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February 5, 2015

VIA COURIER AND RESS

Ms. Kirsten Walli
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 26th Floor
Toronto, ON M4P 1E4

Re: Enbridge Gas Distribution Inc. ("Enbridge")
EB-2014-0277 – 2013 Demand Side Management ("DSM") Clearance of Variance Accounts Application - Reply Submission - Redacted

In accordance with the Ontario Energy Board's ("Board") Procedural Order No. 2, dated January 8, 2015, please find attached the reply submission of Enbridge for the above noted proceeding.

Please note a confidential version of the reply submission is being filed with the Board under separate cover.

If you require further information, please contact the undersigned.

Yours truly,

(Original Signed)

Stephanie Allman
Regulatory Coordinator

Enclosure

cc: Mr. D. O'Leary, Aird & Berlis LLP (via courier)

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998,* S.O. 1998, c. 15, Schedule. B, as amended;

AND IN THE MATTER OF an application by Enbridge Gas Distribution Inc. for an order or orders approving the balances and the clearance of certain Demand Side Management Variance Accounts into rates, within the next available QRAM following the Board's approval.

REPLY OF ENBRIDGE GAS DISTRIBUTION INC. TO THE SUBMISSIONS OF BOARD STAFF AND ENERGY PROBE

REDACTED VERSION

Application for Clearance of the 2013 Demand Side Management Variance Accounts

INTRODUCTION

This is the reply submission of Enbridge Gas Distribution Inc. ("Enbridge" or the "Company") to the submissions of Board Staff and Energy Probe, both dated January 22, 2015.

In this Application Enbridge seeks approval from the Board of the final balances in the 2013 Demand Side Management ("DSM") Deferral and Variance Accounts. The Company is also seeking approval for the disposition of the balances in these accounts and inclusion into rates at the next available QRAM following receipt of the Board's approval. The accounts which are the subject of this Application and the balances recorded are as follows:

DSM Incentive Deferral Account ("DSMIDA")	$4,538,188 (to shareholder)
Lost Revenue Adjustment Mechanism Variance Account	($50,317) (to ratepayers)
DSMVA Amount	($3,601,806) (to ratepayers)

The net impact of the three 2013 DSM accounts is $886,065, recoverable in rates.

Enbridge filed its Application and supporting evidence on October 1, 2014. The Application consisted of 517 pages which included the 2013 DSM Final Annual Report prepared by Enbridge, the Final Report of the Independent Auditor, Optimal Energy Inc. ("Optimal"), dated June 24, 2014, and two reports prepared by the Custom Project Savings Verification ("CPSV") contractors, MMM Group Ltd. ("MMM") and Genivar Inc. ("Genivar"). The Application and supporting evidence confirmed that the DSM programs operated in 2013 were delivered, evaluated and verified pursuant to the *DSM Guidelines for Natural Gas Utilities*, issued by the Board on June 20, 2011 ("Guidelines"). Importantly, this included an extensive degree of stakeholder

consultation, participation and oversight as noted in the Audit Summary Report which was also filed in evidence.[1]

Board Staff in its submission make a number of specific "observations" and comments which Board Staff argue support the Board considering two options consisting of: 1) a 20% reduction in the gas savings claimed from the commercial and industrial Custom Projects; or 2) the appointment by the Board of its own independent auditor to undertake an analysis and evaluation of the DSM claims in respect of custom DSM Programs for 2013 "consistent with the approach the Board plans to take under the new DSM framework for the period 2015-2020".

Energy Probe, while expressly confirming its agreement and acceptance of the results of the audit of Enbridge's 2013 DSM results, raised some issues which are more appropriate for the 2015-2020 Multi-Year Plan filing.

Enbridge first turns to the submissions of Board Staff.

REPLY TO BOARD STAFF SUBMISSIONS

For the important and compelling reasons set out below, Enbridge submits that the material observations and comments made by Board Staff are in error and/or are not supported in evidence. As a result, neither of the two options proposed by Board Staff should be accepted by the Board. Before turning specifically to Board Staff's submissions, it is first appropriate to note the context in which this Application should be considered and identify the process issues which have arisen.

Context - 2013 DSM was governed by the Guidelines

Before turning to the specifics of Enbridge's reply, it is appropriate to put Enbridge's 2013 DSM program operations into context. 2013 was the second year of the 2012 – 2014 Multi-year Plan which was approved by the Board in EB-2011-0295, and which was updated for 2013 by the Board's Decision dated July 4, 2013, in EB-2012-0394. The methodologies and processes used by the Company to determine the amounts

[1] Ex.B/T3/S1

recorded in each of the 2013 DSM accounts were the subject of the Guidelines and the multi-year plan as updated. It is important to recognize that Enbridge's 2013 DSM program offerings and the evaluation and verification of its 2013 DSM program results were all completed and finalized long before the Board issued its *Report of the Board: Demand Side Management Framework for Natural Gas Distributors (2015-2020)* and *Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020)* (together the "Framework"), dated December 22, 2014 in EB-2014-0134.

Enbridge finds it surprising that Board Staff would suggest as one option a process that may be contemplated under the new Framework and some of its comments appear rooted in concepts first raised in the Framework. Enbridge submits that Board Staff appear to be advocating an approach to the evaluation and verification of Enbridge's 2013 DSM results using the new Framework rather than the Guidelines which clearly created a role for stakeholder involvement in the review of DSM results and, where appropriate, acceptance of the audited results.

