EO2013 - Fiscal	1.00	1.05	1.45

Table 2 - Canadian 10 Year+ Bond Yield Rate - %

			2012			2013				2014				2015
	Fcst Date	End of Period or Average	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
BMO Nesbitt Burns	18-Mar-13	Average	2.25	2.10	2.10	2.28	2.30	2.45	2.60	2.80	3.05	3.28	3.53	
CIBC	18-Mar-13	End period	2.25	2.10	2.10	2.28	2.31	2.50	2.64	2.76	2.88	2.96	3.03	3.16
Desjardins	26-Feb-13	End period	2.25	2.10	2.10	2.28	2.18	2.24	2.40	2.56	2.69	2.78	2.88	
Laurentian	14-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.33	2.54	2.69	2.89	3.20	3.46	
Royal Bank	4-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.25	2.35	2.41	2.48	2.61	2.84	
Scotiabank	28-Feb-13	End period	2.25	2.10	2.10	2.28	2.16	2.28	2.51	2.78	3.06	3.26	3.43	
TD Bank	19-Mar-13	End period	2.25	2.10	2.10	2.28	2.22	2.33	2.44	2.58	2.74	2.84	2.93	2.81
IHS Global Insight	12-Mar-13	Average	2.25	2.10	2.10	2.28	2.25	2.38	2.53	2.67	2.80	2.89	2.92	2.96
Conference Board	19-Mar-13	Average	2.25	2.10	2.10	2.28	2.21	2.18	2.20	2.26	2.30	2.36	2.46	2.59
Spatial Economics	29-Jan-13	Average	2.25	2.10	2.10	2.28	3.40	3.40	3.40	4.30	4.30	4.30	4.30	5.10
Informetrica	8-Jan-13	Average	2.25	2.10	2.10	2.28	2.27	2.27	2.27	2.37	2.37	2.37	2.37	3.10

	2012/13	2013/14	2014/15
EO2013 - Fiscal	2.20	2.50	3.05

NOTE 1: 2012 (Q2-Q4) and 2013 Q1 are actual data.
NOTE 2: The forecast for 2015 Q1 provided by BMO is proprietary and cannot be disclosed.

Scenario 5: Excluding the high & low forecast in each quarter

Table 1 - Canadian 3-Month T-Bill Rate %

			2012			2013				2014				2015
	Fcst Date	End of Period or Average	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
BMO Nesbitt Burns	18-Mar-13	Average	0.98	0.98	0.97	0.94	0.95	0.95	0.95	0.95	0.95	1.20	1.45	
CIBC	18-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	1.03	1.20	1.45	1.73
Desjardins	26-Feb-13	End period	0.98	0.98	0.97	0.94	0.97	0.98	1.00	1.00	1.10	1.35	1.50	
Laurentian	14-Mar-13	End period	0.98	0.98	0.97	0.94	0.98	0.98	1.03	1.05	1.05	1.08	1.35	
National Bank	1-Mar-13	End period	0.98	0.98	0.97	0.94	0.99	0.98	0.98	1.10	1.34	1.57	1.81	
Royal Bank	4-Mar-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.03	1.08	1.18	1.40	
Scotiabank	28-Feb-13	End period	0.98	0.98	0.97	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.05	
TD Bank	19-Mar-13	End period	0.98	0.98	0.97	0.94	0.97	0.95	0.95	0.95	0.95	1.00	1.23	1.47
IHS Global Insight	12-Mar-13	Average	0.98	0.98	0.97	0.94	0.97	0.99	0.99	0.98	0.98	1.00	1.32	1.58
Conference Board	19-Mar-13	Average	0.98	0.98	0.97	0.94	0.96	1.02	1.17	1.36	1.47	1.63	1.83	2.07
Spatial Economics	29-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	2.50	2.50	2.50	2.50	2.90
Informetrica	8-Jan-13	Average	0.98	0.98	0.97	0.94	1.10	1.10	1.10	1.20	1.20	1.20	1.20	1.90

	2012/13	2013/14	2014/15
EO2013 - Fiscal	1.00	1.00	1.35

Table 2 - Canadian 10 Year+ Bond Yield Rate - %

			2012			2013				2014				2015
	Fcst Date	End of Period or Average	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
BMO Nesbitt Burns	18-Mar-13	Average	2.25	2.10	2.10	2.28	2.30	2.45	2.60	2.80	3.05	3.28	3.53	
CIBC	18-Mar-13	End period	2.25	2.10	2.10	2.28	2.31	2.50	2.64	2.76	2.88	2.96	3.03	3.16
Desjardins	26-Feb-13	End period	2.25	2.10	2.10	2.28	2.18	2.24	2.40	2.56	2.69	2.78	2.88	
Laurentian	14-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.33	2.54	2.69	2.89	3.20	3.46	
National Bank	1-Mar-13	End period	2.25	2.10	2.10	2.28	2.29	2.46	2.60	2.73	2.85	2.97	3.09	
Royal Bank	4-Mar-13	End period	2.25	2.10	2.10	2.28	2.19	2.25	2.35	2.41	2.48	2.61	2.84	
Scotiabank	28-Feb-13	End period	2.25	2.10	2.10	2.28	2.16	2.28	2.51	2.78	3.06	3.26	3.43	
TD Bank	19-Mar-13	End period	2.25	2.10	2.10	2.28	2.22	2.33	2.44	2.58	2.74	2.84	2.93	2.81
IHS Global Insight	12-Mar-13	Average	2.25	2.10	2.10	2.28	2.25	2.38	2.53	2.67	2.80	2.89	2.92	2.96
Conference Board	19-Mar-13	Average	2.25	2.10	2.10	2.28	2.21	2.18	2.20	2.26	2.30	2.36	2.46	2.59
Spatial Economics	29-Jan-13	Average	2.25	2.10	2.10	2.28	3.40	3.40	3.40	4.30	4.30	4.30	4.30	5.10
Informetrica	8-Jan-13	Average	2.25	2.10	2.10	2.28	2.27	2.27	2.27	2.37	2.37	2.37	2.37	3.10

	2012/13	2013/14	2014/15
EO2013 - Fiscal	2.20	2.45	2.95

NOTE 1: 2012 (Q2-Q4) and 2013 Q1 are actual data.
NOTE 2: The forecast for 2015 Q1 provided by BMO is proprietary and cannot be disclosed.

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TESTIMONY OF JERROLD OPPENHEIM

For Consumers Association of Canada (Manitoba) Inc. (CAC)

Centra Gas GRA 2013/14

Pre-Filed Evidence of Jerrold Oppenheim

Regarding

Centra Gas Manitoba Inc.
2013/2014 General Rate Application

Lower Income Energy Efficiency

on behalf of
Consumers' Association of Canada (Manitoba) Inc. ('CAC')

May 28, 2013

Jerrold Oppenheim
57 Middle Street
Gloucester, Massachusetts 01930 USA
978-283-0897
JerroldOpp@DemocracyAndRegulation.com
www.DemocracyAndRegulation.com

A. INTRODUCTION

A. Identification

My name is Jerrold Oppenheim. My business address is 57 Middle Street, Gloucester, Massachusetts USA. As described in more detail in my resume, I have worked on consumer and low-income energy and other issues for more than forty years. After graduating Harvard College and Boston College Law School, I led utility litigation for Attorneys General in New York State and Massachusetts; for Legal Services in Boston, Chicago and New York City; and for the National Consumer Law Center. I was the founding Director of Renewable Energy Technology Analysis at Pace University Law School and am currently a member of the Center for Public Utilities Advisory Council, New Mexico State University.

I have often worked as a lawyer on these issues and also as a consultant, analyst, and expert witness. My clients have included low-income advocacy and efficiency implementation agencies, consumer and environmental groups, industrial customer groups, labor organizations, government agencies, and utilities. As examples of my work, I successfully negotiated nation-leading protections for consumers and low-income families in the Massachusetts and Connecticut electricity restructuring statutes, as well as in the more recent Massachusetts Greenhouse Communities Act, and, for about 25 years, have led pioneering ongoing negotiations of energy efficiency agreements with all electric and gas utilities in Massachusetts. With Theo MacGregor, I lead similar successful negotiations of low-income energy efficiency programs in Arkansas and have also designed and analyzed low-income programs in the District of Columbia.

I have also published many papers in North America and abroad and am co-author of the book, Democracy And Regulation (London: Pluto 2003), awarded the Upton Sinclair Freedom of Expression Award by the American Civil Liberties Union. My papers have been published by, among others, The Electricity Journal, the National Association of Regulatory Utility Commissioners (NARUC), the National Council on Competition and the Electric Industry, Entergy Corp., the National Consumer Law Center (NCLC), the UN's International Labor Office (ILO), the European Federation of Public Service Unions (EPSU), The Bergen Conference (Norway), and the European Trade Union Institute (ETUI). A list of my publications is attached to my resume. Many of them may be found at the web site I maintain with Theo MacGregor, www.DemocracyAndRegulation.com.

B. Summary of Testimony

While it is obvious that considerable and commendable attention and responsiveness have gone into designing Centra's low-income energy efficiency

programs for natural gas, after five years their implementation has not been successful and the directives of this Board have been largely ignored.

The principal gaps are in the pace of implementation and evaluation of results. The purpose of this testimony is to propose a substantial expansion of the scale, scope, and comprehensiveness of the lower income Furnace Replacement Program to reach the Board's goals, including service to tenants. Independent impact evaluation is needed to assess results using up-to-date methods and a current process evaluation is needed to assess program effectiveness. Plans for evaluation should be prepared as soon as possible. In addition, bill assistance should be substantially enhanced and an accurate assessment of current conditions is needed to design the lower income insulation program.

In summary, my recommendations are as follows:

1. In view of the Company's five-year failure to successfully operate the Furnace Replacement Program, the Board should oversee the Company's contractual agreement with a separate, community-based energy efficiency agency to implement the lower income programs. This agency should be given control over all existing Centra lower income efficiency programs, marketing, and funds as well as the annual Company contributions to them, with instructions to implement the lower income programs as previously ordered by the Board.

2. The Board should increase the annual funding of the Furnace Replacement Program by $250,000, to $4.05 million, for the next six years, in order to achieve the Board's original full replacement goal by September 2019.

3. The Furnace Replacement Program co-payment should be cut by at least 50%.

4. The Board should investigate the Company's level of administrative expense in the Furnace Replacement Program.

5. The Board should order the Company to hire an independent engineering contractor to conduct a physical survey of the present condition of lower income household insulation, under the supervision of the community-based energy efficiency agency. Once a baseline is thus established, the Board should order the Company to fund a program to insulate all inadequately insulated lower income homes over the next ten years. The program should be implemented by the same community-based energy efficiency agency as implements the furnace program.

6. The Company should be ordered to establish a budget for lower income rental buildings, with program development undertaken by the community-based energy efficiency agency.

7. The promotion of PAYS to lower income tenants should be terminated.

8. The Board should order the Company to contract for independent process and impact evaluations forthwith, and allow for review and public comment on and Board approval of the impact and process evaluation plans. Between 3% and 5% of program budgets should be allotted for this purpose. Programs should be adjusted to assure all needed evaluation data are collected. After the evaluations are completed, programs should be adjusted to take evaluation findings into account.

9. The process evaluation should be undertaken to evaluate the effectiveness of program design in achieving program goals. In doing so, the process evaluation should review at least program operations, Centra's application of the recommendations of the Dunsky Report, quality controls, and methods of savings verification.

10. The impact evaluation should use established methods to assess engineering estimates and should use a risk-free discount rate.

11. The implications of bill assistance to lower income customers should be further investigated.

II. THE COMPANY IS NOT IN COMPLIANCE WITH BOARD ORDERS REGARDING THE PACE AND SCALE OF THE FURNACE REPLACEMENT PROGRAM AND CONDUCT OF A NEIGHBORHOOD DEMOGRAPHIC STUDY

A. Summary of Board orders

In the evidence we filed in the Company's 2009/2010 & 2010/2011 General Rate Application (GRA), we testified that we "agree with the Board that the pace of the Lower Income Efficient Furnace Replace Program is inadequate" and recommended "that the scale, scope, and duration of the heating system program be significantly expanded so that all homes with standard efficiency heating systems not now scheduled for heating system replacement are targeted for furnace or boiler replacement over the next five years." (Pre-Filed Evidence of J. Oppenheim in 2009/10& 2010/11 GRA at 3; *see id.* at 3 *et seq.*) The Board declined to extend its goal regarding furnaces to include boilers, and set a goal of ten years rather than five, but agreed that the program pace was much too slow.

This is not a new issue, as the Board has previously recognized:

> Although MH is beginning to address the issue of energy poverty, more is required. *** Based on the current pace of MH's low-income DSM programs, the Corporation's spending over the next three years on low-income programs will not put a dent in the problem, and, at best, address only a very small fraction of low-income households. At the proposed pace of the program, it would take decades to obtain a significant level of participation of low-income households in MH's energy efficiency programs. (Order No. 116/08 at 225.)

By the time of the subsequent GRA, Centra had not significantly improved the pace of its lower income programs.

> **Board Finding – Lower-income Energy Efficiency Program**
> The Board is … dissatisfied with the pace of actions undertaken.
>
> * * *
>
> The Board concludes that lower-income consumers are not now clamouring to take advantage of the FRP because they do not know about it, and that this situation strongly

> suggests that Centra's efforts to promote the program are inadequate and require bolstering. Therefore, the Board will direct Centra to develop a revised marketing and promotional plan for the LIEEP and FRP, designed to encourage lower-income consumers to participate.
> [Order 128/09 at 32-33.]

Centra has not completed a demographic study to gain additional data and determine with increased precision the specific geographic locations of lower-income customers. The Board's Directive 13 from Order 99/07 directed that:

> *Centra undertake a demographic study to further understand the economic parameters of lower income household status, and establish targeted groups for various low-income program measures, and file the study with the Board no later than February 28, 2008.*
>
> At a Lower-Income Technical Conference hosted by MH in January 2008, it was MH's understanding that the consensus among conference participants was that sufficient demographic data exist, and that additional studies are not required. Accordingly, Centra requested that the Board consider this directive fulfilled.
>
> * * *
>
> Centra has stated that it does not know which customers are lower-income and which of those have standard efficiency furnaces. The Board holds that this information is important and can and should be obtained, being exactly the type of demographic data that the Board wanted Centra to gather with the demographic study ordered by the Board in the Order that followed the last GRA. Centra stated that their estimate of the numbers of each furnace type was based on a 2003 survey.
>
> As such, the Board rejects Centra's request to consider this directive satisfied, and reiterates the directive that Centra undertake a demographic study to assist the Utility in replacing standard furnaces with high-efficiency

furnaces in the homes of lower-income households. The demographic study should attempt to determine or identify the following:

- The number of lower income consumers;
- The numbers of standard, mid-efficiency, and high efficiency furnaces and boilers among lower income consumers;
- The type of housing for lower income consumers (single, multi-unit, townhouse, mobile, owned, rented);
- The neighbourhoods where lower income consumers reside in order that targeted mailings and other marketing activities can be directed where they will be best received; and
- Any relationship between consumption and income levels.

The Board sets a deadline of December 31, 2009 to undertake and file the demographic study. The short time frame is necessary due to the expected expiry of certain federal assistance programs. [Order 128/09 at 29, 34.]

* * *

IT IS THEREFORE RECOMMENDED THAT: … Centra improve the marketing and reach of its FRP, but failing any demonstrable improvement in the take-up and participation in the FRP, Centra and MH should consider the formation of a separate energy efficiency agency that would be dedicated to the delivery of Centra's DSM and LIEEP programming. [Order 128/09 at 134.]

*** * ***

IT IS THEREFORE ORDERED THAT: … The Board directs that Centra continue to fund the FRP in the amount of $3.8 million per year through rates to the SGS class. $3.8 million is to accrue to the FRP account regardless of the weather impact on revenues. The FRP is to continue at this level of funding beyond the test years until such time as Centra receives alternative direction from the Board, and any unspent funds are to accrue interest at Centra's actual short term interest rate; [135-136]

Yet, as described below, the Company's decades-to-complete pace continues. We agree with the Board's last two orders that the pace of the Lower Income Efficient Furnace Replace Program continues to be inadequate.

We propose that the scale, scope, and duration of the heating system program be significantly enhanced so that all homes with standard efficiency heating systems not now scheduled for heating system replacement are targeted for furnace replacement over the next six years, as originally scheduled by the Board. As the Board has repeatedly observed, an adequate lower income program requires serious efforts at targeted marketing which requires both neighbourhood-level demographics and a marketing plan based thereon. The evidence shows that Centra has been slow to begin compliance with Board directives concerning demographic studies and marketing, and has never complied with Board orders regarding program pace.