While Enbridge acknowledges that the Framework contemplates an expanded role for the Board and Board Staff in a number of material areas which will have an impact on how DSM plans are developed, operated, evaluated and verified during the 2015-2020 period, the Framework was not even available in draft when Enbridge developed and commenced its 2013 DSM activities. Regardless, the Framework was never intended to apply to the prior multi-year plan period. Enbridge submits that it is therefore inappropriate to use the Framework as a guide to determine the appropriateness of the evaluation and verification processes undertaken in respect of the DSM activities undertaken in 2013, in accordance with the updated Multi-year Plan.

One of the important differences between the Guidelines and the Framework are the important roles and functions stakeholders play and have under the Guidelines. It will be recalled that the Board approved, in EB-2011-0295, the creation of a joint natural gas utility Technical Evaluation Committee ("TEC") and the Terms of Reference ("ToR")

which explicitly set out the purpose, principles and objectives of stakeholder engagement. Specifically, the ToR states, at page 4:

> "i. Purpose of the Stakeholder Engagement Process
>
> Stakeholder engagement in Natural Gas Demand Side Management ("DSM") addresses needs of the intervenors that represent ratepayer and environmental groups, the utilities, their customers, and the Ontario Energy Board (the Board). For ratepayer and environmental groups, stakeholder engagement provides insights into the activities of the natural gas utilities and an opportunity to provide input and participate in the direction of certain of those activities. This instills confidence in the audit and evaluation processes, including the accuracy of reporting and the calculation of the DSM Variance Account (DSMVA), Lost Revenue Adjustment Mechanism (LRAM), and utility incentives. It also provides confidence that program results are calculated using sound assumptions based on best available information. For the utilities and their customers, as well as stakeholders, the collateral benefits of stakeholder engagement include the development and enhancement of utility DSM programs. For the Board and utilities, stakeholder engagement results in reduced regulatory burden and reassurance that the utilities continue to deliver successful and cost effective DSM programs."

The ToR, at page 5, indicates all of the stakeholders who participated in and agreed to the ToR which were ultimately approved by the Board. These parties, which represent all of the ratepayer, industry and environmental groups that regularly participate in DSM OEB proceedings, agreed to the ToR which established the rules applicable to the striking of the Audit Committees ("AC") for each of the two gas utilities and the joint TEC. The ToR also set out the manner in which the consultants and the independent auditor that evaluate DSM results would be chosen.

In respect of the AC for each utility, the ToR provide, at page 13, that the goal of the AC is to ensure that there is, each year, an effective and thorough audit of the utility's DSM results. The ToR then goes on to set out the manner in which the auditor is selected, expressing preference for consensus. The ToR includes rules in respect of the development of the terms of reference under which an auditor will be engaged. The ToR ensures transparency in the process, including that the auditor will receive

guidance and direction from the AC in respect of, for example, the scope of work, draft work plans, and draft work products.[2]

The ToR also established the TEC, the goal of which is to establish DSM technical and evaluation standards for natural gas utilities.[3] The TEC's objectives included the development and updating of a Technical Reference Manual ("TRM") and, importantly, the terms of reference for the CPSV contractors engaged to review custom programs. It is important to note that the ToR specifically provides that the TEC has accountability to produce and maintain a prioritized annual work list (by consensus)[4] and that primary responsibility for the critical review of evaluation research and input assumptions will rest with the TEC. The benefits identified by this include the streamlining of the DSM audit process.[5]

It is noteworthy that both the AC of each of the two gas utilities and the TEC are selected via a voting process by members of the DSM Consultative. This adds to the legitimacy of the process and the likelihood that the work product generated with the assistance of each of the two ACs and the TEC will be received favourably by the broader DSM stakeholder community. Notable by its absence is any specific role for Board Staff on either one of the two ACs or the TEC. While Board Staff would have been welcome to attend any AC or TEC meeting as an observer, given that it was the objective of the Guidelines and the ToR that each of the natural gas utilities attempt to achieve a consensus on issues with stakeholder groups, there did not appear to be a pressing need for an active role by Board Staff identified by any stakeholder or Board Staff itself. Consistent with this, the fact is that Board Staff did not attend joint TEC meetings in 2013, nor any of the Enbridge 2013 AC meetings.

This means that Board Staff were not present for the discussions which took place at the numerous meetings of the TEC and the Enbridge AC which dealt with many of the issues raised by Board Staff in its submission. For example, it appears that Board Staff

[2] ToR, p. 15
[3] ToR, p. 9
[4] ToR, p. 9
[5] ToR, p. 6

are not aware of the fact that Enbridge and the auditor, Optimal, with the support of the AC, specifically brought to the attention of the two CPSV contractors MMM and Genivar the submissions made by School Energy Coalition ("SEC") in respect of Enbridge's 2012 DSM clearance application and the Board's Decision in that proceeding. The CPSV contractors and the auditor were specifically tasked with ensuring that the concerns expressed by SEC were identified as issues for the purposes of their program reviews and audit. Indeed, as noted by the independent auditor, Optimal, in its report,[6] at page 6:

> "Optimal and the AC also considered the discussions regarding baseline and measure life issues that were included in Enbridge's Year 2012 Clearance of Accounts process. (EB-2013-0352)"[7]

Optimal specifically stated at page 14[8] of its report that as part of its review it considered the comments and conclusions included in SEC's submission, Enbridge's reply, and the OEB's Decision of May 1, 2014. As noted in the Audit Summary Report, at page 7, "Arguments and decisions filed through EB-2013-0352 [i.e., the Enbridge 2012 DSM clearance application] were shared with the auditor and AC and considered throughout the 2013 audit".

The fact is that Enbridge and its AC required that the CPSV contractors and Optimal be aware of the concerns and issues raised in the 2012 clearance proceeding and that these issues be addressed. The issues raised in the 2012 DSM clearance proceeding were discussed and addressed through the review of the draft CPSV contractors reports and the discussions between the Enbridge AC, the Auditor and the CPSV contractors.

In the end, the objective of the Guidelines was met in that the members of the 2013 Enbridge AC accepted the audited results of Enbridge's 2013 DSM activities. As well,

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[6] Ex.B/T2/S1, *Independent Audit of Enbridge Gas Distribution 2013 DSM Program Results, Final Report*, June 24, 2014 ("Optimal Report")
[7] Indeed, at page 13 of the Optimal Report, it notes that Optimal was provided with the OEB's Decision and Order dated May 1, 2014 in EB-2013-0352, the Non-confidential Redacted Final Argument of SEC, dated March 19, 2014, and Enbridge's Reply Submission dated April 2, 2014.
[8] Optimal Report, Ex.B/T2/S1, p.17

each of the DSM stakeholders has either agreed and accepted the audited results or has indicated that they are not opposed to the clearance application.

Stated differently, consistent with the purpose of the ToR, the stakeholder engagement process was sufficiently robust in that it has resulted in the filing of an application which is supported by or is not opposed by any ratepayer or other stakeholder group. This level of stakeholder involvement and support should provide confidence to the Board in the audited results and should have led to a reduction in the regulatory burden.

This application should also be seen in the context of relevant provisions in the Guidelines. At subsection 15.1 "Evaluation Plan", the Guidelines provide:

> "It is recognized that the level of effort required for monitoring and EM&V will change from year to year depending on the nature of the DSM programs undertaken and as a result of the flexibility of the DSM framework. It is also expected that more extensive review will be undertaken for those programs that account for the majority of expenditures and savings. The natural gas utilities, as informed through their stakeholder engagement process, are responsible for proposing the appropriate monitoring and EM&V requirements. The stakeholder engagement process should set out what the formal channel will be for the gas utilities' stakeholders, or a subcommittee thereof, to engage in the development of an evaluation plan and budget, and to review the evaluation results as they become available over the term of the plan."

Consistent with the above, the gas utilities and the DSM Consultative members created the joint TEC, and in consensus with the stakeholders serving on the TEC, evaluation priorities were agreed upon and set. While these are identified more specifically later in this reply submission, Enbridge submits that it is most unfair for it to be, in effect, criticized for not undertaking certain evaluations or studies when Enbridge has followed the requirements of the Guidelines, received the input of stakeholders, and reached a consensus in terms of those evaluation studies which should be given priority, given available resources at the beginning of the year. It must be recalled that there is a limit to the funds available to undertake studies, and that studies should be prioritized to those cases where parties have the greatest concern about either the validity of existing inputs and assumptions and/or there is a belief that a study will generate results which will be meaningful and material in future.

Hearing Process Concerns

Having complied with the intent and purpose of stakeholder engagement as required by the Guidelines, Enbridge was surprised to see for the first time in its argument the assertions made by Board Staff. Enbridge submits that as a matter of proper procedure and fairness that if a party intends to assert that an applicant has failed to take a prescribed step or undertake necessary investigations, it is most unfair that such assertions or "observations and comments" be first made in argument without affording the applicant's witnesses an opportunity to respond orally or in writing to the assertions during the evidentiary portion of the proceeding.

For example, it is procedurally unfair to suggest in final argument that certain major issues raised by a party in an earlier proceeding remain without asking an applicant in an interrogatory what specific steps were undertaken to respond to and address the earlier identified issues particularly where the Guidelines provide for a review process that involves key stakeholders and the retention and use of independent third party contractors and an auditor. To leave until final argument the suggestion that there has been no or inappropriate consideration of certain factors by the applicant, the independent contractors and the Auditor, all of whom were retained with the knowledge, participation and agreement of key stakeholders, denies the applicant the appropriate opportunity to respond to such assertions. Such a process is inconsistent with the fundamentals of procedural fairness and can draw into question the decisions and orders that result from such processes.

This is not to say that every hearing must be held orally, but at a minimum, a party that intends to assert in argument that an applicant failed to do something of importance, should ask an appropriate interrogatory so that an applicant can fully and fairly respond. The Board would then be left in the position of weighing the assertion made against the evidence of the applicant that directly responds to the assertion. To allow evidentiary assertions to only be made in final argument means that the Board will not have the benefit of a response and may, therefore, find itself in the unwelcome position of making a decision without a complete record.

In this proceeding, some of the interrogatories asked of Enbridge did not give any indication of the positions that would be taken and in particular, many of the observations and conclusions made by Board Staff in respect of certain free ridership rates, the base cases used, the effective useful life of equipment, and the persistence of savings in respect of several specific programs. If Board Staff had concerns about whether the CPSV contractors, and/or the Auditor made sufficient or appropriate inquiries to verify the appropriateness of the inputs and assumptions used for the purposes of measuring the 2013 DSM results were reasonable, Enbridge submits that it would have been appropriate to put the specific concerns to it by means of interrogatories. This largely did not occur. Thus this Reply must, to a large degree, substitute for the interrogatory responses that would have been provided had appropriate questions been put forth in the first instance.

Board Staff, beginning at page 2 of its submission, make some general observations. Enbridge responds to each under the same headings and in the same order of appearance as that used by Board Staff in its submission.