B. Company performance has been inadequate.

The Company has not successfully implemented the Furnace Replacement Program. While only 3.2% of LICO-125 customers participate in the Lower Income Energy Efficiency Program, the comparable penetration rate for non-low-income customers in residential programs is more than 14 times higher, 45.5%. (2009 Residential Energy Use Survey Report, Low Income Cut-Off Sector, at 48-49.) The Company's reports show that, even after some ramp-up of lower income spending, the Company's annual expenditures on the Furnace Replacement Program are less than half that ordered by the Board, $1.79 million for the year ended September 2012 rather than the ordered $3.8 million. Spending was only $1.6 million in the 2011/2012 fiscal year and is never planned to increase beyond $2.33 million (PUB/Centra I- 54b) – still 39% below the Board's four-year-old Order, even if achieved. As a result, the number of furnace installations is projected to be the same in 2012/13 as in 2011/12 (660 and 662, respectively) despite a projected increase in spending; projected installations do increase for 2013/14 but decline 8% in 2014/15 despite projected flat spending (IR PUB/Centra I-59(a)). Not only is this volatile performance inexplicable and contrary to Board Order, but it also creates an obstacle for the contractor infrastructure which cannot plan for any particular level of activity.

At its actual pace in the year ending September 2012, it would take the Company 27.8 years to reach the Board's goal for the program.

The one thing that has risen substantially is the Company's administrative expense, now at 32% (calculated from IR PUB/Centra I-59(g)). Thus the Company appears to be reaping profits at the expense of its lower income customers. The Company's level of administrative expense is higher than at most successful programs; for an unsuccessful program, it is difficult to justify.

I recommend the Board investigate whether this spending is at a reasonable level.

As critical is program design. "[T]he customer contribution under the Furnace Replacement Program is $19 per month over 5 years for a total of $1,140, which is approximately the same dollar value of bill savings a customer could achieve annually by upgrading to a high efficiency furnace." (IR CAC/Centra I-20(jj).) Thus the message to a lower income customer thinking about participating in the Company's furnace program is that she will have to wait five years to receive any benefit from participation.

The manner in which the Company chose to respond to the Board's direction with respect to marketing and demographic targeting is also illustrative of the Company's lack of aggressiveness. The Board's clear direction is for the Company to increase marketing to lower income neighbourhoods, which, among other things, requires gathering information to identify those neighbourhoods. The Company's response includes that

> The study was never intended to provide data at a neighbourhood level that would provide statistically valid results to enable targeted marketing to lower income neighbourhoods. It was intended to provide global characteristics of the lower income market. (IR CAC/Centra II-61)

is despite the Board's direction, and that it relied instead on Census data for the City of Winnipeg (*id.*). The Company does not provide either the Census data or how they were used to inform the marketing program, so its assertions in this regard are not reviewable.

In any case, two conclusions are inescapable from a review of the Company's marketing:

(1) Marketing efforts are heavily reliant on media and could make better use of community groups, which are trusted in their communities and have a better sense of how to reach people in their own communities.

(2) At 3.2% penetration, the program has not been successful.

It is not possible to determine success of the Company's lower income home insulation efforts because the Company has not accurately specified the scope of the problem it is addressing. It is not possible to determine the adequacy of the lower income insulation program targets and achievement because the Company's survey of existing insulation is not reliable. While it appears from Company reports that it has achieved insulation of about a fifth of lower income homes (excluding apartments) the insulation of which is "fair" or "poor,"

including a current pace of about 9% a year, this calculation of percentage achievement depends on the denominator of the fraction, that is, the number of homes considered to have "fair" or "poor" insulation, which the Company survey finds to be about a quarter of LICO-125 homes (2009 Residential Energy Use Survey Report, Low Income Cut-Off Sector, at iv). The Company determines this value by a survey that simply asks homeowners, who are certainly not experts on the matter, for the quality of their insulation. The Company's only justification for this method is that it is better than asking for R-values since customers usually do not know those (IR CAC/Centra II-62). While this is no doubt true, it does not follow that customers would be much better at assessing their insulation on a less quantitative basis. A physical survey of a sampling of insulation conditions is the only reliable method. In its absence, the Company has failed to determine the scale of the home insulation gap among its lower income customers.

C. The Company should be ordered to comply with all previous Board orders by funding the formation of a separate, community-based energy efficiency agency to implement the lower income programs. In addition, the co-payment should be reduced to encourage participation.

After at least five years, it is time for the Board to hold the Company accountable for results rather than accept inadequate efforts. As noted, Company expenditures are at less than half the rate ordered by the Board, and 32% of those expenditures go toward administration, not toward furnace replacement. At this point, it does not matter whether the Company is unable or unwilling to comply with the Board's orders. What is now clear is that the Board's order of a $3.8 million annual expenditure to replace lower income standard efficiency furnaces is unlikely to occur under the Company's stewardship.

Accordingly, my recommendation is that the Board require the Company to contract with a separate, community-based energy efficiency agency to market and implement the lower income programs. This agency should be given control over all existing lower income efficiency programs and funds as well as the annual Company contributions to them, with instructions to use that funding to market and implement the lower income programs as previously ordered by the Board. The Board should oversee the contracting process as well as the agency's implementation and thus continue to oversee progress toward the goal of upgrading substantially all lower-income standard furnaces. As the Board has ordered ("The FRP is to continue at this level of funding beyond the test years, and until such time as Centra receives alternative direction from the Board." Order 128/09 at 38), there should no end-date to the requirement for Company contributions to the fund until that goal, or additional goals the Board may set, is reached.

The Board further stated:

> Centra's goal shall be replacing all standard efficiency furnaces in qualifying lower-income homes. …
> Centra's pace in replacing conventional furnaces with high-efficiency furnaces for qualifying low-income homes is insufficient, an increased pace should aim at upgrading all the eligible furnaces within ten years. (Order 128/09, Sept. 16, 2009, at 39.)

If the performance of the furnace program were thus more than doubled, the remaining estimated number of lower income standard efficiency furnaces could be replaced in slightly more than 10 years from now (10.3 years), as compared with the Company's current path of 27.8 years from now. However, at that rate the Company would be standing still since the Board has already ordered these replacements to occur within ten years … four years ago. The problem is program implementation, not funding.

To reach the Board's goal of replacing all lower income standard efficiency furnaces by mid-September of 2019 (Order 128/09 at 39) would require an annual expenditure of about $6.5 million. Centra's chronic under-spending has allowed the fund balance to balloon to $14.9 million at December 31, 2012 (IR PUB/Centra I-59(b)); as a consequence, compliance with the Board's order to collect funds for the program at the annual rate of $3.8 million, together with the existing fund balance, covers about 96% of the funding needed to achieve this goal at current unit costs, including Company administrative costs if at the current rate of expenditure, leaving an annual shortfall of only about $250,000 over the next six years. I recommend that the Board increase the annual funding of the Furnace Replacement Program by $250,000, to $4.05 million, in order to achieve the Board's original ten-year replacement goal.

As noted, performance of the insulation program is more difficult to assess because of the Company's failure to collect reliable baseline information. My recommendation is for the Board to order the Company to hire an independent engineering contractor to conduct a physical survey of the present condition of lower income household insulation, under the supervision of the community-based energy efficiency agency. Once a baseline is thus established, the Board should order the Company to fund a program to insulate all inadequately insulated lower income homes over the next ten years. The program should be implemented by the same community-based energy efficiency agency as implements the furnace program.

Community-based energy efficiency agency

One model of a community-based energy efficiency agency is the Low-Income Energy Affordability Network (LEAN) in Massachusetts, to which this witness has been counsel since its formation in 1997.

LEAN was established by the principal agencies of the community-based network of Community Action Programs to coordinate state-mandated and federally-mandated low-income efficiency programs across the Commonwealth of Massachusetts. LEAN has evolved to coordinate among program delivery agencies and their auditors and contractors, utilities and their contractors, and state and federal agencies (including their contractors), to implement the panoply of low-income weatherization and fuel assistance programs in the Commonwealth… LEAN thus plays central roles in program design, monitoring and evaluation, training, and Best Practices coordination.

LEAN administrative services, funded by an assessment on efficiency budgets,[1] include:

- Assistance in the development of the comprehensive low-income residential demand-side management and education programs, as required by statute.
- Assistance in monitoring and evaluating existing programs to improve cost-effectiveness and develop new program features. This includes development of evaluation strategies, coordination with evaluators, synthesizing statewide lessons from program evaluations, and coordinating a Best Practices effort.
- Support for the training of low-income weatherization and fuel assistance program network auditors, contractors, and administrators to achieve quality, cost-effectiveness, and consistency.
- Coordination among utilities and their contractors, delivery agencies and their auditors and contractors, state and federal regulatory and funding agencies (including advisory bodies and contractors).

Deep, comprehensive, cost-effective investments are made in low-income homes, with a focus on upgrading inefficient heating systems and other large appliances as well as air sealing, lighting, health and safety. This "whole house" approach results in savings to low-income families of typically 20%+ of heating bills (from air sealing), 20%+ of heating bills (from heating system replacements, a majority of which are gas-fired), and 10% of electricity bills.

[1] Centra's administrative costs (i.e., internal costs – all costs other than to contractors) in the last year reported (2011/12) was 32%. This includes some necessary costs not included in LEAN administration, such as marketing. (IR PUB/Centra 1-59(g).) Marketing is separately funded as part of the cost of implementation.

Redundant quality control assures these savings.

Innovative and renewable energy measures in low-income settings include high efficiency domestic hot water and clothes washers, micro-combined-heat-and-power, high-efficiency wall insulation, and electric efficiency measures. All of these energy efficiency and renewable energy measures are delivered to low-income households at no cost to the householders other than the standard system benefits charges on all electric and natural gas bills.

Regulatory oversight, including of federal programs, is primarily at the state level and includes audits of all paperwork, inspection and quality control, process and impact evaluation, and oversight of program development, innovation, comprehensiveness, and cost-effectiveness.

Stakeholder communication and consultation is a key part of the low-income efficiency programs to promote efficient operation. In addition to daily management and regulatory communications, this is accomplished largely through a Best Practices task force ("Best Practices") that brings together the implementing agencies, utilities, and all other interested stakeholders. Interested stakeholders usually include representatives of low-income customers, state funders, and regulators; all others are welcome. Any topic can be raised at Best Practices, which usually focuses on training and recruitment of contractors and auditors, program delivery questions, and assessment of possible new measures and installation protocols. Where appropriate, statewide decisions are made.

Additional coordination of the agencies is conducted by periodic meetings of the lead agencies (LEAN), to which other stakeholders are also invited; as well as monthly meetings of all agency energy directors (Massachusetts Energy Directors Association, MEDA). Together, LEAN and MEDA oversee all low-income energy programs.

Co-payment

Finally, the Board should recognize that the program's co-payment is an obvious barrier to participation. As described above, the co-payment is structured so that a participating customer will break even for five years, before reaping the benefit of the new furnace (if the participant has not moved away before then) (IR CAC/Centra I-20(jj)).

Despite the Company's lackluster performance in promoting the furnace replacement program, and the apparent continued lack of lower income customer enthusiasm for the program as structured, the Company has apparently had very little curiosity about the impact of the program's co-payment. In response to a discovery question, the Company could only say: "It is not possible to estimate the number of customers who declined to participate

based upon the customer co-payment for each of the measures as the reasons for not participating are not tracked and no studies have been undertaken." (IR CAC/Centra I-20(jj).)

Notably, Efficiency Nova Scotia provides such efficiency services at no cost to lower income households:

> major upgrades through the program. These upgrades include energy assessment, building envelope (weather-stripping air sealing, insulation), retiring or upgrading refrigerators and freezers, lighting and space/domestic hot water heating. The average cost of the upgrades is $4,200 for electrically-heated homes and $7,200 for non-electrically heated homes. Upgrades are free of charge to the homeowner. (Annual Report 2011 at 33.)

It does not take a study to figure out that, for a lower income customer with, by definition, insufficient income to cover all current essential expenses, a benefit five years away may as well not exist and is unlikely to provide a very strong incentive to participation in an efficiency program. The co-payment of the Furnace Replacement Program should be reduced or eliminated in order to make it affordable for the lower income households who are its intended beneficiaries. Most lower income energy efficiency programs provide benefit at zero cost to participants (*see* Dunsky Report at 95, described and referred to in Evaluation section below). In order to assure that there are immediate benefits for participants, I recommend that the co-payment be cut by at least 50%.

III. Programs should include renters, as the Company promised.

A. Summary of Order

As stated in the Pre-Filed Evidence of J. Oppenheim in 2009/10& 2010/11 GRA at 3, we agree with the Board and the Company that the lower income efficiency programs should be extended to renters:

> the Board agrees with Centra that a program to assist lower income households living in rented quarters needs to be developed and implemented (a significant proportion of lower-income households live in rented quarters).
>
> The Board understands that in many rented premises inefficient furnaces and inadequate insulation are present, with the cost of excess energy consumption falling to the householders not the landlords.
>
> Centra must do better in identifying its target market and reaching those that could and should benefit from the LIEEP and FRP. …
>
> Centra's DSM incentives and expenditures for residential customers have, in prior years, been funded by rates charged to all residential customers, including lower-income residential customers. The Board has accepted that even though low-income residential customers have contributed to funding the DSM programs, these same customers have not been able to take advantage of the programs … (Order 128/09 at 32.)

Unfortunately, the Company continues to lack a program targeted to the benefit of tenants.

B. The Company has no plan to serve lower income renters, but does have a plan for tenants to finance landlords' building improvements.

Almost ten percent (9.7%) of Centra's LICO-125 customers live in rental housing, almost triple the 3.3% of non-LICO-125 customers (2009 Residential

Energy Use Survey Report, Low Income Cut-Off Sector, at 15, 19).[2] They contribute to efficiency programs via the gas rate they pay, but receive inadequate efficiency services, including no service under the furnace replacement program (IR CAC/Centra 11-66; *see* IR CAC/Centra 1-20e) despite the fact that nearly half (44%) have standard efficiency furnaces and pay for their own heat (*ibid.*; IR CAC/Centra 1-20c and d). In addition, 81% have fair or poor insulation (*ibid.*; excluding apartments, data for which the Company did not provide), for which the Company's program covers only 42% of the cost (IR CAC/Centra II-63(d)) as contrasted with 100% of the cost for lower income homeowners (IR CAC/Centra I-20(dd)).

Yet the Company's approach to serving tenants is haphazard and includes no marketing or implementation plan (IR CAC/Centra 1-20e), despite the Board's order to develop and implement a program for lower-income renters (Order 128/09 at 32).

Perhaps the most egregious illustration of the Company's indirection in this sector is its application of the Pay As You Save (PAYS) idea to its lower income customers living in rental housing. The general principle of PAYS has merit in many non-low-income settings, and indeed the Company's Board-approved lower income furnace program for homeowners also shares aspects of PAYS program design.[3] However, tenants are differently situated from homeowners since they do not own their own heating equipment even though they pay to operate it. When a lower income homeowner pays a portion of the cost of a heating system upgrade, the homeowner is also receiving something of value – after five years of payments, the homeowner owns a new heating system with a remaining life of 20 years (*see* IRs CAC/Centra 1-20(jj) and II-78), during which the homeowner may either benefit from reduced heating bills or benefit from the value of the efficient heating system in the sale of the home. Tenants enjoy no such benefits of ownership. Yet the only benefit offered them under the Company's PAYS program is "long-term financing for qualifying energy efficient upgrades where the estimated monthly bill savings generated by the upgrade are sufficient to offset the average monthly finance payments; thereby not increasing the average monthly utility bill.[4] Landlords and tenant together are eligible to complete upgrades to the property with the unique feature that the

[2] IR CAC/Centra 1-20(b) provides similar data: 8.9% of LICO-125 customers are renters, 3.4 times the 2.7% of non-LICO-125 customers.

[3] I do not endorse his aspect of the Furnace Replacement Program or any other application of PAYS ideas to low-income customers.

[4] The Company's responses are inconsistent on this point. For example, "Landlords can also replace their standard efficiency furnaces through Centra's Furnace Replacement program provided an arrangement can be made to ensure the lower income tenant is realizing a substantial portion of the benefit of reduced heating costs. For example, Manitoba Hydro has made arrangements with Kinew Housing Corporation utilizing both the PAYS financing and Furnace Replacement Program to replace a number of standard efficiency furnaces" (IR CAC/Centra 11-65), but it is not clear how this might work or whether it is a program of general applicability since "the number of lower income households living in rented quarters served by the Furnace Replacement Program is zero." (IR CAC/Centra 11-66).

tenant, who receives the benefit of the upgrade, can pay for the upgrade on their utility bill." (IR CAC/Centra I-20(e).) The Company goes on to explain,

> The Pay As You Save Program (PAYS) operates under the principle that improvements are financed by the party that benefits from the bill reductions arising from the energy savings associated with the improvement. The Program addresses the reluctance of landlords to undertake energy efficiency upgrades that provide no monetary benefit to the landlord (e.g. where bill savings accrue to the tenant). (IR CAC/Centra II-63(b).)

In fact, however, the Company mischaracterizes the benefits of its program. The benefit to the tenant is only in paying to improve the landlord's property with no reduction in heating costs. Any benefit to the next tenant is likely to be absorbed by an increase in rent, so the only true beneficiary of this program design is a landlord of lower income gas customers.

The Company's information responses are not clear in this respect, but it appears that the PAYS program is a new idea for Centra, with only nine landlord participants; it is not clear that any of them has lower income tenants (IR CAC/Centra 1-20(e) and II-63(f), 64). The promotion of PAYS to lower income tenants should be terminated.

The central point here is that lower income rental buildings are served by programs directed to other sectors. There is no program targeted to lower income multifamily buildings. ("Tenant household income for multi-unit residential buildings is not collected as this is not a condition of program eligibility." IR CAC/Centra II-63e.)

C. The Company should be ordered to establish a budget for lower income rental buildings, with program development undertaken by the community-based energy efficiency agency.

Lower income rental buildings are probably the most difficult lower income subsector for which to design an efficiency program. This is due in part to the widely acknowledged "split incentive" problem – landlords have little incentive to invest in energy efficiency measures when their tenants are paying the heating bill. Program designs are also stymied by the distaste of policymakers for providing what are perceived as free benefits to landlords. Finally, account must be taken of the fact that tenants are differently situated with respect to whether or not they pay heating bills directly or via their rent and also with respect to whether their heating bills are effectively capped by income assistance.

A serious program in this subsector needs to focus on the objective, which is to lower the heating bills of lower income tenants (Order 128/09 at 32). The best way to achieve this objective is a 100% grant with no co-payment, or a program that is at least as generous as the lower income homeowner Furnace Replacement Program. (Since customers receiving income assistance effectively already have capped utility bills, those customers should be excluded from this program.) An effective way to address the understandable distaste for making such gifts to lower income landlords is to require the Company to condition landlord benefits on an enforceable agreement either to hold rent unchanged for a specified period of time or to maintain all rental units in the building exclusively available for tenants who are certified to be lower income. In this way, the landlord provides something of value in exchange for the efficiency benefit while also preserving a benefit for tenants. (Master-metered buildings can be included under these terms since both landlords and their tenants would benefit from the reduced heating bills.) This is successfully done in Massachusetts and elsewhere in low income efficiency programs for small and large multi-tenant buildings. It should be noted that under this proposal the Board would regulate only the Company's contracting; any enforcement of the contracts should be undertaken by tenant-beneficiaries of the contracts.

The larger point is that serving the lower income tenant subsector requires particular targeted attention and cannot be done by offhandedly adapting programs targeted for other sectors that have very different incentives and characteristics.

IV. The Company should conduct evaluation, as promised, that is independent and rigourous.

A. Summary of Order

In the 2009/10& 2010/11 GRA, we recommended, and Centra agreed, to evaluate its lower income DSM programs: "Centra did support Mr. Oppenheim's proposal to develop an effective review of Centra's DSM programs, and Centra stated that it was in the process of finalizing an evaluation plan for the LIEEP including the FRP portion." (Order 128/09 at 32)

B. The Company has failed to plan or conduct appropriate evaluations.

Process evaluation

Despite the Company's claim in the 2009/10& 2010/11 GRA that it was "in the process of finalizing an evaluation plan, it was three-and-half-years after the Order in that case, and then only in response to a request by the PUB (PUB/MH I-155 in the 2010/11 & 2011/12 Manitoba Hydro Electric GRA (Appendix 25)), and by CAC (CAC IR CAC/Centra II-68), that Centra produced a copy of a four-year-old process evaluation completed by Dunsky Energy Consulting on the portfolio of DSM programs offered by MH ("Dunsky Report"). In that report, Dunsky stated: "This report examines the Power Smart portfolio of programs as it stood in December, 2008. We have not accounted for any changes – including improvements and additions – to the Power Smart portfolio that may have arisen since then." (Dunsky Report at 2)

There were some useful observations and recommendations in the Dunsky Report that might have enabled Centra to more effectively implement its lower income EE programs. Dunsky observed that "Manitoba Hydro compares well with case studies and has developed interesting innovations in delivery model and incentive levels….however, Manitoba Hydro is unusual in its requirement for customer copayments." (Dunsky Report at 95) Again, on page 102, Dunsky stated:

> Another design difference is MH's requirement for a customer co-pay on furnace replacement. A strong majority of low-income programs we have reviewed in previous research require no customer co-pay, or require co-pays from landlords only, and there is anecdotal evidence that co-pays reduce participation. On the other hand, MH's use of low-cost monthly payments paid via utility bills seems likely to minimize loss of participation, and early uptake results

> suggest that the measure is very popular. An additional design difference, as mentioned, is treatment of renters. …Although Manitoba Hydro compares well (offering most measures to renters and being more generous than PA), *it may want to extend a version of its furnace offer to rental households* [emphasis added].

Critically, the Report also noted: "Note that this is a new program and was rapidly evolving as of December 2008, making analysis difficult. Unlike other programs, our rating here is based in part on projected performance." (*Id.* at 95) Yet, since the Board's order to ramp up the program in 2009, and numerous program changes since, in the past four years there has been no process evaluation planned or conducted.

The Company's Quality Control protocols offer another example of the need for process evaluation. In response to a request by CAC asking Centra to describe its quality control protocols for the LIEEP and provide documentation of same, Centra responded with a description of the energy audit and measure installation process, as well as the "Authorization to Pay" forms submitted by the contractors.

> The Authorization to Pay forms contain energy efficiency upgrade information including the installation date and a signed confirmation from the customer and contractor declaring the work has been completed as originally agreed upon.… Post-retrofit inspections are completed in approximately 20% of participating homes to verify measurements and that work was completed to LIEEP standards. (IR CAC/Centra II-78(e).)

The response does not indicate who performs the inspections, nor does it provide any documentation, as requested.

In addition to commissioning a process evaluation to review program operations and Centra's application of the recommendations of the Dunsky Report, CAC recommends that Centra engage an independent entity to conduct a process evaluation of its LIEEP that would include at least the following elements:

- Identifying the goals for the inspection and verification of the LIEEP;

- Determining the specific parameters used in the savings verification process and whether these parameters are appropriate for the program;
- Identifying the target and actual confidence and precision levels for the inspection and verification activities;
- Reviewing the internal monitoring and evaluation participant selection process and the sampling techniques employed by program implementation staff;
- Reviewing site inspection documents and findings, and evaluating any savings adjustments that were made; and
- Providing recommendations for the design and operation of future verification activities.

Thus, for example, as part of the quality control process, the Company should perform post-implementation verification and inspections on a sample of participant residences; conduct telephone calls with program participants, implementers and any other contractors or entities involved in program delivery; evaluate the methodology and structure of the existing post-implementation verification process; review forms used in the program in order to gain insight into information gathered during verification, and to identify any opportunities for increasing the effectiveness and accuracy of the quality control procedures. (Adapted from ADM Associates; "2012 Arkansas Weatherization Program: Final Evaluation Report" at 5-5.)

Impact evaluation

Additionally, it was not until a request by CAC in this docket (IR CAC/Centra II-68) that Centra filed its impact evaluation plan (Evaluation Plan:_Lower Income Energy Efficiency Program ("LIEEP Evaluation Plan")), also three-and-half-years after the Order in the case in which the Company claimed that it was "in the process of finalizing an evaluation plan." To the knowledge of CAC, the LIEEP Evaluation Plan has not been reviewed or approved by the Board. Upon CAC's review, the LIEEP Evaluation Plan is shown to be completely inadequate.

When asked to state the identity of the personnel conducting the savings evaluations, including their degree of independence from the Company, Centra replied: "All program evaluations are performed by staff in the Planning, Evaluation and Research Department reporting directly to the Vice-President, Customer Care & Energy Conservation. All staff are employees of Manitoba Hydro." (IR CAC/Centra II-78-f) Thus, there has been no independent review or impact evaluation of Centra's lower income DSM programs or any plan for an independent review.

Another major problem CAC identified in the LIEEP Evaluation Plan was its reliance on engineering estimates to calculate energy savings: "Energy savings for insulation, furnace, boiler or basic energy efficiency measures installed in the home are based upon engineering estimates." (IR CAC/Centra II-78(e).) Thus, the LIEEP Evaluation Plan does not require reviewed and approved baseline data; the engineering estimates themselves have not been tested and evaluated by an independent entity; and there has been no billing analysis or after-the-fact monitoring and evaluation of energy savings in a sample of participant dwellings, or any other independent assessment of the impacts of the Company's lower income DSM efforts. The point of an impact evaluation is to assess engineering estimates, not repeat them.

In calculating the net benefits of the LIEEP, Centra improperly used the Company's weighted average cost of capital ("WACC") as the discount rate. When asked in discovery for its rationale for using WACC, the Company was unable to come up with one. Its full "rationale" is:

> Centra uses its real weighted average cost of capital (WACC) as the discount rate when evaluating DSM program savings, costs and benefits. Centra's real WACC at the time the 2011 Power Smart Plan was undertaken was 6.1%. (IR CAC/Centra II-78(a).)

Centra should use the risk-free Canadian Treasury Note rate for average measure life, at least for lower income programs where the Board has ordered the Company to set aside the fund and thus guaranteed cost recovery:

> The Board … will direct that the approved rate adjustment that funded the FRP through to March 31, 2009 continue, and that the revenue raised remain devoted to the FRP." (Order 128/09 at 36)

> The Board will direct that Centra continue to fund, through SGS customer class rates, the FRP in the amount of $3.8 million per year. This amount is to be funded as an expense item, and not as a deduction from Centra's revenue requirement. The $3.8 million to be raised annually is to accrue to the FRP account, regardless of Centra's net income results (which can be significantly impacted by changes in the weather).

> The FRP is to continue at this level of funding beyond the test years, and until such time as

> Centra receives alternative direction from the Board. Any unspent funds at the end of a fiscal year are to accrue interest at Centra's actual short-term interest rate. (*Id* at 38.).

Thus, the cost of the LIEEP is a risk-free expense by the Company. In any case, the government risk-free rate should be used because the LIEEP fulfills social objectives enumerated by the Board:

> The benefits that arise out of the FRP effort are numerous, and represent the potential for a real economic stimulus at a time when the economy is in need of it; in fact, at a time when governments are attempting to stimulate the economy through infrastructure projects.
>
> In addition to the immediate benefits available to FRP participants, that being reduced energy bills, there are societal benefits, which include:
> • Reduced GHG emissions;
> • Increased jobs as community groups and MH require additional home energy auditors and furnace contractors require additional installers;
> • Training of the additional home energy auditors and furnace installers;
> • Improvement of the housing stock in Manitoba, increasing property values;
> • Improvement to the health and safety of FRP beneficiaries – replacement of old furnaces that could be leaking carbon monoxide, homeowners able to set their thermostats at a comfortable temperature; and
> • Take maximum advantage of available federal ecoEnergy funds and the pending federal 15% Home Renovation Tax Credit program.
>
> * * *
>
> With the Board's direction and support, Centra can take action on future lower-income programs absent demonstrating successful TRC and RIM scores for those programs. (Order 128/09 at 39-40.)

C. The Board should order Centra to fund and contract for adequate and independent process and impact evaluations forthwith.

In response to a request by CAC (IR CAC/Centra I-20(i)), the Company stated: "As all evaluations are presently performed in-house, Centra does not specifically allocate dollars to the cost of evaluations." Since the Company has budgeted only $22,000 for both planning and evaluation of the LIEEP in 2011/2012 (*id.*), instead of the norm of around 3% of the program budget,[5] it is not surprising that an independent contractor has not been engaged for evaluation purposes. But the Company has shown no indication that it has even considered the need to do so, despite its own consultant's recommendation that it do so (P. Dunksy *et al.*, "Leadership in Energy Efficiency: Comparing Manitoba Hydro's Power Smart with Leading North American Strategies" at 15 (Manitoba Hydro, 2009), http://www.hydro.mb.ca/regulatory_affairs/electric/gra_2010_2012/Appendix_25.pdf).

There are several reference guides to energy efficiency program impact and process evaluations going back as far as 1995 when the US Department of Energy's National Renewable Energy Laboratory (NREL) published "A Manual for the Economic Evaluation of Energy Efficiency and Renewable Energy Technologies." These include: the Impact Evaluation Framework for Technology Deployment Programs: An approach for quantifying retrospective energy savings, clean energy advances, and market effects (2007) (Main Report), prepared by John H. Reed (Innovologie LLC), Gretchen Jordan (Sandia National Laboratories) and Edward Vine (Lawrence Berkeley National Laboratory), http://www1.eere.energy.gov/analysis/pdfs/impact_framework_tech_deploy_2007_overview.pdf; Review of Evaluation, Measurement and Verification Approaches Used to Estimate the Load Impacts and Effectiveness of Energy Efficiency Programs, prepared for Lawrence Berkeley National Laboratory, by

[5] Mean of rate-payer funded program evaluation, measurement and verification (EM&V) spending is 2.8% of program budget with a high of 5%. ("Evaluation, Measurement, and Verification Working Group Blueprint," US DOE/US EPA, State Energy Efficiency Action Network, May 2011), http://www1.eere.energy.gov/seeaction/pdfs/seeaction_emv_blueprint_052311.pdf. Efficiency Nova Scotia, regulated by the Nova Scotia Utility and Review Board, allocates 6% to evaluation. (Annual Report 2011 at 47, http://www.efficiencyns.ca/wp-content/uploads/2013/03/2011-Annual-Report.pdf). The evaluations are independent. *E.g.*, Efficiency Nova Scotia, "DSM Plan 2012" at 2, 7, 35 *et seq.*, *see* 15-16. "Efficiency Nova Scotia's energy savings figures undergo a rigorous, multi-stage review every year. First off, our staff calculates electricity savings for each project. Then, an independent evaluator examines those savings figures and makes adjustments and recommendations in a detailed report (usually about 1,000 pages long). After that, the Utility and Review Board's own independent expert examines the findings and submits a final verification report. And finally, those reports are all submitted to the Utility and Review Board for its own review and distributed to stakeholders and the public." http://www.efficiencyns.ca/who-we-are/frequently-asked-questions/.

Independence of evaluation is the practice across Canada, including at BC Hydro, Ontario Power Authority ("EM&V Protocols and Requirements (2011-2014)", http://www.powerauthority.on.ca/sites/default/files/20110331%20-%20EMV%20Protocols%20and%20Requirements.pdf *see* http://www.powerauthority.on.ca/benefits/evaluation-measurement-and-verification), and Union Gas Ltd, (2011 DSM Plan at 10-11, *see* 40-41, 78, http://www.uniongas.com/aboutus/regulatory/EB-2010-0055-2011DSMPlan/UNION_APPL_2011%20DSM%20Plan_20100430.pdf).

Mike Messenger, Ranjit Bharvirkar, Bill Golemboski, Charles A. Goldman and Steven R. Schiller (April 2010), http://eetd.lbl.gov/ea/emp/reports/lbnl-3277e.pdf; and the Energy Efficiency Program Impact Evaluation Guide (U.S. Department of Energy, December 2012), http://www1.eere.energy.gov/seeaction/pdfs/emv_ee_program_impact_guide.pdf.

To correct the deficiencies noted above, CAC recommends that the Board order the Company to contract for independent process and impact evaluations forthwith, and allow for review and public comment on and Board approval of the impact and process evaluation plans. Once approved, CAC recommends that the Board order Centra to engage independent contractors to perform such evaluations of the LIEEP in 2013, and to file reports on these evaluations in the first half of 2014, so that appropriate modifications, if any, which arise from the evaluations can be implemented as soon as practicable, at the Board's directive. In order to assure the evaluators' independence, there should be joint oversight by Centra, the Board, and stakeholders including CAC. CAC recommends that between 3% and 5% of program budgets be allotted for this purpose.

V. Bill assistance to lower income households should be increased, as encouraged by the Board

A. Summary of Order

The Board's most recent GRA finding is worth quoting at length both because of its comprehensive approach to the issue of assistance for lower income households in paying their bills, but also for the Company's almost complete disregard of it:

> **Board Finding - Bill Assistance Program**
>
> While the Board appreciates Centra's (and MH's) existing bill assistance programs, and realizes that they go further than the vast majority of other Canadian utilities, is still not assured they go far enough in assisting lower-income consumers.
>
> Manitoba is a cold place in winter, the average income is below the Canadian average, and there still is a high percentage of households that can be fairly considered lower-income. This situation requires special attention, and while the Board agrees that bill assistance may take many forms, and accepts that Centra has implemented several tools to help its customers meet their energy bills, more needs to be done.
>
> Centra cited the Neighbours Helping Neighbours program, where Centra matches private donations, and indicated that all customers eligible for assistance and applying for it are and will not be denied assistance. However, Centra also reported that only between 274 and 470 customers have annually been helped by Neighbours Helping Neighbours (in each of the last three years).
>
> While the assistance now provided is helpful to those receiving it, the Board notes that assisting 274 to 470 customers annually pales in significance when compared to the number of accounts in arrears, that being approximately 20,000 – almost 10% of Centra's customer base. The Board also notes that before the

implementation of the load limiter program service disconnections ranged to as high as 9,000 in a single year.

In short, there are many more customers that could make use of the Neighbours Helping Neighbours program. The program needs more promotion, and, perhaps, the eligibility criteria is too restrictive. As well, the provision of one-time assistance is of little lasting value for certain households, where the economic problems are continuing in nature.

It is unclear from MH's Bill Assistance Report whether Centra or MH refer customers with delinquent accounts to the Neighbours Helping Neighbours program as a matter of course, or whether such referrals occur at all. MH explained that messages related to delinquency are printed on the customer's bill when their account is past due, but that there is no mention of the Neighbours Helping Neighbours program.