Free Ridership

Board Staff correctly note that Section 7.1 of the Guidelines provides that "free ridership should be assessed for reasonableness prior to the implementation of the multi-year plan and annually thereafter, as part of each natural gas utility's ongoing program evaluation and audit process."[9] To appropriately appreciate this requirement, it should be recalled that input assumptions which are approved by the Board are, in the case of free rider rates, approved on a market sector (i.e. aggregate) basis not on a project by project basis. Free ridership rates were assessed for reasonableness prior to implementation of the 2012 – 2014 multi-year plan and have been reviewed for reasonableness in each year as part of the utility/stakeholder program evaluation and audit process. The fact that another formal free rider study was not completed for the purposes of the 2013 DSM results does not mean that the review for reasonableness did not occur.

[9] Guidelines, p. 22 (emphasis added)

Best practices for the evaluation of DSM results in North America do not require an annual formal study of free rider rates. A review for reasonableness can be undertaken annually without undertaking a formal study by considering whether the free rider rate in use is consistent with similar programs in other jurisdictions and in the absence of facts which would clearly call the free rider rate into question. Free rider rates are reviewed for reasonableness in a number of ways. The Company's DSM staff on an ongoing basis consider the reasonableness of free rider rates. Free rider rates are also considered at both the TEC and Enbridge AC levels. When free rider rates are raised at a meeting of the Enbridge AC, Enbridge and/or the independent auditor will respond to questions with relevant information and documentation. In some instances, the AC will refer a free rider rate to the TEC for further study. Where a free rider rate has been the subject of discussion and acceptance by the TEC, the AC may defer to the decision reached by the TEC. An example of this is the free rider rate in respect of the residential Community Energy Retrofit ("CER") program. This was the subject of consideration by the TEC, which ultimately determined that a 15% free rider rate was reasonable.

It appears that Board Staff has interpreted the requirement in the Guidelines that free ridership rates be assessed for "reasonableness" as requiring no less than the utilities engaging third party entities to annually undertake formal free ridership studies and that the existing rate should change. Such an interpretation is inconsistent with what has historically occurred. It is also important to note that no stakeholder has promoted such an interpretation. Indeed, if such an interpretation is to be the future standard, it will be necessary to substantially increase Enbridge's evaluation and verification budget in comparison to prior years.

Enbridge submits that the record in this Application demonstrates that it has met the required standard of review for reasonableness. This is confirmed by the independent auditor Optimal which states in its audit report that it reviewed measures that represented the largest fraction of total savings and confirmed that the deemed savings values were based on OEB-approved free rider rates and reviewed these savings

values in respect of high volume measures for the purposes of any forward going recommendations regarding updating these values or possible studies. In the end, Optimal concluded that the savings values for these measures were reasonable and appropriate and did not recommend revising the values.[10]

With specific reference to the Run-it-Right ("RiR") Program, Optimal notes at page 21 of its report that:

> "Enbridge was also instructed by the AC to propose a free rider rate. Optimal reviewed retro-commissioning free rider rates in other jurisdictions to develop a recommended free rider rate for the Run-it-Right program."

While more will be stated in this response specific to Board Staff's comments in respect of the RiR program, it is clear that there was an assessment for reasonableness as required by the Guidelines of free rider rates.

The members of the TEC and the Company specifically considered the need for a more formal evaluation of free rider rates. In March 2014, a jurisdictional scan for commercial and industrial sectors was completed by Navigant which indicated that Enbridge's current net to gross ("NTG") values remained within the range of researched values. This supported the conclusion that the current free rider rates remained reasonable. However, consistent with the objectives of the Guidelines, it was decided that a formal NTG study should be undertaken. This study was to include a review of relevant free rider and spillover rates.

Preliminary steps in respect of this study included the utilities and the TEC considering prospective consultants that would undertake the study. Indeed, a draft tri-party contract was generated for execution by the preferred contractor and several questions were put to the contractor by the TEC about the appropriate parameters of the study. The study was put on hold starting July 2014 as the TEC could not reach agreement about a particular aspect of the study. Given this and concerns about the role of the TEC under the new Framework and a lack of certainty about what would be required

[10] Optimal Report, p. 15

under the new Framework, the TEC agreed that the NTG study should be postponed and currently remains on hold.

An important point which must be identified is the fact that the Company does not intentionally pursue known free riders. In many cases, it is clear from a customer's lack of knowledge of existing energy efficiency measures and a lack of focus on such matters that the customer had no reasonable likelihood of undertaking the measures absent the involvement of Enbridge. In some instances the relationship between the Company and the customer in respect of energy efficiency possibilities has lasted for a number of years.

Enbridge fails to understand Board Staff's apparent concern that some of its custom projects generated electricity savings as well as natural gas savings. Total energy bill savings have always been an objective and where a custom project could benefit from also participating in an OPA sponsored program, this would have been recommended to the customer. In the 2011 Guidelines the coordination and integration of natural gas and electricity conservation programs is encouraged in order to maximize overall bill savings for customers. The Guidelines specifically provide at section 17, page 44 that:

> "It is expected that greater coordination and integration of certain electricity and natural gas conservation programs could result in efficiency gains, thereby increasing total natural gas savings achievable at a given budget level."

Enbridge and the auditor are cognizant of the attribution rules in the Guidelines, and there is no suggestion by any stakeholder that there is an issue of this nature in respect of the 2013 DSM results.