Bill assistance programs should not be viewed as benefiting only a limited number of lower income households. The Board has heard through several past proceedings and at this most recent hearing of societal benefits that accrue when lower-income households are able to pay their energy bills, maintain a healthy temperature in their homes, and are able to avoid disconnections and the installation of load limiters.

Centra incurs considerable costs whenever it disconnects or reconnects a gas or electric service to a home. Installing load-limiting devices, which ensure that homes retain the benefit of heat in cold Manitoba winters, also involve significant Centra expenditures. When Centra incurs costs, be they collection, bad debt or other costs related to delinquency, these costs are ultimately borne by all ratepayers, and reflected in rates.

> Centra incurs bad debt expenses of over $2 million each year, and expends considerable time and effort in its collection activities (spending over $5 million annually administering the collection of past due natural gas accounts, costs which are paid by ratepayers). Centra must print disconnection notices and notification letters, contact customers by phone to make payment arrangements, and disconnect and reconnect services. A bill assistance program will reduce the need for these activities, leading to lower costs.
>
> As well, there are societal benefits with bill assistance programs that that do not directly affect Centra's financial bottom line. Bill assistance programs allow lower-income households to maintain a warmer temperature in the home, which can help minimize health problems (and medical and hospital costs) and reduce lost work days due to sickness. (Order 128/09 at 45-47.)

B. The Company has failed to comply with the Board's direction.

As noted, above, the Board found that "the provision of one-time assistance is of little lasting value for certain households, where the economic problems are continuing in nature." Yet the Company maintains its rule that "Applicants are eligible for assistance once per year" (IR CAC/Centra I-20(ff)) and disregards the Board's concern with a one-sentence statement that, against all evidence marshaled by the Board, "The belief is that by working to connect customers with available support services, they will be in a better position to manage possible future events." (*Id.*).

Similarly, "the Board notes that assisting 274 to 470 customers annually pales in significance when compared to the number of accounts in arrears, that being approximately 20,000," yet the Company edged up the number of grants only to 604 to 946 over the last three full years reported, an average of 754 customers, while the number of Company accounts in arrears have jumped about 25% to an average of 25,055 for the last 12 months reported.

To the Board's suggestion that "perhaps, the eligibility criteria is too restrictive," the Company's one-line response is to repeat its one grant restriction, "Applicants are eligible for assistance once per year" (IR CAC/Centra I-20(ff)(a)(iii)).

What the Company chooses to ignore is that – since lower income household gas usage is within two percent of that of all customers' (IR CAC/Centra 1-20(kk) and (mm)) yet income is less than half (IR CAC/Centra 1-20(mm) and Statistics Canada, http://www.statcan.gc.ca/pub/75f0002m/75f0002m2011002-eng.pdf) – the fraction of income devoted to gas bills by LICO-125 customers (often called the energy burden) is more than double (2.6 times)that of other customers, 8.4% vs. 3.2% of income to pay the gas bill in 2009 (2009 Residential Energy Use Survey Report, Low Income Cut-Off Sector, at 39).[6]

C. Bill Assistance to lower income customers should be increased. Consideration should be given to a discounted rate for lower income customers.

Research that I and others have conducted for decades shows that three-fifths of US states provide lower rates for lower income households in order to increase the likelihood that they will be able to pay their energy bills. The reasoning is exactly that enunciated above by the Board: They lower the risks of bad debt and arrears, as well as the costs of disconnection, reconnection, and collection.

Indeed, this is the rationale adopted by Manitoba Hydro itself in support of its lower income DSM programs:

> The objective of Manitoba Hydro's Affordable Energy Program was not to address or solve the energy burden within Manitoba. The objective of the Affordable Energy Program was to develop a program to assist customers with managing their energy bills. As a result of energy efficiency improvement, energy affordability within the Province is improved for participating customers. This program was developed within and is consistent with the legislated mandate for the Corporation. (Rebuttal Evidence of Manitoba Hydro in the Matter of Manitoba Hydro filing in respect to Increase Electric Rates for 2010/11 2011/12, Dec. 31, 2010, at 89.)

The Board applies this additional reasoning, also broadly accepted in US states:

- They apply broadly to the lower income population;
- They address economic problems that are continuous; and

[6] While gas prices are lower now, these relationships are the same.

- They reduce medical costs and lost work days.

No two states have implemented utility bill discounts in exactly the same way. Each state or utility has assessed the needs and circumstances of its customers, the number of affected customers, and the effect on other customers in designing the chosen program. Further, government programs for lower income renters and utility customers differ not only among the various US states but also between Canada and the US, and across Canadian provinces. While there are many variations in the details, there are three basic types of discount programs in the US:

- Fixed percent of bill;
- Fixed dollar discounts; and
- Discounts that vary with usage

The fixed percent of bill design includes discounts ranging from seven to 40 percent, depending on the state and utility company. Other states provide a fixed dollar discount, most typically by waiving the customer charge for low-income customers. Others provide a fixed credit amount that has been determined in a rate case to be sufficient to the state's purposes.

A percentage discount may also vary with a customer's usage, as in the original California Lifeline rate. This could take the form of a discount that applies only to a lifeline block -- *i.e.*, the minimum amount of energy deemed to be necessary to sustain life in today's society. Usage beyond this amount is priced at the regular residential rate. Alternatively, the discount could decline, but still exist, as usage increases. Another rate that results in a discount that varies with usage is the inverted block rate, adopted in California and other states at various times. In an inverted block rate, blocks of energy consumption are established such that greater levels of consumption are charged higher unit costs.

A type of payment program that is increasing in use is the percentage of income payment plan (PIPP). This type of program takes the energy burden of low-income customers strictly into account and structures a payment program such that the burden faced by these customers will be no higher than a predetermined percentage of their income. The percentage chosen varies by state and may bear a direct relationship to the burden borne by customers of average income in the state.

The most obvious virtue of the fixed percentage and fixed dollar discounts is that they are simple for the utility to administer and for customers to understand. On the other hand, a discount that varies with usage is preferred by some because it encourages conservation – or at least does not encourage consumption. (A fixed dollar discount shares this effect to some extent since

the percentage discount declines as consumption increases.) However, these effects are probably very small, if not zero, because the elasticity of low-income demand is very small; *i.e.*, low-income consumers have so little income relative to their needs that decreasing the price of one necessity tends to result in larger consumption of another scarce necessity rather than an increase in discretionary consumption.

Bill assistance proposals have been challenged and debated in Manitoba yet the Company has disregarded the Board's clear concern for the issue. Perhaps there is a gap in government programs that causes an arrears problem for Centra that it would be beneficial to Centra and its ratepayers to address with ratepayer funds. It would take a discount of about 60% to bring the median LICO-125 energy burden to the level of other customers. However, my experience is that a much lower percentage discount can provide a high but more bearable energy burden for LICO-125 customers without creating an undue burden on other ratepayers. In any case, since customers receiving income assistance effectively already have capped utility bills, it would not be appropriate for the utility to reduce the bills of those customers. Alternatively, there are other proven approaches to bill assistance, such as targeting lower income customers with demonstrated difficulty in managing their energy bills, *i.e.*, those with accounts in arrears, in order to target the costs of bad debt, arrears, and disconnections.

Energy bill assistance has been a complicated, difficult, and contentious issue in Manitoba as well as elsewhere, with no single right answer. It is worthy of further discussion and study to explore whether a specific program can be developed that is appropriate for Manitoba.

VI. Summary of Recommendations

In summary, my recommendations are as follows:

1. In view of the Company's five-year failure to successfully operate the Furnace Replacement Program, the Board should oversee the Company's contractual agreement with a separate, community-based energy efficiency agency to implement the lower income programs. This agency should be given control over all existing Centra lower income efficiency programs, marketing, and funds as well as the annual Company contributions to them, with instructions to implement the lower income programs as previously ordered by the Board.

2. The Board should increase the annual funding of the Furnace Replacement Program by $250,000, to $4.05 million, for the next six years, in order to achieve the Board's original full replacement goal by September 2019.

3. The Furnace Replacement Program co-payment should be cut by at least 50%.

4. The Board should investigate the Company's level of administrative expense in the Furnace Replacement Program.

5. The Board should order the Company to hire an independent engineering contractor to conduct a physical survey of the present condition of lower income household insulation, under the supervision of the community-based energy efficiency agency. Once a baseline is thus established, the Board should order the Company to fund a program to insulate all inadequately insulated lower income homes over the next ten years. The program should be implemented by the same community-based energy efficiency agency as implements the furnace program.

6. The Company should be ordered to establish a budget for lower income rental buildings, with program development undertaken by the community-based energy efficiency agency.

7. The promotion of PAYS to lower income tenants should be terminated.

8. The Board should order the Company to contract for independent process and impact evaluations forthwith, and allow for review and public comment on and Board approval of the impact and process evaluation plans. Between 3% and 5% of program budgets should be allotted for this purpose. Programs should be adjusted to assure all

needed evaluation data are collected. After the evaluations are completed, programs should be adjusted to take evaluation findings into account.

9. A process evaluation should be undertaken to evaluate the effectiveness of program design in achieving program goals. In doing so, the process evaluation should review at least program operations, Centra's application of the recommendations of the Dunsky Report, quality controls, and methods of savings verification.

10. The impact evaluation should use established methods to assess engineering estimates and should use a risk-free discount rate.

11. The implications of bill assistance to lower income customers should be further investigated.

VII. Appendix – Resume, publications, and testimony of Jerrold Oppenheim

JERROLD OPPENHEIM
57 Middle Street
Gloucester, Mass. 01930-5736 USA
(978) 283-0897 ·
JerroldOpp@DemocracyAndRegulation.com

Harvard College, B.A. in Government
Boston College, J.D..
Dean's List; American Jurisprudence Book Award, Evidence

1999- LAW OFFICE OF JERROLD OPPENHEIM
Independent counsel and consultant. Current and past clients include AARP (formerly the American Association of Retired Persons), DNL Risk Management Associates, Edison Electric Institute, Entergy Corp., Hauppauge Industrial Association, Kentucky Attorney General, Leveraging Assets for Self-Sufficiency through Energy Resources (counsel), Low-Income Energy Affordability Network (counsel), National Association of Regulatory Utility Commissioners, National Council on Competition and the Electric Industry, Public Utility Law Project, Texas Legal Services Center, United Nations International Labour Organization, U.S. Department of Energy Oak Ridge National Laboratory, Utah Committee on Consumer Services, Utility Workers Union of America.

1996-1999 NATIONAL CONSUMER LAW CENTER
Attorney, analyst, expert witness

1994-1996 PACE UNIVERSITY LAW SCHOOL, White Plains, New York
Founding Director, Renewable Energy Technology Analysis
Center for Environmental Legal Studies

1986-1994 MASSACHUSETTS DEPARTMENT OF THE ATTORNEY GENERAL,
Assistant Attorney General, Regulated Industries Division

1984-1985 GREATER BOSTON LEGAL SERVICES
Managing Attorney

1981-1984 NEW YORK STATE DEPARTMENT OF LAW
Assistant Attorney General. Energy and Utilities
Assistant Attorney General In Charge, 1982-1984

1978-1981 COMMUNITY ACTION FOR LEGAL SERVICES, New York
Director of Consumer Law

1973-1978 LEGAL ASSISTANCE FOUNDATION OF CHICAGO

Director of Business Regulation Litigation

1970-1973 Chicago: AMERICAN CIVIL LIBERTIES UNION
LAWYERS' COMMITTEE FOR CIVIL RIGHTS UNDER LAW

1969-1970 Washington: CENTER FOR STUDY OF RESPONSIVE LAW
THE CHILDREN'S FOUNDATION
PUBLIC INTEREST CENTER
BOSTON COLLEGE LAW SCHOOL PUBLICATIONS TRUST

Selected Other Professional Activities

2009-	Center for Public Utilities Advisory Council, New Mexico State University
2001	Board of Directors, Affordable Energy Solutions, Inc., New York
1999-2002	Energy Program Advisory Group, Massachusetts Department of Housing & Community Development
1998-2002--	Board of Directors, National Low Income Energy Consortium
1993	Renewable Energy Subcommittee, National Association of State Utility Consumer Advocates
1992	Telecommunications Committee, National Association of State Utility Consumer Advocates
1992-1994	Advisory (Finance) Committee, Town of Brookline, Mass.
1992-1995	Town Meeting Member (elected), Town of Brookline
1990-1995	Advisory Group, The New England Project, M.I.T. Energy Lab.
1988-1996	Cable Television Monitoring Committee, Town of Brookline
1988-1989	Electric Committee, National Association of State Utility Consumer Advocates
1981-1984	Commissioner, New York State Legislative Commission on Science and Technology
1980-1985	Communications Media Committee, American Civil Liberties Union
1980-1981	Advisory Committee, N. Y. State Consumer Protection Board
1979	Primary reviewer, utilities section, Poverty Law Reporter
1979-1981	Board of Directors, Public Utility Law Project
1978	Advisory Council, Illinois Office of Consumer Services
1977-1980	Editorial Board, Evaluation Quarterly
1976-1977	Electric Utilities Study Panel, Illinois Energy Resources Commission
1976-1977	Advisory Council, Aspen Institute Program on Communications and Society
1972-1975	Public Media Advisory Panel, Illinois Arts Council
1971-1978	Cable Television Committee, Legal Committee, Privacy Committee, American Civil Liberties Union, Illinois Division
1971-1975	Editor, Editorial Board, Chicago Journalism Review

MAJOR PUBLICATIONS OF JERROLD OPPENHEIM

Books and Book Chapters

Policy Without Principle: A Study of the Federal Communications Commission, with Albert H. Kramer, book-length report to supporting foundations (Washington: Boston College Law School Publications Trust, 1973).

Sowing the Wind, by Harrison Wellford, special research assistant (New York: Grossman Publishers, 1972).

Readings in Cable Television, editor (Chicago: Columbia College, 1972).

"Cable TV: Servant and Spy," in R. J. Glessing and W. E. White, eds., Mass Media: The Invisible Environment (Chicago: Science Research Associates, 1973). Originally published in The Progressive (July 1972) and reprinted in Current (October 1972).

"Cable TV and Privacy," in G. S. McClellan, ed., The Right to Privacy (New York: H. W. Wilson Co., 1976). Originally published as "I Wonder Who's Watching Me Now" in Cable Report (January 1975).

"The Unfulfilled Promise of Cable TV," in T. C. Smythe and G. A. Mastroianni, eds., Issues in Broadcasting (Palo Alto: Mayfield Publishing Co., 1975). Originally published in The Progressive (March 1974).

"Racial Discrimination in Chicago's Storefront Banks," with W. P. Bridges, in Thomas D. Cook, ed., 3 Evaluation Studies Review Annual 735 (Beverly Hills: Sage Publications, 1978). Originally published in 1 Evaluation Quarterly 159 (February 1977).

"Potential Costs of Competition: A Customer Perspective -- Brownouts, Death Spirals and Alternatives," in S. Limaye, ed., Utility Opportunities for New Generation (Washington and Palo Alto: Edison Electric Institute and Electric Power Research Institute, 1989).

"Innovation and New Services -- A Response" in B. Cole, ed., After the Breakup: Assessing the New Post-AT&T Divestiture Era (New York: Columbia University Press, 1990). Originally published as "Innovation in Telecommunications: Is the Innovation Brought by Divestiture Worth the Price of Competition?" for Columbia Center for Telecommunications and Information Studies (1989).

"Why Should We Collaborate?" with Ronald L. Lehr, et al., in Photovoltaics for Utilities State Working Handbook (Stuart, Fla.: Edison Electric Institute, et al., 1992).

"Identify Value: A Renewable Regulatory Strategy" in Photovoltaics for Utilities State Working Handbook (Stuart, Fla.: Edison Electric Institute, et al., 1992). Earlier version published as "New Electric Supply Development: Regulatory and Institutional Barriers and Incentives" in Solar and Electric Vehicles Proceedings (Boston: Northeast Sustainable Energy Association, 1992).

"Developing Renewable Energy Strategies: Building Partnerships" in Proceedings of the National Regulatory Conference on Renewable Energy (United States Department of Energy and National Association of Regulatory Utility Commissioners, 1993). Revised and republished as "The Photovoltaic Opportunity," Pace University Law School, 1995.