Base Case

The issue raised by Board Staff in its submission is that in respect of some custom projects, it does not believe that the base case was defined properly. While more detailed responses are set out below in regard to specific projects, Enbridge submits that this concern is not borne out by the evidence. As noted above, Enbridge and its AC specifically brought to the attention of the CPSV contractors and the auditor the

concerns raised by SEC in respect of its DSM 2012 clearance application. The independent auditor, Optimal, describes the overall methodology for the review of custom projects, beginning at page 12 of its report [Ex.B/T2/S1, p. 16]. Optimal notes that a large share of the overall audit effort was devoted to reviewing Enbridge's custom projects. Optimal's audit of the custom projects involved reviewing CPSV contractor activities and reports. This included Optimal staff attending weekly CPSV contractor meetings. As noted in the Audit Summary Report, the members of the Enbridge AC were afforded the opportunity to review the draft of the CPSV contractors' reports and to attend meetings with the contractors to review the drafts.

Optimal notes that once the final CPSV contractor reports were issued, it took the following steps:

- It reviewed the project-by-project evaluations contained in the CPSV contractors' final reports using a checklist allowing Optimal to systematically ascertain that key project elements had been reported, were well documented and were reasonable and appropriate. This checklist included reviews of baselines and measure lives.
- Optimal examined measure lives, advancement/replacement and other baseline characterization assumptions.
- Optimal recommended appropriate revisions if it determined that OEB-approved or industry-accepted methodologies were not utilized in determining baselines or measure lives used for savings calculations.[11]

These activities were undertaken in a transparent fashion with the involvement of the Enbridge AC. This leads to the conclusion that the Enbridge AC members, the independent CPSV contractors and the auditor all disagree with Board Staff's conclusion that some base cases were not properly defined. This is probably a reflection of the fact that Board Staff were not present when base case questions arose and were addressed by the Enbridge AC, the CPSV contractors, and the auditor. Stated differently, because Board Staff was not present at the meetings where discussions of this nature took place, they are simply not aware of the extent to which

[11] Optimal Report, p. 13, Ex.B/T2/S1, p. 17

the CPSV contractors attempted to verify the base case in respect of the custom projects that were reviewed.

Persistence of Savings

Board Staff refer to the Board's Decision and Order dated May 1, 2014, at page 3 (EB-2013-0352), where the Board indicated that a persistence study would be useful in addressing certain issues. Enbridge notes that the Board's May 1, 2014 Decision and Order was issued a little more than a month before Optimal completed its independent audit of Enbridge's 2013 DSM program results. Given the timing of these events, Enbridge submits that the comments made by the Board in its Decision in EB-2013-0352 about the potential utilization of a persistence study should not be used as a measure to gauge the appropriateness of Enbridge's evaluation and verification activities in respect of 2013.

Enbridge did comply with the requirements of the Guidelines which provide that "*the natural gas utilities should seek guidance through its stakeholder engagement process to determine the extent to which persistence factors should be developed for each program.*" Persistence is a concept which has been discussed during AC/TEC meetings, but the undertaking of a formal persistence study has not been identified as a priority to date by the TEC. Cost, uncertainty about the breadth of a persistence study, and the time period over which the study should be undertaken are all important considerations in prioritizing this work. Consistent with this, the Guidelines specifically state, at page 25, that:

> "There may be a trade-off between greater accuracy and the costs associated with developing persistence factors. For instance, it may be appropriate to carefully develop persistence factors for programs with significant budgets and savings, while other lower budget programs with measures that would not reasonably be uninstalled prior to the end of the useful life could be assumed to have a persistence factor of 100%."[12]

[12] Guidelines, p. 25.

The fact is that much of the savings generated in the commercial sector come from boilers, which by their size and nature and the ongoing need by a customer for heat are difficult to remove.

The Guidelines specifically note that there will be trade-offs. The task of considering and agreeing upon what trade-offs should be made was given by the Guidelines and the ToR to the gas utilities and the TEC. Board Staff are now, in effect, second guessing the determinations made by the utilities and the TEC.

The fact is that persistence studies can be expensive and are therefore not undertaken regularly for individual projects. The high cost is in part the result of the fact that long periods of time are needed for persistence studies, and there are significant challenges to conducting these studies, such as long lifetimes of measures which makes it impractical to wait for measure failures or consistent patterns of degradation. Other concerns include incomplete data sets, high cost of data collection, the inherent subjectivity, and of course, the need for trained staff. Enbridge, in consultation and agreement with the TEC, directed its evaluation and verification budget resources for 2013 at other studies and work. Again, a persistence study was not identified by the TEC as an evaluation priority. However, it is the Company's intention to raise the issue of a persistence study as a priority for consideration for budget allocation purposes as part of the Company's 2015 plan, which will be filed in the near future.

SPECIFIC RESPONSES TO BOARD STAFF

In this portion of this Reply, Enbridge responds to specific submissions made by Board Staff. The responses are organized by page number in the order that they appear in Board Staff's submission. For convenience, Enbridge has attempted to identify in the headings the issue raised.

Page 1-2. *Enbridge has complied with the DSM Guidelines regarding stakeholder review and verification*

Section 16 of the Guidelines sets out the minimum recommended level of stakeholder engagement and provides that the ToR for stakeholder engagement should be

developed in cooperation with stakeholders and submitted as part of each gas utility's multi-year DSM plan application. The Guidelines provide that the ToR should consider the role of stakeholders in respect of the following matters:

- Development of the DSM plan including allocation of DSM budget, target and metrics;
- Consultation prior to the filing of the DSM plan on evaluation priorities over the lifetime of the plan;
- Review and comment on evaluation study designs;
- Review of the scope and results of evaluation work completed on new programs introduced over the course of the DSM plan;
- Selection of an independent auditor to audit the Draft Evaluation Report and determine the scope of the audit. Stakeholders, or a subcommittee thereof, should ensure that all comments on the Draft Evaluation Report that arise from the General DSM Meetings are reviewed by the auditor;
- Following the audit, review the Evaluation Plan annually to confirm the scope and priority of identified evaluation projects.
- ... Recommendations with respect to the disposition of any balances in the DSMVA, LRAMVA and DSMIDA ...[13]

Board Staff have acknowledged that Enbridge met the stakeholder engagement requirements of the Guidelines. This is true not only in respect of the formation of the appropriate committees, such as the Enbridge AC and the TEC, but also the engagement of the stakeholder members of these committees in the process of prioritizing matters for study and the review and consideration of evaluation and verification studies.