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(*): with Theo MacGregor

Jurisdiction	Docket	Subject matter
Baltimore City Circuit Court	95 311038/CL204287	Cable TV late charges
Connecticut General Assembly	S.B. 733	Electricity resourceprocurement
Connecticut General Assembly	H.B.5005	Electric restructuring
Cook County, Illinois Circuit Ct.	95CH11993	Cable TV late charges
District of Columbia Public Service Commission	F.C. 945	Low-income energy efficiency (*)
District of Columbia Public Service Commission	F.C. 945	Low-income energy efficiency (*)
Kane County, Illinois Circuit Ct.	LKA97 0285	Cable TV late charges (report and deposition)
Manitoba	2009/2010 & 2010/2011 General Rate Application	Centra Gas Manitoba Inc. DSM
Massachusetts General Court	various, incl. St. 1997, c. 164	Electric restructuring, Gas restructuring, Low-income energy issues
Public Utility Comm. of Ohio	98-1245-TP-ACE, et al.	Pre-paid telephone services
Texas Legislature	S.B.7	Low-income issues in electric restructuring
Texas Public Utilities Commission	28840	Low-income energy efficiency (*)
Texas Public Utilities Commission	24840	Providers of Last Resort - Entergy, TXU E&W DFW (*)
Texas Public Utilities Commission	24190	Providers of Last Resort - Entergy, TXU E&W DFW (*)
Texas Public Utilities Commission	22349	Low-income System Benefit Fund - TNMP
Texas Public Utilities Commission	22350	Low-income System Benefit Fund - TXU
Texas Public Utilities Commission	22351	Low-income System Benefit Fund - SPS
Texas Public Utilities Commission	22352	Low-income System Benefit Fund - CPL
Texas Public Utilities Commission	22353	Low-income System Benefit Fund - SWEPCO
Texas Public Utilities Commission	22354	Low-income System Benefit Fund - WTU
Texas Public Utilities Commission	22355	Low-income System Benefit Fund - Reliant
Texas Public Utilities Commission	22344	Generic rate design issues
Texas Public Utilities Commission	16705	Rate Design and Cost Allocation - Entergy
Texas Public Utilities Commission		Competitive Issues
U.S. Dist. Ct., N.Dist. Mississippi	A:98CV51-D-D	Cable TV late charges
U.S. Dist. Ct., South Carolina	3 98-11119-10	Cable TV late charges (report and deposition)
Utah Public Service Commission	97-035-01/99-035-10	Low-income assistance (report)

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MANITOBA PUBLIC UTILITIES BOARD

IN THE MATTER OF the Public Utilities Board Act (Manitoba)

AND IN THE MATTER OF Centra Gas Manitoba Inc.
2013/14 General Rate Application

REBUTTAL EVIDENCE OF CENTRA GAS MANITOBA INC.

WITH RESPECT TO THE WRITTEN EVIDENCE OF
J. Oppenheim on behalf of
Consumers Association of Canada (Manitoba)
(CAC)

CENTRA GAS MANITOBA INC.
2013/14 GENERAL RATE APPLICATION

REBUTTAL EVIDENCE
INDEX

1.0 Introduction

On January 25, 2013, Centra filed its General Rate Application ("GRA") requesting approval of natural gas rates to be implemented August 1, 2013. On May 10, 2013 Centra updated its Application to include a Cost of Gas based on the April 2, 2013 forward price strip. On May 27, 2013 the Consumers Association of Canada (Manitoba) ("CAC") filed the evidence of Jerrold Oppenheim which dealt with Centra's furnace replacement program and other DSM related matters.

The purpose of this Rebuttal Evidence is to provide Centra's response with respect to the pre-filed evidence of Mr. J. Oppenheim.

2.0 Evidence of Mr. Jerrold Oppenheim

Mr. Oppenheim's evidence discusses the creation of an external energy efficiency agency separate from Centra to administer the Furnace Replacement Program ("FRP"), recommends an increase of annual funding to the FRP, a reduction of the current customer co-payment for furnaces, and an investigation of administrative expenses. Mr. Oppenheim also recommends that Centra hire a contractor to conduct physical inspections of insulation levels and for Centra to establish a budget for lower income rental buildings. Mr. Oppenheim finally suggests that the implications of bill assistance be further investigated, and that a discounted rate for lower income customers be considered.

Centra's rebuttal evidence will demonstrate that the FRP is achieving the desired results and there is no need for a third party agency to be retained to manage this program. The current administrative expenses, including marketing costs, are reasonable and in Centra's respectful submission are lower than they would be if the program were to be operated by an external entity. Centra is satisfied that there is no need to increase the funding for the FRP, and that the current co-payment does not require adjustment to increase participation in the program. Centra's evidence will show that Mr. Oppenheim's recommendations regarding the need for physical inspection of insulation levels in lower income homes is currently undertaken, and that the existing Power Smart initiatives include measures that assist in lower income rental buildings. Centra's evidence will also demonstrate that the Corporation has in fact adequately completed a demographic study, and will address Mr. Oppenheim's suggestion regarding consideration of a discounted rate for lower income customers.

2.1 External Energy Efficiency Agency

Mr. Oppenheim suggests that a "community-based efficiency agency" should be engaged to implement the lower income programs" (Evidence of Oppenheim, page 31). Centra has expanded the outreach of its lower income program by partnering with neighbourhood and community groups to deliver the lower income program in regional areas. To date, two such community based organizations have launched initiatives. Centra recognizes the value in working with community groups as they have established relationships within their community and can potentially further penetrate the market with promotion of the Lower Income Energy Efficiency Program ("LIEEP") and FRP at community events, and in community newsletters. Centra provides funding to these community groups to support their neighbourhood initiatives.

With regard to "the formation of a separate, community-based energy efficiency agency to implement the lower income programs" (Evidence of Oppenheim, page 9), Mr. Oppenheim did not identify any one specific community organization that would be capable of operating a program of the size and scope of the LIEEP or FRP in Manitoba (Oppenheim response to PUB/CAC-16). Centra notes that the development of such an agency could take significant time and resources to establish and implement without any assurance of successful or enhanced program delivery. Oppenheim's proposal fails to recognize that Centra is uniquely positioned to effectively deliver such programming. Centra can access and leverage important resources such as its in-house expertise in building systems and energy utilization technologies and brings considerable strength and organizational experience in the successful development and delivery of DSM programming. The Corporation is already working with community groups in delivering the program and has the experience gained having been involved in delivery of the FRP for over five years. The creation of an external energy efficiency agency would be redundant and result in additional risks and costs associated with setting up the required infrastructure.

Mr. Oppenheim's suggestion appears to be based on the notion that Centra has not implemented the program adequately. However, the current market penetration of 8% must be evaluated in the context of the LIEEP and FRP being relatively new programs as these programs were only introduced in 2007 and 2008, respectively. Evidence previously filed with the PUB by Tom Carter, Carter Research Associates, on behalf of CAC, states that "Experience in many jurisdictions has shown that low income households are hard to reach, even when products, services, and programs are free. A review of US LIEEPs reveals that annual participation in programs averages about 2% of eligible consumers[1]." Since 2010/11, Centra has experienced annual market participation of 2% or greater.

[1] Carter, Tom. December 2010 *Energy Programs and Poverty Alleviation: A Discussion Paper,* Carter Research Associates, Winnipeg, Manitoba. Page 44. Filed by the Consumers Association of Canada (Manitoba) and the Manitoba Society of Seniors in the 2010/11 & 2011/12 Electric General Rate Application.

It should also be noted that The 2009 Residential Energy Use Survey Report – Low Income Cut-Off (LICO) Sector indicates that 35.8% of LICO-125 customers with natural gas service reported participating in at least one Residential Power Smart program (see page 49 of attachment to Centra's response to CAC/Centra I-20(a)) and, although is lower than the 45.5% reported by non-LICO-125 customers, is more comparable.

Further, Mr. Oppenheim has incorrectly interpreted Order 128/09 in his evidence wherein he stated that Centra was ordered to spend $3.8 million annually (Evidence of Oppenheim, page 7, lines 21-23). In Order 128/09, Centra was directed to contribute $3.8 million to the FRP and has complied with this directive. Centra also expects to achieve the target to replace all standard efficient furnaces in lower income households by September 2019 (page 39, Order 128/09), as outlined in Centra's response to PUB/Centra II-172(d).

2.2 Increase Annual Funding of Furnace Replacement Program

Centra notes that Mr. Oppenheim's recommendation to provide additional funding to the FRP in order to achieve the replacement target cited above (Evidence of Oppenheim, page 10, lines 18-29) is not required, as the funds available for use in the FRP are projected to exceed the amounts required to support the FRP, beyond 2018/19 when virtually all standard furnaces are anticipated to be replaced with high efficiency furnaces as outlined in Centra's response to PUB/Centra II-172(d).

2.3 Furnace Replacement Program Co-payment Reduction

Mr. Oppenheim offers no evidence in support of his recommendation to reduce the co-payment for the Furnace Replacement by 50%. Centra notes that only 18 customers or 7% have opted to not proceed with their furnace upgrade through the FRP. As the reasons for electing not to proceed are not reported, this may be for a variety of reasons and cannot be assumed to be as a result of the co-payment requirement. By comparison, 177 customers or 9% opted not to proceed with the recommended free insulation upgrades offered under the program. Feedback to date from low-income customers participating in the program indicates that the low furnace cost of only $19 month is the most often cited reason for participation. Mr. Oppenheim suggests Centra should follow Efficiency Nova Scotia as all measures are provided free of charge (Evidence of Oppenheim, page 13 lines 6-15). However, the Efficiency Nova Scotia program does not include high efficiency natural gas furnaces. Customers participating in Centra's FRP benefit by having loan payments for only five years at approximately the same value as the bill savings achieved and an immediate capital upgrade benefit, which increases the value of their property.

2.4 Administrative Expense

Mr. Oppenheim suggests that Centra's administrative expense has "risen substantially" and is "higher than at most successful programs" (Oppenheim, page 7, line 36-40). Centra's administrative expense includes all administrative costs associated with the program, including support from technical experts and marketing. The lower income sector is typically defined as a "hard to reach" market and as such, Centra uses a variety of marketing channels such as mass media, outbound calling, direct mailers, and bill inserts. In addition, Centra is partnering with neighbourhood and community groups and funds their associated operating costs. Mr. Oppenheim notes in the response to PUB/CAC-11(b), that the administrative expense for the most successful U.S. low-income program is 30.9%, which is relatively consistent with Centra's administrative expense of 32%. Administrative expenses are typically a greater percentage of program costs for programs targeting these hard to reach markets; however, in Centra's view, these activities have been successful as participation is increasing over time.

2.5 Assertion that the Corporation has not Completed a Demographic Study

Mr. Oppenheim asserts that the Corporation has not completed a demographic study "to gain additional data and determine with increased precision the specific geographic locations of lower-income customers (Evidence of Oppenheim, page 5 lines 9-11). This is incorrect.

Centra met the requirements of Directive 34 of Order 128/09 to provide a demographic survey with the filing of the 2009 Residential Energy Use Survey Report – Low Income Cut-off (LICO) Sector, on May 28, 2010 and a revised report on August 31, 2010. As per the Directive, the report and data collected addressed the number of lower income customers, number and type of heating equipment for lower income customers, type of housing, and the relationship between consumption and income levels. In addition, Centra looked at other components of how energy is used in the lower income market.

Although respondent information was collected geographically at the first three digit level of the postal code and is available for program use, it was not specifically included in the analysis of the report as the number of returned surveys at this level would be insufficient to produce statistically valid conclusions. As with all programs, Centra uses other available sources of market data to refine program strategies and designs. Centra used Statistics Canada Census data as outlined in Centra's response to CAC/Centra II-61 to implement targeted mailings at the neighbourhood level.

2.6 Hire an Independent Engineering Contractor to Conduct Physical Survey of Insulation in Lower Income Households

Mr. Oppenheim has suggested that the Board should order Centra to hire an independent engineering contractor to conduct a physical survey of the present condition of lower income household insulation (Evidence of Oppenheim, page 10). Through the LIEEP program, 6,579 in-home energy evaluations have been completed on qualifying lower income homes by external contractors certified as Energy Advisors under NRCan's ecoENERGY program. The current contract provider has been active in the energy evaluation field for several years, performing thousands of in-home energy evaluations in accordance with Natural Resources Canada's energy evaluation methodology and requirements. All advisors are certified Natural Resources Canada Energy Advisors. The contractor also has extensive experience working with a broad range of Manitoban non-profit social housing agencies, including Habitat for Humanity, Winnipeg Housing Rehabilitation Corporation, Manitoba Housing, Kinew Housing and a number of First Nation Communities. Based upon these comprehensive information sources, Centra is confident in its assessment of the lower income market and that no further inspection is required.

2.7 Establish a Budget for Lower Income Rental Buildings

Mr. Oppenheim suggests that the Company should be ordered to establish a budget for lower income rental buildings (Oppenheim, page 16). As outlined on page 4 of Centra's response to CAC/Centra I-20(e), the Power Smart initiative has been and continues to target cost effective energy efficient opportunities within the multifamily commercial building sector with over 3,200 buildings or 68% participating in at least one Power Smart offering. To facilitate additional participation within this market sector, the Corporation developed a customized marketing package for property managers and owners. The Corporation plans to launch a commercial version of PAYS in the near term complimenting the existing portfolio of Power Smart incentive programs. Under the commercial building PAYS offering where the energy bill savings are sufficient to offset the monthly financing charge net of any Power Smart incentives, the property manager would be able to finance the energy efficient upgrade on their energy bill thereby mitigating the upfront capital investment requirement that can be a barrier to proceeding.

2.8 Contract for Independent Process and Impact Evaluation

Centra disagrees with Mr. Oppenheim's statement that Centra's LIEEP Impact Evaluation Plan is inadequate. Centra's approach to impact evaluations is valid and consistent with other jurisdictions in North America. The installation of energy efficiency measures are verified by pre and post evaluations of participating homes by independent, external energy advisors. These evaluations were conducted by energy advisors certified through the Federal ecoENERGY

program. With the end of the ecoENERGY program, these evaluations continue to be performed by an independent, external firm with certified energy advisors.

Centra agrees there is value in undertaking a process evaluation of the LIEEP program however, the Corporation questions the value in hiring a third party to undertake the evaluation. As part of the Corporation's ongoing efforts to improve the effectiveness of its LIEEP program, the following initiatives have been undertaken:

- Streamlining its application process;
- Undertaking an informal customer survey;
- Undertaking customer awareness surveys;
- Meetings and ongoing discussions with program partners (e.g. community and neighbor groups);
- Researching lower income programs in other regions;
- Reviewing and modifying internal procedures and processes;
- Reviewing the effectiveness of marketing materials (e.g. by asking how customers heard about the program);
- Meetings with contractors to solicit feedback;
- Meetings with external energy advisors to solicit feedback.

2.9 Need for Independent Assessment of Engineering Estimates

Mr. Oppenheim suggests "the engineering estimates themselves have not been tested and evaluated by an independent entity" (Oppenheim, page 21, lines 6-7). Centra disagrees that this evaluation must be undertaken by an independent entity.

Centra notes that for programs such as LIEEP with straightforward measures and fairly homogeneous consumption patterns, the use of deemed savings to measure the impact of the program is appropriate. Deemed savings are based on engineering estimates that consider generally accepted values (i.e. those used by other utilities and the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)). Data is collected for each installation on factors such as the scale of the upgrade, the size of the dwelling, and the technologies installed, to adjust the deemed savings to appropriately reflect the impact of the program.

Centra agrees there is value in undertaking a billing analysis for a sample of retrofitted homes under the LIEEP program. Centra is currently undertaking such an assessment and sees no value in hiring an independent entity to undertake this evaluation when the Corporation has access to the billing data and the internal resources and expertise.

2.10 Evaluation Using a Risk-free Discount Rate

Mr. Oppenheim recommends that impact evaluation of low income programming should consider a risk-free discount rate instead of the Corporation's weighted average cost of capital ("WACC").

Centra noted in response to CAC/Centra II-78(a) that the 2011 Power Smart Plan was evaluated using a WACC of 6.1%. Centra's WACC is the Corporations' overall cost of financing and is therefore the minimum expected rate of return that would be acceptable to justify making an investment. The imputed return on equity (included in WACC) is not considered to be a risk premium but rather a corporate financial target. Depending upon the type of investment being evaluated, the Corporation may include a further risk premium to the WACC to derive a hurdle rate for that type of investment.

For the purposes of evaluating investments in low income programming, Centra applies the WACC, without any additional risk premium.

2.11 Further Investigate Bill Assistance for Lower Income Customers

Mr. Oppenheim is recommending that the "implications of bill assistance to lower income customers should be further investigated" (Evidence of Oppenheim, page 3, lines 20-21). On page 28, lines 10 through 12, Mr. Oppenheim goes further and recommends that "Bill Assistance to lower income customers should be increased. Consideration should be given to a discounted rate for lower income customers."

In making these recommendations, he quotes extensively from Order 128/09. However, while his evidence acknowledges an extensive regulatory record on this matter, it does not draw on any of this record beyond Order 128/09. The definitive proceeding in which this issue was reviewed in Manitoba was the 2010/11 Manitoba Hydro General Rate Application. In that proceeding the intervener RCM/TREE urged the PUB to direct that Manitoba Hydro provide a program of low income Bill Assistance and introduced expert evidence by Mr. Roger Colton, a well known activist for such provisions in many US regulatory jurisdictions.

Mr. Oppenheim's evidence wrongly cites U.S. jurisdictions' low income bill assistance programming as providing precedents for Manitoba utilities to engage in similar practice. Again, this was an issue that was addressed during the above mentioned Manitoba Hydro proceeding. Mr. Oppenheim's evidence ignores the legislative framework in Manitoba.

Mr. Oppenheim's evidence on pages 28 through 30 cites the programming in U.S. jurisdictions as providing support for similar programming in Manitoba. At page 28, lines 13-15, he states:

"Research that I and others have conducted for decades shows that three-fifths of US states provide lower rates for lower income households in order to increase the likelihood that they will be able to pay their energy bills." Rate affordability programs of the type discussed by Mr. Oppenheim have not been implemented in any Canadian jurisdiction. Comparison with U.S. jurisdictions in order to justify the implementation of such a program in Manitoba is not appropriate. There is a significant difference between Canadian and U.S. jurisdictions with regards to the income assistance offered from state to state and when compared with the income assistance offered in Manitoba. Further, bill assistance programming in U.S. jurisdictions is typically mandated by state legislatures and funded, at least in part, by the federal government.

During the 2010/11 Manitoba Hydro GRA, a number of points were raised, most of them by CAC's own witness at that proceeding, to the effect that formal bill assistance programming is not an appropriate role for a utility, is of limited effectiveness in meeting need, may be discriminatory against some low income customers and could be very costly. A useful summary of some of the practical difficulties that limit the effectiveness of such programming, cited by the CAC witness, Dr. Carter, including challenges with low participation rates, difficulty identifying the working poor, high mobility rates, and apprehension and suspicion about dealing with government, is found in Order 5/12, pages 155 through 157.

In summary, CAC's witness in the 2010/11 Manitoba Hydro GRA supported low income energy efficiency programming, as well as crisis intervention and arrears management, but did not recommend a low income bill assistance program for the reasons including those cited in Order 5/12Order. CAC concluded that for many low income customers in Manitoba, a bill payment assistance program would not be beneficial as these customers already receive social assistance to support energy bill payments, and such social assistance varies with the cost of energy to the customer. As also stated in Manitoba Hydro's Rebuttal Evidence at the 2010/11 Manitoba Hydro GRA,

> *"…customers on Social Assistance can either have their bills directly paid by the social agency or can receive a cash supplement to assist in utility bill payment. In such cases, the implementation of an affordable energy program such as proposed by Mr. Colton would have no impact on the energy burden for those customers."* (Page 91: 18-21.)

Also, during the 2010/11 Electric GRA Manitoba Hydro provided evidence that a Bill Assistance program such as that then being promoted by RCM/TREE and its witness, Dr. Colton, could cost Manitoba Hydro ratepayers as much as $50 million per year, or about a 5% increase in customer bills (Tr. 8882:10 – 8883:2). Similar metrics would likely apply to a similar program for natural gas customers.

Although the issue was extensively canvassed during the proceeding, the ensuing Order 5/12 did not include any specific directive. The discussion on pages 166-167 of that Order would appear to represent the most recently-delivered finding of the PUB on this matter.

> *"Before the Board is prepared to require MH to develop a definitive bill assistance program along the lines of the program proposed by RCM/TREE, the Board needs further information as to existing funding made available by government and the programs available to directly or indirectly alleviate energy poverty.*
>
> *The Board is firmly of the view that MH should participate in an integrated strategy with respect to low-income programs. This could, and likely would, include a defined role I education, promotion, monitoring and perhaps delivery of such a program in conjunction with CBOs. However, until the Board has additional information as general and specific government funding available, the Board is not in a position to determine whether MH should be a "funder of programs to alleviate poverty" as suggested by RCM/TREE."*

Based on the above discussion, Centra's role as providing energy efficiency programming through the LIEEP and FRP and crisis intervention programming through the Neighbours Helping Neighbours program is appropriate. The LIEEP and FRP programs have seen 6,616 homes upgraded and 2,582 heating systems replaced, effectively reducing lower income customers' energy bills. The Neighbours Helping Neighbours bill assistance program has provided over 4,329 grants with an average grant of $335 and over 9,958 referrals to social agencies. As noted in CAC/Centra II-76, almost 70% of the program referrals have been used and the majority of grant recipients (73% or greater) have experienced improvement in their arrears situation since participating in the program indicating the delivery by Salvation Army is effective.

1.10 Conclusion

Given the difficulties associated with reaching the lower income market, Centra is confident its approach towards capturing energy savings within this market sector is appropriate. The Corporation has undertaken steps to improve the program's success and plans to continue to pursue initiatives and opportunities which will further improve the success of the program. Since 2010/11, Centra has experienced annual market penetration of 2% or greater which is consistent with other programs targeting this market sector. In addition, Centra is expecting deeper penetration with the expansion of its program to include community/neighbourhood led initiatives and landlord/tenant participation.

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PUB/CAC - 10

Reference: Evidence of J. Oppenheim p. 7; CAC/Centra I-20 (hh) Attachment 1 p. 21-23 and 31 of 91

Request:

Some customers have negative experiences dealing with utilities by nature of the utility, through its credit and collections department, demanding payment of arrears in potentially forceful language, while subsequently benevolently offering energy efficiency benefits and bill assistance to those same customers. Please provide recommendations for addressing this problem of customers potentially choosing to not access the LIEEP and bill assistance programs because of previous negative experiences dealing with the utility.

Response:

It should be recognized that a utility withholding assistance until it has threatened or completed disconnection of service will not be warmly received. The obvious solution is to offer help in time to avoid such extreme events. In addition, my experience is that community-based organizations often have an excellent trusting relationship with people in their communities, particularly in lower income communities (*see*, for example, the Board cited Attachment at 24). They may therefore be more successful than others in presenting energy efficiency and bill assistance programs.

PUB/CAC - 11

Reference: Evidence of J. Oppenheim p. 7

Request:

a) Please provide your views on the appropriate level of administration expense, as a percentage of the total program budget, for programs such as LIEEP and FRP.

Response:

As noted in my testimony, a reasonable level of administrative expense for evaluation is 3%-5%. A reasonable level of administrative expense for coordinating among community-based organizations is 2% (LEAN is budgeted for less and spends under budget), perhaps more for smaller programs since some costs are fixed.

b) Please provide specific examples of the proportion of administrative expenses at LEAN and other programs.

Response:

Massachusetts 2013 Gas budgets are typical and appropriate. They provide for the following administrative expenses in their low-income programs:

Planning and administration (includes LEAN), 6.3%

Marketing, 3.2%

Evaluation, 4.1%

My recommendation is that the marketing expense should be managed by community organizations. Similarly, there is a category imprecisely labeled as sales, technical assistance, and training expenses ("STAT,"17.3%), some of which could be considered as administrative and which should also be managed by community organizations that implement programs.

Taking all these expenses together totals 30.9% (if all are considered to be administrative and not implementation, *e.g.*, energy audits) for the most successful low-income program in the US; lower than Centra's apparently less productive administrative expense (32.0%) for a failed program.

PUB/CAC - 12

Reference: Evidence of J. Oppenheim p. 8

Request:

Please describe the information that should be gathered in a demographic study to assist the LIEEP.

Response:

The type of information gathered and published by Centra (*e.g.*, income, housing, energy burden, furnace efficiency) is useful, but is needed on a neighborhood level. Additional information that would be useful to inform marketing decisions would relate to relative reliance by lower income customers, by neighborhood and demographic factors, in such media outlets as church communications, community meetings and events, community organization mailings, newspapers and television, web sites, outside advertising, cold calls, bill inserts, notices from public benefits agencies, and direct mail. It is also important to identify community leaders (including public officials) and active community organizations that can help spread the message about energy efficiency.

PUB/CAC - 13

Reference: Evidence of J. Oppenheim p. 8; PUB/Centra I-59(a) and PUB/Centra II-172(d)

Request:

Centra assumes that roughly 50%[1] of the standard efficiency furnaces in lower income households have been or will be replaced without accessing funds from the FRP. Please provide recommendations for increasing customer participation in the FRP to specifically address the numbers of lower income customers that are replacing their standard efficiency furnaces without accessing the FRP.

Response:

It would be reasonable for potential participants in the FRP to determine that the FRP financing terms are not advantageous. Therefore, as recommended in my testimony, Centra should reduce the amount of co-payment 50% so participants see benefits right away. In addition, community-based organizations should be funded to conduct marketing campaigns and engagement should be sought with community leaders (including public officials) and other active community organizations. Other marketing strategies may suggest themselves upon completion of the neighborhood demographic study discussed in response to PUB/CAC-12. For example, it may be determined that greater reliance on church communications, community meetings and events, and community organization mailings would be more effective and cost-effective than some current marketing efforts.

[1] The reduction in the target furnace market from 16,034 to 11,576 (totaling 4,458) was accomplished by funding the replacement of only 2,555 furnaces. Centra's forecast is for the remaining 11,576 furnaces to be replaced by an additional 8,088 - 2,555 = 5,533 funded by the FRP. Figures from PUB/Centra I-59(a) and PUB/Centra II-172(d).

PUB/CAC - 14

Reference: Evidence of J. Oppenheim p. 7 & 10

Request:

a) Please provide the references for the source data and the supporting calculations for the costs presented in the paragraph beginning on line 18 in respect of the costs and recommended funding for the FRP. Please indicate to what extent your your recommendation to halve co-payments has been incorporated into the analysis.

Response:

Centra's strategy for the Furnace Replacement Program appears to be to collect $3.8 million a year for low-income furnace replacements, spend a fraction of this amount, and assume that low-income homeowners are somehow replacing furnaces on their own. Lacking hard numbers, the Company projects the latter activity based on undisclosed assumptions, undocumented expectations, and unexplained "analysis." *E.g.*, Appendix 7.3 at 83 notes ** and ***. I took the Company's revised 2009 estimate of the universe of low-income standard efficiency furnaces (18,319 per Appendix 7.3 at 83; but note that the entire series of estimates is of questionable validity since they are based on customer reporting and memory (IR CAC/Centra I-20(t)). The 2132 reported cumulative FRP units (Appendix 7.3 at p. 86) was then subtracted, thus computing a difference of 16,187 furnaces untreated by the FRP. Appendix 7.3 reports for the four quarters ending September 30, 2012 show total FRP spending for that year of $1,719,000. At a Company cost of $2420 per unit (IR PUB/Centra 1-59(c)), the FRP installation pace is 710 per year. Dividing 16,187 untreated furnaces by 710 furnaces per year yields 22.8 years to completion. (Due to a typographical error, this was reported as 27.8 years in my testimony)

Consistent with its apparent strategy of assuming low-income furnaces replace themselves, the Company now estimates there are only 11,576 standard efficiency furnaces remaining in low-income homes (IR PUB/Centra II-172(d)). It is more than likely that the truth is in between the two estimates of untreated low-income furnaces, but taking the Company's latest estimate and its actual per unit cost of $3555 (computed from IR PUB/Centra II-172(g) and (c) for the year 2012-13) still yields an unacceptable 23.9 years to program completion.

b) Please provide the supporting calculation of the 27.8 years estimate to complete all of the furnace replacements.

Response:

As explained in my testimony, my calculated funding for the FRP assumed "current unit costs, including Company administrative costs" (Testimony p. 10, line 25). If the Board accepts my recommendation to halve the co-payment, then the result is, of course, different. Halving the co-payment would add $570 to the Company's unit cost (*see* IR PUB/Centra 1-59(c)), bringing it to $4125. A six-year program at the Company's assumed remaining universe of 11,576 furnaces would require $47.8 million at $4125 per unit, less the current fund balance of about $14.9 million (IR PUB/Centra I-59(b)), or about $32.8 million. This would require additional annual funding of $1.7 million over six years (in addition to the ordered level of $3,800,000) or, alternatively, $300,000 if stretched out over eight years. Therefore, my recommendation based on these values would be to increase annual funding subject to periodic review of (a) future costs of the program, (b) future pace of the program, (c) successful contracting to transfer the program to community-based implementation, and (d) an accurate assessment of the actual number of standard efficiency furnaces remaining in low-income homes.

PUB/CAC - 15

Reference: Evidence of J. Oppenheim p. 10

Request:

Please provide your view on whether the insulation portion of Centra's LIEEP is inadequate, considering in-home evaluations are done that will more accurately assess the insulation level, and funding is currently provided by Manitoba Hydro's Affordable Energy Fund.

Response:

I understand the question to relate to the adequacy and quality of the insulation services performed. It is not clear that the Company performs sufficient quality control review to help assess the adequacy and quality of the insulation services performed. (Only twenty percent of any measure installations are inspected, but the Company does not specify whether insulation is among the measures subject to inspection or if the inspection is by anyone other than the installation contractor.) If the question relates to whether an adequate fraction of lower income homes are served by the insulation program, it is not possible to determine this question in the absence of an accurate inventory of the number of homes with fair or poor insulation levels. In-home audits can accurately assess the need for insulation in a particular home; but, obviously, in-home audits provide no information about homes not audited.

PUB/CAC - 16

Reference: Evidence of J. Oppenheim p. 11

Request:

a) If Mr. Oppenheim or the CAC have identified any candidate community organizations within Manitoba that would be capable of operating lower income energy efficiency programs of the size and scope of LIEEP and FRP, please provide them.

Response:

A network of community organizations (including social enterprises, neighbourhood renewal corporations, and other non-profits) should be selected across the province, with Board review and perhaps by RFP, using criteria such as the following:

a. Experience serving lower income communities,

b. Experience delivering energy efficiency in lower income communities, or experience in contracting for services for lower income communities,

c. Community-based, with a Board that reflects the composition of the community and represents the community,

d. A track record of trust in the communities to be served,

e. For the overall coordinator of the network, experience in contract management and communication among community organizations that serve lower income communities, as well as the other factors on this list., and

f. Demonstrated commitment to high quality service delivery.

It should be made clear that the organizations and network would be responsible to the Board and not to the Company.

b) Please comment on whether it would be preferable to create a new community organization "from scratch" to implement energy efficiency programs.

Response:

It would probably not be necessary or preferable to create a new organization "from scratch" to implement lower income energy services, although the RFP process described above would probably create a new network of existing organizations. By the time a new entity could be organized, incorporated, funded, trained, and introduced to the community, precious time would be lost. Using already existing organizations with established contacts in the neighborhoods (even though some would need additional specialized training and/or would need to hire experts in the field) would be a faster and more efficient and cost-effective alternative that would more easily establish the needed trust in the communities to be served.

PUB/CAC - 17

Reference: Evidence of J. Oppenheim p. 12

Request:

Please explain what is meant by “redundant quality control” and how such a mechanism would assure savings.

Response:

The Massachusetts 1-4 unit low-income program provides a high quality example. The community agencies implementing the low-income programs perform 100% quality control inspections of the work performed by their contractors, including inspection of paperwork and implementation; which includes at least 50% in-process inspections in addition to 100% final post-implementation inspections. In addition, 20% of the work is inspected by an independent contractor and/or government agency. If work has not been performed to meet the rigourous standards of the program, the implementing contractor is called back to the house to remedy whatever problems are found; thus assuring that energy efficiency measures are installed and are providing energy savings as planned.

PUB/CAC - 18

Reference: Evidence of J. Oppenheim p. 17 Lines 8 – 17

Request:

a) Please provide an example agreement between a utility and a landlord whose purpose is to ensure that benefits flow to the tenant.

Response:

Attached are two examples of landlord agreements (ABCD & Tri Cap Agreements) to assure benefits flow to the tenant where a landlord's property is being improved.

b) Please provide a description of Massachusetts low-income program that targets renters.

Response:

Attached are portions of the currently approved Massachusetts Joint Statewide Three-Year Electric and Gas Energy Efficiency Plan, which covers the years 2013-2015. The Low-Income "Single Family" program is described in the Plan at document pp. 180-194 (numbered pages 175-189, referring to the page numbers at the bottom of each page). This program serves low-income renters in 1-4 unit buildings (as well as low-income homeowners). The program currently receives a small amount of funding from the US federal government. The Low-Income "Multi-Family" program is described in the Plan at document pp. 180-187 (numbered pages 185-192). This program serves low-income renters in buildings with 5 or more units; the program is currently exclusively funded by utilities and one non-utility municipal program administrator.

PUB/CAC – 19

Reference: Evidence of J. Oppenheim p. 20

Request:

a) Please recommend the percentage of LIEEP-retrofitted homes that Centra should perform post-implementation verification of, either on its own or by engaging an independent entity.

Response:

Please see the response to PUB/CAC-17.

b) Please provide some representative examples of program design changes that may flow from the proposed independent evaluations.

Response:

Some examples are contained in my testimony, such as my recommendations of increased pace of implementation, increased quality control, implementation and marketing by community-based agencies, and periodic performance of process and impact evaluations. Other examples include introduction of customer education (including development of education materials), performance of customer satisfaction surveys (also as an element of quality control), improvements in data management (*e.g.*, automation, consistent labeling, integration of audit and tracking data), consideration of additional efficiency measures, increased technical training of auditors and contractors, and more effective marketing.

PUB/CAC – 20

Reference: Evidence of J. Oppenheim p. 29 & 30

Request:

a) Please provide illustrative examples of each of three discount programs and how such a program could be adapted by Centra given the integrated (gas/electric) nature of the bill.

Response:

A fixed percentage of the bill is probably the most common low-income discount. An example is in Massachusetts, where the percentage discount is stated on the bill as an additional separate line-item deduction from the pre-discount total bill. In the case of Manitoba Hydro, such a line could be added directly after each (electric and gas) Subtotal. Alternatively, a separate rate class can be established with each rate element adjusted to reflect the discount.

The fixed dollar discount is commonly applied as a waiver of the customer charge (the Basic Charge on Manitoba Hydro bills), which is a fixed dollar amount. Examples are El Paso Electric, which waives its $5 customer charge, and Atlanta Gas Light, which provides a $14 credit against its $11 customer charge. One simple way to apply this discount would be to show the Basic Charge as zero or a negative amount. Alternatively, a line reflecting the credit could be added directly after each (electric and gas) Subtotal.