As noted earlier, the level of stakeholder engagement completed by Enbridge has achieved the desired result, being the acceptance of the audited results by the AC and the agreement with or lack of opposition to the relief sought in this Application by the broader DSM consultative.

[13] Guidelines, p. 43

Page 2 *Major issues raised by SEC in the review of the 2012 results*

Board Staff express the view that some of the issues raised by SEC in respect of the review of Enbridge's 2012 DSM results remain. As noted earlier in this reply, the CPSV contractors were specifically requested by Enbridge, the auditor, and the Enbridge AC to acknowledge and take into account the recommendations made from the 2012 clearance of accounts application. This included the concerns raised by SEC and the Board's decision. Indeed as noted in the Audit Summary report (Ex B, Tab 3, Sch 1 at page 7):

> "Also, as a learning through the 2012 Clearance of Accounts proceeding, (EB-2013-0352) additional emphasis was placed on reviewing the appropriateness of the baseline, measure life, and persistence".

Enbridge submits that it did everything that was reasonable and practical to address the concerns raised in respect of its 2012 clearance application and the result is self-evident. These issues were front and centre with the CPSV contractors and auditor being tasked with insuring that these concerns would not be repeated and it is apparent that none of the stakeholder members of the AC or the broader DSM consultative have identified these issues as recurring in respect of 2013.

Page 2 *Free ridership studies*

In accordance with the Guidelines and the ToR, evaluation work is prioritized by the TEC. As noted earlier, in March 2014 a jurisdictional scan for custom Commercial and Industrial sectors was completed by Navigant. While the results suggested that the 2008 studies and the existing free rider rates remained reasonable, the TEC decided in the spring of 2014 that a full NTG study was warranted. The TEC undertook preliminary steps for the study; however, in July 2014 the TEC decided to put the study on hold as it was unable to reach agreement as to the appropriateness for the NTG study to involve the development of a survey instrument and scoring algorithm that took both cumulative and current year program effects into account. Further, the consultant selected for the NTG study recommended against developing both. The TEC decided to await guidance from the Board through the new Framework document which was anticipated in the

near future. The new Framework did not provide the guidance the TEC was looking for to move the NTG project forward and in fact raised the TEC's general concern about whether it would have any role to play under the new Framework. The TEC requested that the utilities, in November 2014, seek the advice of Board Staff in respect of continuing their meetings in Q1 2015. It was suggested by Board Staff that the TEC should focus on completing the TRM and not pursue work that would incur additional costs. The TEC interpreted this advice as being consistent with the decision to keep the NTG study on hold.

Page 3 *Use of the December 2014 payback acceptance curve developed by Navigant*

Board Staff refer to the high level December 2014 payback acceptance curve developed by Navigant and conclude that it is evidence that financial incentives were not required in respect of several programs. While Enbridge recognizes Navigant's work on payback curves within the context of the Company's DSM Potential Study, it submits that it is inappropriate to apply this type of high-level analysis at the granular project level as Board Staff have suggested. Estimating Achievable Potential in a given market is a complicated matter which involves the use of many assumptions. Payback periods are only one of many factors influencing a consumer's decision and should not be viewed as the sole decider of whether or not to move forward with an energy efficiency project.

The industrial sector serves as an apt example. These customers operate in a highly competitive market, one in which some facilities compete not only with direct competitors, but other internal corporate facilities in Canada and abroad. It is Enbridge's experience that many customers have three primary areas of priority: production output, quality standards, and health and safety. There is often internal competition for capital and management's attention. Energy efficiency, regardless of the payback period, is but one of numerous operational, risk management, organizational and marketing priorities which a customer faces. Unless a proposed change to the way the customer does business has clearly defined and articulated

benefits in addition to costs and risks, the proposal will not likely be implemented. Under these circumstances, many of these customers require a payback period of two years or even less in order to prioritize energy efficiency against a variety of other priorities. As well, payback periods may not reflect what can be higher maintenance costs which a customer must also consider over time. It is completely inappropriate to look at a payback period in isolation of all other factors.

In illustrating the benefits of a project in terms of payback, Enbridge often highlights other energy streams in the overall return on investment calculation. For example, if the proposal includes ventilation requirements of a paint line being reduced, estimates in terms of natural gas savings and electricity reductions resulting from the fans having to work with less air flow are calculated. The customer does not consider each energy stream in isolation. This approach helps the customer fully appreciate the project. While the incentive that is provided is based on the natural gas savings alone, the customer benefits from both electricity and natural gas savings.

The success of a commercial/industrial custom project depends upon far more than just the financial incentive, which affects the payback curve. In this competitive world, commercial/industrial customers must do more with less. Enbridge plays a critical role in moving projects along by removing implementation barriers such as customer education, opportunity identification, and by attracting management's attention.

It is Enbridge's experience that the rigour with which a business case for energy efficiency measures is evaluated is continuing to increase. With some variability, the majority of industrial customers make capital and operational decisions on the basis of the impact on costs, safety and quality. Energy efficiency measures must not only compete with other cost savings measures for capital, but are often considered at the same time as other projects which, for example, improve the safety of a facility or the quality of the product produced. To the degree that an energy efficiency measure could have a negative impact on either of these two factors it will largely be considered a non-option. As between projects that can yield improvements to cost, safety and quality

versus those which are energy efficiency related, there is intense competition for internal capital regardless of how short the payback period.

Page 4 *Option 1: The Board should consider a 20% reduction in the gas savings claimed from the Commercial and Industrial Custom Projects*

This is one of the two options proposed by Board Staff. Enbridge submits that there is no basis for any adjustment to the audited savings calculations. The sole justification for the amount appears to be that it is similar to the Board's decision in respect of the 2012 clearance application. Enbridge submits that this is not an appropriate basis for a reduction to the 2013 DSM results as it is not based in fact or evidence. It is noteworthy that Board Staff articulate what really are only suspicions without pointing to any actual over-estimation of savings. As well, Board Staff's submission does not note the specific directions that Enbridge and the AC gave to the Auditor and CPSV contractors to address the issues raised in regard to the 2012 DSM clearance application.

Board Staff have not identified and acknowledged that with the work of the CPSV contractors and the auditor, reductions to the original savings estimates have already been made. Table 1 on page 4[14] of the Optimal report notes the pre CPSV/Audit values. The reductions made were found to be appropriate and acceptable by the Enbridge AC. The Company submits that what Board Staff is proposing would amount to a double counting of the savings reductions already applied.

Board Staff do not state in their submission whether the proposed 20% reduction should also apply to the audited savings results arising from the operation of Low Income custom projects. Board Staff did not in its submission reference any concerns about a Low Income custom project. Given the nature of these programs, the fact that they have a 0% free rider rate, and given the lack of any concerns being expressed about the audited savings results generated by Low Income custom programs, Enbridge submits there is no basis to consider an adjustment to these results.

[14] Ex. B/T2/S1, p. 8

Page 4 *Option 2. The Board appoints its own independent auditor*

This option is in the alternative to Option 1 above. As stated earlier, and as noted by Board Staff, this option is consistent with the approach approved by the Board in the new Framework for use in respect of the 2015-2020 multi-year plans. Board Staff are, in effect, suggesting that the processes prescribed in the Guidelines which the Company and stakeholders followed be set aside and the review and verification process for 2013 start anew. This would render meaningless the work of the Enbridge AC and the time and expense incurred by the Company engaging Stakeholders in the retention, tasking and oversight of the CPSV contractors and the auditor. Certainly this would result in the duplication of effort, create a substantial delay in the review and approval of 2013 DSM results and could cause an erosion of confidence in the Stakeholder engagement process.

It is noteworthy that Board Staff have not concluded that any of MMM, Genivar or Optimal did not complete their work in an independent, thorough and professional manner. There is no suggestion that the Enbridge AC or the TEC did not function as required or that value was not achieved by their activities. One option which could be considered for the future is to have Board Staff serve on the AC. It would then have an opportunity to provide feedback on study prioritization decisions and the reviews and verification of DSM program results.

Page 5 *Use of the 80.5% boiler efficiency as a base case*

In the commercial and industrial sectors that utilize greater than 300MBH sized equipment (boilers), there is currently no accepted method for establishing the seasonal performance of a boiler nor is there an accepted method or external guidance for establishing an appropriate seasonal-efficiency base case for utilities to use in their incentive programs. Instead the industry relies on thermal and combustion efficiency measurements, which do not reflect actual conditions encountered in real boiler installations.

Enbridge uses a custom software tool called Etools to estimate boiler seasonal efficiency. The estimation software tool begins with boiler thermal efficiency, and by various inputs and algorithms, produces a seasonal efficiency figure for both the baseline and proposed retrofit boiler. Etools algorithms rely on user input in respect of a number of parameters, such as indoor/outdoor control, number of burner stages, etc. In order to generate seasonal efficiency calculations, ETools has a substantial back-end database that contains information about most boilers that are available for sale in Ontario.

The last boiler baseline study completed by Enbridge was done in 2011. Optimal recommended that the study be updated. The AC endorsed Enbridge's response which stated that the study would be completed in 2015. Enbridge notes that Board Staff do not suggest that this study should have been completed earlier and that as a result, the 2013 DSM results should be adjusted. This observation by Board Staff does not, therefore, support making any adjustment to savings.

Page 5 *Analyzing actual billing data for the Residential community energy retrofit (CER) program*

While Board Staff acknowledge that the accredited modelling software used to estimate gas savings plays an important role, Board Staff suggest that in future the Company should also be evaluating the impact of a program by analyzing actual billing data before and after participation. While at first glance there is an elementary attractiveness to this approach, it is important to identify the limitations of such data.

For example, billing data does not take into account:

- any changes in occupancy such as an increase or decrease in the number of occupants in the home, snowbirds who depart seasonally, cottagers etc.;
- customers personal preferences – some keep their houses warmer than others, take longer showers, have teenagers;
- Renovations or upgrades after the fact that change the number of windows or holes to exterior walls which are not properly sealed.

- Venting for equipment.
- Added or deleted equipment such as air conditioners.

To make the use of such data reliable, it could be necessary to undertake a survey of each participant to see what changes influenced the billing data over the period in question. The costs of this work would be enormous, making it important to consider the value of this effort in terms of the improvement in the estimation of results. Accordingly, it is the view of Enbridge that billing data analysis needs to be considered more fully before its reliability and contribution to estimating savings can be fairly determined.