A discount rate that varies by usage is more complex to apply and would require additional lines on the bill, showing the rate applied to each block of usage. The original California Lifeline rate, providing a discount for the first (“lifeline”) block of usage, is an example of this method of low-income discount. Arizona Public Service Co. offers a discount of 65% on the first 400 kWh, reducing he discount in steps as usage increases. For Manitoba Hydro, this method would require reprogramming bills to reflect a block rate design.

b) Please indicate the level of percentage discount that could be afforded lower-income individuals to provide a more bearable energy burden.

Response:

A typical discount that balances reduction in lower-income energy burden to a more bearable level with reasonable bill impact on non-participants is 25%. This is the level of discount, for example, in Massachusetts. To reduce the lower income energy burden to the level of the non-low-income energy burden in Manitoba would require a discount of 60%, which I do not recommend. Another approach is a percentage of income discount program. In Minnesota, for example, low-income gas utility payments are limited to no more than 6% of income. This requires income screening, best contracted to an entity with experience in income screening.

PUB/CAC – 21

Reference: Evidence of J. Oppenheim p. 31

Request:

Please reconcile the recommendation of increasing the annual funding of FRP to $4.05 million with the recommendation that the co-payment be decreased by at least 50%, recognizing that the reduction in the co-payment would result in additional program costs of approximately $6.6 million for the remaining 11,576 eligible furnaces identified in PUB/Centra II-172(d).

Response:

Please see the response to PUB/CAC -14

Action for Boston Community Development Inc.
178 TREMONT STREET, BOSTON, MASSACHUSETTS 02111-1093
TELEPHONE: (617) 357-6000 TTY: (617) 423-9215 FAX: (617) 357-6041

Renter

FREE WEATHERIZATION AVAILABLE TO YOU!
also
FREE HEATING SYSTEM REPLACEMENT AVAILABLE TO YOU

Dear ABCD Fuel Assistance Client: *March 5, 2009*

You are eligible for free weatherization or you may qualify for a Heating System Replacement through the ABCD Energy Programs.

A weatherized home saves 20% or more per year in fuel costs. Weatherization provides door weatherstripping, attic and wall insulation, air sealing, and other related repairs at no cost to you or your landlord.

We can also replace an inefficient heating system at no cost to you or your landlord, which will further reduce your heating costs.

As a Fuel assistance client we are requiring you to consider weatherization and/or a heating system replacement by completing the attached form.

Whether or not you wish to have your home weatherized or consider a heating system replacement, you must sign the attached form and check off if you are interested—or not. Sign your name, have your landlord sign their name and check either YES—I am interested, or NO—I am not interested.

You must return the enclosed form in the envelope provided with either yes or no and signatures from you and your landlord. For more information, please call ABCD Energy Programs at (617) 357-6012.

Sincerely,

ABCD Fuel Assistance/Energy Programs

KT/vln

Enclosure: ABCD WEATHERIZATION PROGRAM, Agreement.

ABCD WEATHERIZATION PROGRAM

Fuel Applic. #_____

ABCD TENANT/PROPERTY OWNER/AGENCY WEATHERIZATION/HEATING SYSTEM REPLACEMENT AGREEMENT

1) The parties to this Agreement are the following:

_____(hereinafter Tenant),

_____(hereinafter Property Owner)

Action for Boston Community Development, Inc. (ABCD) (hereinafter Agency).

In consideration of the mutual promises hereafter stated, the Parties agree as follows:

2) The date of Agency's signature will be the effective date of this Agreement.

3) The Property Owner and Tenant consent and agree that the Agency may do the Following with respect to the property located at:

_____Unit #_____
and currently leased or rented to the Tenant:

Enter the premises to perform weatherization work and/or heating system work which the Agency determines in its discretion is necessary and appropriate as a result of the Agency's inspection of the property and in accordance with the appropriate priority list for the type of dwelling. The Agency and Agency's contractors may also enter appropriate common areas of the building for the purpose of accomplishing the weatherization and/or heating system work. The Agency will provide reasonable notice of the timing of the weatherization and/or heating system work and inspections. The weatherization and/or heating system work will be performed in accordance with the Property Owner's consent as further specified below (INITIAL ONLY ONE):

_____ I consent to performance by the Agency and its contractors of any weatherization and/or heating system work determined necessary and appropriate by the Agency as a result of its inspection of the property. I understand that the Agency will provide a detailed statement of the actual work performed and the associated value at the completion of the work.

OR

_____ I will provide a separate consent to performance by the Agency and its contractors of weatherization and/or heating system work following my receipt of the Agency's inspection report and a statement of the estimated work and associated value. This additional consent will be attached to this Agreement as Attachment A. I understand that the Agency will provide a detailed statement of the actual work performed and the associated value at the completion of the work.

4) The Property Owner understands and agrees that any and all work, including related repairs for which the Property may also be eligible, will be performed at the Agency's discretion. The Agency estimates completion of the weatherization and/or heating system work by the end of _____ (month and year).

5) The Property Owner and Tenant authorize the Agency to receive a statement from the fuel supplier/utility supplier as to the quantity of fuel/utilities used at the above address in each of the past three (3) years and the future three (3) years. The information is to be used only to determine cost effectiveness of the energy efficiency improvements.

6) The Property Owner agrees that the rent for the dwelling unit will not be raised because of any increase in the value thereof due solely to the weatherization and/or heating system work performed.

7) In consideration of the weatherization and/or heating system work hereunder, the Property Owner further agrees that upon the effective date of this Agreement, and during a period extending through _____(date):

a) The present rent of $_____ per _____ will not be raised according to item (6) above for:

ONE YR for weatherization work only from date of completion of this work;

TWO YRS for heating system replacement from date of completion of this work;

However, this Paragraph 7(a) may be waived by the Agency in writing if, and only if, the premises are leased under a state of federal rent subsidy program, in which case the actual rent charged by the Owner shall conform to the standards of the rent subsidy program.

b) The Property Owner will not institute any summary process action for possession except in the case of nonpayment of rent or other good cause related to the Tenant (or any successor Tenant).

c) In the event the Property Owner decides to sell the premises, the Property Owner shall comply with <u>one of the two</u> requirements below:

The Property Owner shall not sell the premises unless the buyer agrees (with a copy forwarded to the Agency) in writing prior to sale to assume all the obligations of the Property Owner set out in this Agreement;

<u>OR</u>

The Property Owner shall pay the Agency an amount equal to the cost, as certified by the Agency, of the weatherization and/or heating system materials installed and labor performed in the premises as of the date of sale. Said amount shall be paid to the Agency immediately upon sale.

8) The Parties agree that the terms of this Agreement are incorporated into any other lease or agreement between the Property Owner and the Tenant, and between the Property Owner and any successor Tenant, and if there is any conflict between the provisions of this Agreement and the provisions of such other lease or agreement, the provisions of this Agreement shall govern. However, if such other lease or agreement, including without limitation a lease or agreement under a state or federal rent subsidy program, contains stronger protections for the Tenant, such stronger protections shall apply.

9) *For breach of this Agreement by the Property Owner, Property Owner shall reimburse the Agency in an amount equal to the cost, as certified by the Agency, of weatherization and/or heating system materials installed and labor performed on the premises, as well as attorney's fees and court costs. Property Owner may also be liable for damages to Tenant in accordance with applicable law; in such instance, Property Owner shall reimburse Tenant for attorney's fees and court costs. Without limiting the foregoing, Agency may at its option terminate this Agreement by providing written notice to Property Owner and Tenant, in the event of breach by Property Owner or Tenant.*

10) *Performance of the weatherization and/or heating system work hereunder by the Agency is contingent upon the availability of funds to the Agency from the Commonwealth of Massachusetts and the federal government, as well as the eligibility of the Tenant under WAP/HEARTWAP program requirements. The Agency may terminate this Agreement by providing written notice to the Property Owner and Tenant, if the Agency determines that the unavailability of funds or ineligibility of the Tenant warrants termination.*

11) *The Parties acknowledge that this Agreement is under seal. It is intended by the Parties that the Tenant or any successor Tenant is the intended beneficiary of this Agreement and shall have a right of enforcement.*

PROPERTY OWNER

___*YES, I DO want Tenant's apartment weatherized*

___*YES, I DO want an inefficient heating system replaced*

___*NO, I do NOT WANT Tenant's apartment weatherized*

___*NO, I do NOT WANT Tenants inefficient heating system replaced*

TENANT

_____
Tenant Name

_____
Property Owner Signature

*Address*_____

_____

*Telephone (Work)*_____

*Telephone (Home)*_____

*Date*_____

_____
Tenant Signature

*Address*_____

_____

*Telephone (Work)*_____

*Telephone (Home)*_____

*Date*_____

AGENCY

Action for Boston Community Development, Inc. (ABCD)

*By*_____ *Title*_____ *Date*_____

030509

Action for Boston Community Development Inc.
178 TREMONT STREET, BOSTON, MASSACHUSETTS 02111-1093
TELEPHONE: (617) 357-6000 TTY: (617) 423-9215 FAX: (617) 357-6041

CWPL

Dear Fuel Assistance Client: Re: ABCD Weatherization Program & Application

The Weatherization Program provides substantial conservation work to eligible homeowners and tenants at NO COST. The work performed includes door weather-stripping, attic and wall insulation, and air sealing. All homes and apartments are inspected before and after the work is completed by trained Program Energy Inspectors. All of the Weatherization Program contractors are licensed and fully insured, and have at least 10 years of experience.

WE CAN SPEND AS MUCH AS $4,500 IN WEATHERIZATION IMPROVEMENTS.

Homeowners who have their homes weatherized can realize a fuel savings of 20% or more per year. For homeowners that also received ABCD Fuel Assistance, the energy savings will be greatly increased. When the Weatherization work is completed, the building itself is upgraded. An upgraded energy-efficient home/apartment offers increased comfort and improved quality of living.

In order to receive the benefits of the Weatherization Program, WE MUST HAVE THE ENCLOSED APPLICATION FORM SIGNED BY YOU. Please complete the APPLICATION FORM, and return it to:

ABCD Weatherization Program
Attn: Diane Ruzik, 4th flr
178 Tremont Street, Boston, MA 02111

If you have any questions, please:

Call me at 348-6436
Voice Mail at 348-6419, or call 357-6012 and ask for Diane.

Sincerely,

Diane Ruzik
ABCD Weatherization Program

/vln

Enclosure: Weatherization Agreement (Conservation Work Permit)

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Action for Boston Community Development Inc.
178 TREMONT STREET, BOSTON, MASSACHUSETTS 02111-1093
TELEPHONE: (617) 357-6000 TTY: (617) 423-9215 FAX: (617) 357-6041

AGREEMENT FORM FOR WEATHERIZATION

ABCD CONSERVATION PROGRAMS WORK PERMIT

*Fuel Application #*_____

I, _____ *(authorized agent) for the property,*
(Print Name)

which is located at:

_____

hereby authorize ABCD and its subcontractors to perform the following work/inspections on the above named property, consistent with all applicable Federal, State and local regulations. (Check ALL that apply.)

- ☐ *Perform inspections and diagnostic testing within the dwelling unit.*
- ☐ *Perform cleaning, tuning and repairs to the heating system.*
- ☐ *Install replacement-- system/burner/oil tank, including removal of old parts.*
- ☐ *Perform asbestos abatement consistent with all applicable Federal, State and local regulations concerning handling, removal and disposition.*
- ☐ *Weatherization of the dwelling unit-- insulation of attic and walls, weather-stripping and air sealing.*
- ☐ *And such other particulars as may be attached to this agreement.*

*Signed*_____ *Date*_____

*Telephone: Home*_____ *Other Tel.*_____

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AGREEMENT FORM FOR WEATHERIZATION

TRI CAP
ENERGY PROGRAMS

TRI-CITY COMMUNITY ACTION PROGRAM, INC.
110 Pleasant Street, Malden, MA 02148

FUEL ASSISTANCE
781-322-6284
ENERGY CONSERVATION
Weatherization/Heating Systems
781-322-4190

Dear Mr

Per your request, enclosed for you and your landlord to sign is the agreement that Tri-CAP requires prior to Weatherization work being performed. Once signed, and returned to this office, the agreement allows Tri-CAP to perform an energy audit at your home or apartment.

This audit will be used to identify what can be done to lower your heating costs and improve your level of comfort. Weatherization work *may* include; insulating of the exterior walls of the home or apartment, attic insulation and ventilation, weather-stripping, repairs to windows and doors, air sealing and insulation of heating pipes or ducts.

There is no charge for this work to be performed. However, in the signing of the agreement your landlord and/or homeowner agrees' to the following;

1. Not to raise your rent due to the weatherization work.
2. Not to raise your rent until one year from the date the work is completed.
3. Not to evict you except for failure to pay rent or other "good cause".

If you have any questions regarding this agreement please call 1-781-322-4190. If not, please sign the agreement, along with the landlord/homeowner, and return to Tri-CAP at the above listed address.

TENANT: Please retain this sheet for your records.

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TRI CAP
ENERGY PROGRAMS

TRI-CITY COMMUNITY ACTION PROGRAM, INC.
110 Pleasant Street, Malden, MA 02148

FUEL ASSISTANCE
781-322-6284
ENERGY CONSERVATION
Weatherization/Heating Systems
781-322-4190

DT: 12/10/08

RE: 808 Broadway #2
Everett, Ma 02149

Dear [redacted]

Your tenant, listed above, is interested in Tri-CAP's Weatherization Program. If your tenant(s) is/are eligible, with your written consent, Tri-CAP can inspect the property. The inspection will be used to determine the most appropriate energy conservation measures for your tenant's apartment or house.

Weatherization measures are installed by fully insured, licensed and professional contractors at no cost to you or your tenant.

Insulation of the exterior walls, as well as the attic area(s), will keep the living spaces warmer in the winter and cooler in the summer. Also, we need to become less dependent upon foreign oil and energy conservation is *the* way to accomplish this.

In return for this work Tri-CAP requires that you agree to the following terms:

1. To not raise the rent(s) because of the work that Tri-CAP performs for a period of one (1) year from the date of the completed work.

2. To not evict the tenant(s) during the agreement period except for "good cause" related to the tenant's failure to pay rent or other serious or repeated violations of the terms of tenancy.

If you have any questions, or concerns, feel free to call our Energy Conservation office at 781-322-4190.

Landlord/Homeowner: Please retain this sheet for your records.

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TRI-CAP
TENANT / PROPERTY OWNER
WEATHERIZATION AGREEMENT

1. The parties to this agreement are the following:

[redacted] (Hereafter: **Tenant**)

[redacted] (Hereafter: **Property Owner**)

Tri-City Community Action Program (Tri-CAP) (Hereafter: **Agency**)

In consideration of the mutual promises hereafter stated, the Parties agree as follows:

2. The date of Tri-CAP's signature will be the effective date of this agreement.

3. The **Property Owner** and **Tenant** consent and agree that the **Agency** may do the following with respect to the property located at [redacted] unit# ___ _____and currently leased, or rented, to the **Tenant**:

A. Enter the premises for the purpose of performing a **Weatherization** inspection.

B. Enter the premises to perform **Weatherization** work which Tri-CAP determines, with Its' discretion, is necessary and appropriate as a result of Tri-Cap's inspection of the property and in accordance with the appropriate priority list for the type of dwelling (see Attachment A). Tri-CAP and its' Contractors may also enter appropriate common areas of the dwelling for the purposes of accomplishing the **Weatherization** work. Tri-CAP and the representatives of the Commonwealth of Massachusetts, Department of Housing and Community Development may further enter the property to inspect and, and all, work hereunder. Tri-CAP will provide reasonable notice of the timing of the **Weatherization** work and inspections.

The **Weatherization** work will be performed in accordance with the **Property Owner's** consent as further specified below.

(Property Owner: Please Initial One of the Following)

_____ I consent to performance by Tri-CAP and its' contractors of any **Weatherization** work determined necessary and appropriate by Tri-CAP as a result of its' inspection of the property. I understand that the agency will provide a detailed statement of the actual work performed and the associated value at the completion of the work.

or

_____ I will provide a separate consent to performance by Tri-CAP and its' contractors of weatherized work following my receipt of the agency's inspection report and a statement of the estimated work and associated value. The additional consent will be attached to the agreement as Attachment B. I understand that Tri-CAP will provide a detailed statement of the actual work performed and the associated value at the completion of the work.

4. The **Property Owner** understands, and agrees, that any, and all, work including related repairs for which the property may also be eligible, will be performed at the **Agency's** discretion. **Tri-CAP** estimates completion of the Weatherization work by the end of 05/09

5. If the **Property Owner** is required to make repairs to the property prior to the commencement of the **Weatherization** work by the **Agency**, the **Property Owner** agrees to complete the repairs by N/A. Except, where the **Property Owner** receives a written extension from Tri-CAP.

6. The **Property Owner** and **Tenant** authorize Tri-CAP to receive a statement from the fuel/utility supplier as to the quantities of fuel/utilities at the above address. This statement may cover the previous three (3) years' usage as well as the future three (3) years' usage. The information provided by the fuel/utility supplier will only be used to determine the cost effectiveness of Weatherization measures.

7. The **Property Owner** agrees that the rent for the dwelling will not be raised because of any increase in dwelling's value due solely to the **Weatherization** work performed.

8. In consideration of the **Weatherization** work hereunder, the **Property Owner** further agrees that upon the effective date of this **Agreement** and during a period extending through 05/10 .
   (If Highlighted: Please fill in Total Rent)

   A. The present rent of $_____per month will not be raised without "good cause" (See B.).

      However, this paragraph (A) may be waived by the **Agency** in writing if, and only if, the premises are leased under a state or federal rent subsidy program. In this case the actual rent charged by the **Property Owner** shall conform to the standards of the rent subsidy program.

   B. The **Property Owner** will not institute any summary process action for possession except in case of non-payment of rent or other "good cause" related to the tenant (Or any successor tenant).

   C. In the event that the **Property Owner** decides to sell the premises, the **Property Owner** shall comply with **one** of the two requirements below;

      The **Property Owner** shall not sell the premises unless the buyer agrees (with a copy sent to Tri-CAP) in writing prior to the sale to assume all obligations of the **Property Owner** set out in this **Agreement**
      -OR-
      The **Property Owner** shall pay Tri-CAP an amount equal to the cost, as certified by the **Agency**, of the **Weatherization** materials installed and labor performed on the premises as of sale date. Said amount shall be paid to the **Agency** immediately upon the sale.

9. **Applicable only if the Tenant's Heat is included in the Rent and the blanks are filled in:**

   At the end of the period set forth in Paragraph 8 above, the rent shall not be raised more than xxxxx% per year for an additional period of xxxxxx years. The provision of 8B and 8C above shall continue in effect for the specified period. However, the rent provisions of this Paragraph 9 may be waived by the **Agency** in writing if, and only if, the premises are leased under a state or federal rent subsidy program. The actual rent charged by the **Property Owner** shall conform to the standards of the rent subsidy program.

10. The **Parties** agree that the terms of this **Agreement** are incorporated into any other lease or agreement between the **Property Owner** and **Tenant,** and between the **Property Owner** and any successor tenant. If there is any conflict between the provisions of this **Agreement** and the provisions of any other such lease agreement, this **Agreement** shall govern. However, if such other lease, or agreement, including without limitation a lease or agreement under a state or federal rent subsidy program, contains stronger protection for the **Tenant,** the stronger protections shall apply.

11. For any breach of this **Agreement** by the **Property Owner,** the **Property Owner** shall reimburse Tri-CAP in an amount equal to the cost, as certified by the **Agency**, of the **Weatherization** materials installed and the cost of labor for such work. Also, the **Property Owner** shall reimburse the **Tenant** for attorney's fees and court costs. Without limiting the foregoing, the **Agency** may, at its' option, terminate this **Agreement** by providing written notice to the **Property Owner** and **Tenant** in the event of a breach by the **Property Owner** or **Tenant.**

12. Performance of the **Weatherization** work hereunder by the **Agency** is contingent upon the availability of funds to the **Agency** from the Commonwealth of Massachusetts and the Federal Government as well as the eligibility of the **Tenant** under **Weatherization** program requirements. The **Agency** may terminate this **Agreement** by providing written notice to the **Property Owner** and **Tenant** if the **Agency** determines the unavailability of funds or incligibility of the **Tenant.**

13. The **Parties** acknowledge that this **Agreement** is under seal. It is intended by the **Parties** that the **Tenant,** or any successor **Tenant,** is the intended beneficiary of this **Agreement** and shall have the **Right of Enforcement.**

Tenant: Signature	**Date**
Property Owner: Signature	**Date**
Property Owner Address	(_____)_____ **Prop. Owner: Telephone Number**
Property Owner: City / State / Zip	
Tri-CAP Energy Director	**Date**
Tri-CAP Executive Director	**Date**

PLEASE SUBMIT A COPY OF YOUR ELECTRIC BILL WITH THIS AGREEMENT

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October 2011

2011 Power Smart Plan

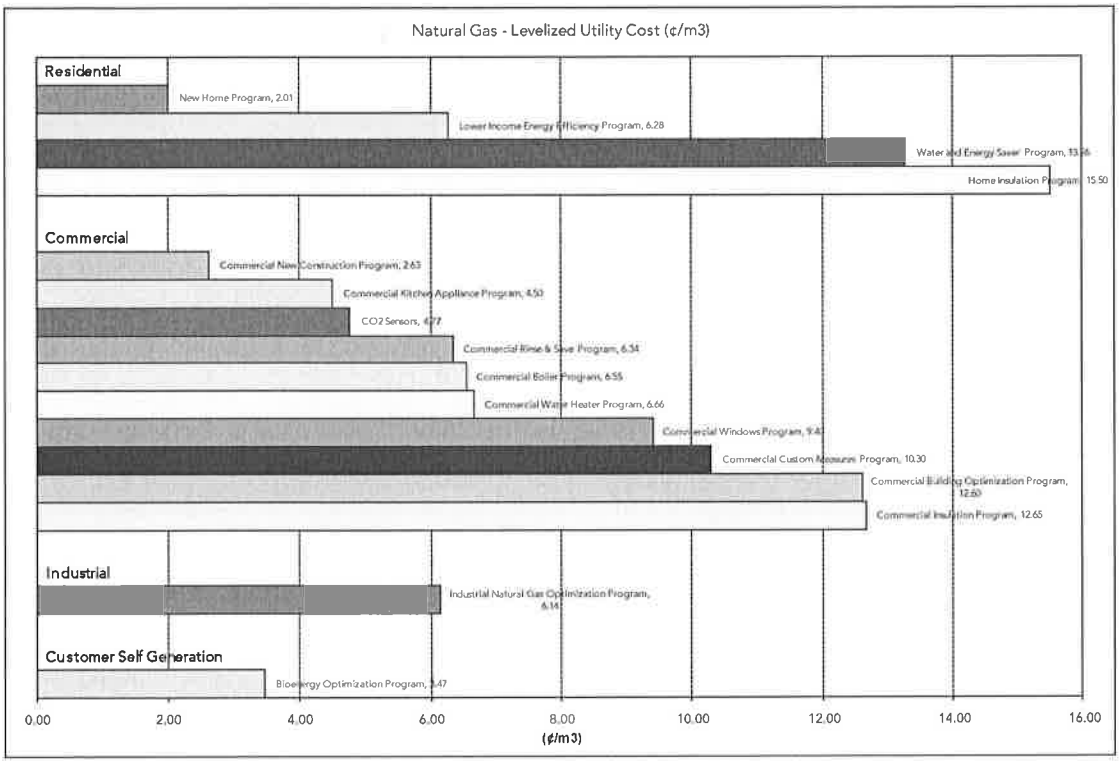
Power Smart Planning, Evaluation & Research Department
Customer Care & Marketing Business Unit

Manitoba Hydro
POWER SMART

*Manitoba Hydro is a licensee of the Official Mark.

For natural gas, the overall Rate Impact Measure (RIM) benefit/cost ratio is 0.7. The overall levelized utility cost for natural gas programs including support and contingency costs is 13.9 cents per cubic meter.

The following chart compares the Levelized Utility Cost of the natural gas program offerings provided in the 2011 Power Smart Plan.



3.3 Natural Gas DSM Cost Effectiveness

The following table outlines the cost effectiveness of the natural gas program offerings provided in the Power Smart Plan.

Power Smart Plan Economic Cost Effectiveness Ratios and Levelized Costs
2011/12 - 2038/39

	RIM	LUC (¢/m^3)	Customer Payback (years)
Residential			
New Home Program	0.9	2.0	24.2 * c
Home Insulation Program	0.6	15.5	4.1 *
Water and Energy Saver Program	0.7	13.3	n/a ^
Lower Income Energy Efficiency Program **	0.8	6.3	8.8
Residential Programs Total	0.7	10.8	3.8
Commercial			
Commercial Custom Measures Program	0.8	10.3	6.9
Commercial Windows Program	0.7	9.4	0.5
Commercial Insulation Program	0.7	12.7	1.9
Commercial New Construction Program	0.9	2.6	0.9 c
Commercial Building Optimization Program	0.7	12.6	1.7
Commercial Kitchen Appliance Program	0.8	4.5	2.2 c
Commercial Clothes Washers Program	1.0	0.0	n/a *
Commercial Boiler Program	0.8	6.5	1.1 * c
Commercial Water Heater Program	0.8	6.7	4.4 * c
CO2 Sensors	0.9	4.8	2.0 *
Commercial Programs Total	0.8	9.5	1.6
Commercial Market Effects			
Commercial Rinse & Save Program	0.8	6.3	n/a ^
Industrial			
Industrial Natural Gas Optimization Program	0.9	6.1	6.2
Energy Efficiency - Subtotal	0.7	9.4	3.0
Customer Self-Generation			
Bioenergy Optimization Program	0.9	3.5	2.1
Overall Portfolio Ratio (including interactive effects)	0.7	13.9	3.0

Notes:
* Program assumptions include Spillover, future Market Transformation and/or Participant Re-investment
** Excludes all Affordable Energy Fund Expenditures / Includes all Furnace Replacement Program expenditures.
Including apportioned AEF, without Furnace Replacement Program LIEEP's RIM is 0.5 and LUC is 35.5 ¢/m3
Including apportioned AEF and Furnace Replacement Program, LIEEP's RIM is 0.4 and LUC is 56.7 ¢/m3
Including only the Furnace Replacement Program, LIEEP's RIM is 0.3 and LUC is 110.5 ¢/m3
c Program assumption includes savings from Codes & Standards
^ Program with nil or negative net customer costs
1) Overall portfolio ratios do not include savings due to Customer Service Initiatives
2) Overall portfolio ratios include support and contingency costs
3) Overall portfolio ratios do not include Affordable Energy Fund Expenditures or Furnace Replacement Program expenditures
4) Customer Payback tests include first year water savings benefits

Economic Effectiveness Ratios

Manitoba Hydro uses a number of cost effective tests to assess energy efficient opportunities, including whether to pursue an opportunity, how aggressively an opportunity will be pursued, effectiveness of program design options and the relative investment from ratepayers and participants. In addition to quantitative assessments, Manitoba Hydro also considers various qualitative factors including equity (i.e. reasonable participation by various ratepayer sectors such as lower income) and overall contribution towards having a balanced energy conservation strategy and plan.

Quantitative assessments include using the following cost effective tests:

- Marginal Resource Cost (MRC) test;
- Total Resource Cost (TRC) test;
- Societal Cost Test (SC) test;
- Rate Impact Cost (RIM) test;
- Levelized Utility Cost (LUC); and
- Simple Customer Payback calculation.

a) Marginal Resource Cost Test

The Marginal Resource Cost (MRC) test is used as a preliminary and high level screen to assess the benefits associated with an energy efficient opportunity. This benefit/cost ratio is a simple assessment to determine whether the benefits that are associated with an energy efficient opportunity are greater than the costs. This assessment is undertaken irrespective of who realizes the benefits and who pays the costs. In addition, the assessment excludes any program administration costs (e.g. program planning, design, marketing, implementation and evaluation).

In general, if an opportunity offers greater benefits relative to costs, then a program for pursuing the opportunity should be considered, however Manitoba Hydro will also consider supporting certain programs where the benefits are less than the costs. In the latter case, the rationale driving the support will be driven by other qualitative factors such as supporting emerging technologies (e.g. solar panels). The Marginal Resource Cost test is defined as follows:

$$\text{MRC} = \frac{\text{PV (Marginal Benefits)}}{\text{PV (Incremental Product Costs)}}$$

Where:

- For electricity, the Marginal Benefits includes the revenue realized by Manitoba Hydro from conserved electricity being sold in the export market, the avoided cost of new infrastructure (e.g. electric transmission facilities) and measurable non-energy benefits (e.g. water savings);
- For natural gas, the Marginal Benefits includes Manitoba Hydro's avoided cost of purchasing natural gas, avoided transportation costs, the value of reduced greenhouse gas emissions (GHGs) and measurable non-energy benefits (e.g. water savings);
- Incremental Product Costs includes the total incremental cost associated with implementing an energy efficient opportunity. It is the difference in costs between the energy efficient technology and the standard technology that would have been installed in the absence of the program.

b) Total Resource Cost Test

The Total Resource Cost (TRC) test is a detailed assessment to determine whether the benefits that are associated with an energy efficiency program are greater than the costs. This assessment is undertaken irrespective of who realizes the benefits and who pays the costs with any economic transfers between the Corporation and the participating customer being excluded.

In general, if program offers greater benefits relative to costs, then a program for pursuing the opportunity should be considered, however Manitoba Hydro will also consider supporting certain programs where the benefits are less than the costs. In the latter case, the rationale driving the support will be driven by other qualitative factors such as supporting emerging technologies (e.g. solar panels) or targeting low participation market sectors (e.g. lower income). The Total Resource Cost test is defined as follows:

$$TRC = \frac{\text{PV (Marginal Benefits)}}{\text{PV (Total Program Admin Costs + Incremental Product Costs)}}$$

Where:

- For electricity, the Marginal Benefits includes the revenue realized by Manitoba Hydro from conserved electricity being sold in the export market, the avoided cost of new infrastructure (e.g. electric transmission facilities) and measurable non-energy benefits (e.g. water savings);
- For natural gas, the Marginal Benefits includes Manitoba Hydro's avoided cost of purchasing natural gas, avoided transportation costs, the value of reduced greenhouse gas emissions (GHGs) and measurable non-energy benefits (e.g. water savings);
- Total Program Admin Costs includes the administrative costs involved in program planning, design, marketing, implementation and evaluation. It includes all costs associated with offering the Power Smart program, except for customer incentive costs;
- Incremental Product Costs includes the total incremental cost associated with implementing an energy efficient opportunity. It is the difference in costs between the energy efficient technology and the standard technology that would have been installed in the absence of the program.

c) Societal Cost Test

The Societal Cost Test (SC) measures the net economic benefit as measured by the TRC, plus additional indirect benefits such as:

- Avoided environmental or societal externalities (e.g. reduced health care costs, increase productivity, employment) and
- "Non-priced" benefits enjoyed by participants (improved comfort, improved heath)

$$SC = \text{TRC + Additional Indirect Benefits}$$

d) Rate Impact Measure Test

The Rate Impact Measure (RIM) test is used to provide an indication of the long term impact of an energy efficient program on energy rates. The test is a benefit/cost ratio that represents the economic impact of a program from the ratepayer's perspective. All program related savings and costs incurred by the utility, including revenue loss and incentive payments, are taken into account in this assessment. The Rate Impact Measure test is defined as follows:

$$RIM = \frac{\text{PV (Utility Marginal Benefits)}}{\text{PV (Revenue Loss + Utility Program Admin Costs + Incentives)}}$$

Where:

- For electricity, the Utility Marginal Benefits includes the revenue realized by Manitoba Hydro from conserved electricity being sold in the export market and the avoided cost of new infrastructure (e.g. electric transmission facilities);
- For natural gas, the Utility Marginal Benefits includes Manitoba Hydro's avoided cost of purchasing natural gas, avoided transportation costs and the value of reduced greenhouse gas emissions (GHGs);
- Revenue Loss includes Manitoba Hydro's lost revenue associated with the participants' reduced energy consumption (i.e. customer energy bill reductions);
- Utility Program Admin Costs includes administrative costs incurred by Manitoba Hydro for staff involved in program planning, design, marketing, implementation and evaluation. It includes all costs associated with offering the Power Smart program, except for customer incentive costs;
- Incentives include the funds transferred from Manitoba Hydro to the participant associated with implementing the Power Smart measure.

e) Levelized Utility Cost

The Levelized Utility Cost (LUC) is used to provide an economic cost value for the energy saved through an energy efficiency program. The LUC provides the total cost of the conserved energy on a per unit basis levelized over a fixed time period. The cost value allows for a comparison to other supply options and other DSM programs occurring over different timeframes. The Levelized Utility Cost is defined as follows:

$$LUC = \frac{\text{PV (Utility Program Admin Costs + Incentives)}}{\text{PV (Energy)}}$$

Where:

- Utility Program Admin Costs includes administrative costs incurred by Manitoba Hydro for staff involved in program planning, design, marketing, implementation and evaluation. It includes all costs associated with offering the Power Smart program, except for customer incentive costs;
- Incentives includes the funds transferred from Manitoba Hydro to the participant associated with implementing the Power Smart measure;
- Energy includes the annual energy savings.

f) Customer Payback Calculation

The Customer Payback calculation provides the simple payback of implementing an energy efficient opportunity for customers. This value outlines the amount of time required before the customer recovers the incremental product cost. The value is useful in determining customer participation rates for energy efficient opportunities. The Customer Payback is defined as follows:

$$\text{Customer Payback} = \frac{\text{Participant Costs - Incentives}}{\text{Annual Bill Reductions}}$$

Where:

- Participant Costs includes the participant's total incremental cost associated with implementing the energy efficient opportunity, which is the difference in costs between the energy efficient technology and the standard technology that would have been installed in the absence of the program.
- Incentives includes funds provided by Manitoba Hydro and external parties to the participant associated with implementing the energy efficient opportunity;
- Annual Bill Reductions include the dollar reductions in the customer's electricity, natural gas, and water bills.