It should be noted that the use of analyzing actual billing data is a concept which arises within the new Framework and while a discussion of the use of such data may be warranted as part of the consideration of the 2015-2020 multi-year plans, the use of such data is not a requirement in the 2011 Guidelines. Furthermore, it is necessary to recall that unlike electric distributors, the natural gas utilities and their customers do not have wide access to smart meters capabilities. This represents a further barrier for the gas utilities in utilizing actual billing data.

Page 6: *Commercial Run it Right (RiR) Program Free Rider Rate*

It is noteworthy that Board Staff do not take the position that the free rider rate which was reviewed and assessed for reasonableness by the independent auditor and which was used for the purposes of the audit of the 2013 DSM results was in error. Board Staff's concern is that Enbridge did not undertake a comprehensive study to account for free ridership and spillover effects. Board Staff suggest that there was no research undertaken to substantiate the free ridership rate. This is simply incorrect.

As noted in the Optimal Report[15], at page 22:

[15] Ex. B/T2/S1, p. 26

"Free Rider Rate

To date, a free rider rate has not been approved for this program. Enbridge was asked to recommend a free rider rate along with a justification for the proposed rate. Based on its own internal research, Enbridge proposed a free rider rate of 0%.

"Optimal reviewed EM&V reports of other retro-commissioning gas programs. Results from eight different programs suggest that free ridership estimates were wide ranging (8-32%). Three of these calculations also included estimates of spillover, which ranged from 10% to 20%. When using either the average or median values of the free rider rate and the spillover rates, the net-to-gross calculation equals 0.96 or 96%. While it is likely that a pre/post billing analysis would inherently include short term participant spillover, Optimal feels that spillover should be included in the overall review of Enbridge's free rider rate based on the follows:

- It is possible that the program will lead to longer term participant spillover that is not currently captured in the billing analysis
- It is likely that continued program efforts will lead to non-participant spillover in the long run by building market expertise and creating more service providers and demand for retro-commissioning services.

Because the average net-to-gross value is close to one, Optimal supports Enbridge's recommended free rider rate. However, Optimal recommends that additional efforts be made to better estimate free rider and spillover rates for this program."

The above clearly confirms that Optimal assessed the free rider rate for reasonableness. This review and the conclusions drawn by Optimal were accepted by the Enbridge AC and more broadly by the members of the DSM Consultative.

For reasons other than the free ridership rate, Optimal believed that it was appropriate to adjust the final audit value for the RiR program by reducing the expected savings by about 40%.[16] This adjusted audited value was accepted as reasonable by the AC and is not a concern to any stakeholder.

As exemplified in its review of the RiR program, Optimal made its adjustment to the 2013 DSM results based upon its thorough review of the details of the various projects. By contrast, Enbridge submits that Board Staff's option to apply a 20% reduction to all

[16] Optimal Report, p. 22, Ex. B/T2/S1, p. 26

custom program results is based on inferences developed following a high level review of reports which do not and cannot for practical reasons document and restate every question asked and answer given by the CPSV contractors, program participants, members of the Enbridge AC, and the independent auditor. The free rider rate for the RiR program is a perfect example. The prefiled evidence, by its very nature, confirms that Optimal undertook a review of the applicable free rider rate for reasonableness. It did not explicitly identify each and every jurisdiction, report, and relevant prior experience it considered for the purposes of its review. If further details were required about the review undertaken by Optimal, it should have been asked in an interrogatory.

Page 7 *Commercial Custom Projects*

The concern raised by Board Staff here is driven by the belief that where a payback period is short, the customer will likely undertake the energy efficiency measure without the assistance, financial and otherwise, of the Company. Board Staff also appear to be saying that if the payback period is longer, then this is evidence that there are reasons other than the natural gas savings for the customer installing the efficiency measures. Enbridge submits that such a view is overly simplistic and inconsistent with the real world of competing demands for capital that all businesses face. The inference appears to be that utilities should not approach or deal with a customer that has a short or longer payback period because these customers will always do the work themselves. To exclude these customers and the attendant savings opportunities would not be consistent with the objectives of DSM, the realities of the marketplace, nor the Directive from the Minister to the Board in respect of developing a culture of conservation.

The CPSV contractors have a lengthy checklist of issues and questions which they review directly with the Company's customers. The CPSV contractors then prepare draft reports which are reviewed and discussed with the independent auditor and the members of the Enbridge AC all of whom are also interested in understanding and fairly valuing the extent to which Enbridge influenced a customer's decision making. These discussions included the extent to which a CPSV contractor made supplementary inquiries, followed up on the original check list of questions and probed for certainty. In

the end, all of the CPSV contractors, the independent auditor and the AC were satisfied with the reasonableness of the results as adjusted. Enbridge submits that in light of the fact that interrogatory questions about the appropriateness of certain values and the steps taken by the applicable CPSV contractor were not largely asked, it is not now appropriate to argue that the CPSV reports are in effect inadequate solely because of a high level payback period analysis completed by Navigant in the context of a potential study much after the fact.

Project Specific Responses

Board Staff make a number of submissions in respect of several of the projects reviewed by the CPSV contractors and the auditor. Enbridge's response is organized by Project number in the order that these projects appear in Board Staff's submission.

Responses Specific to Commercial Custom Projects

Page 8 *RA.GOV.EX.024.13 (Exhibit B, Tab 5, Schedule 1, pp. 88-91)*

Adjustments for free ridership

Board Staff note that the free ridership rate used for commercial custom projects was based on the Board-approved list of input assumptions. While Board Staff do not specifically question the use of this free rider rate, it appears that they are suggesting that this free rider rate should be adjusted by reason of the fact that this [redacted] customer had earlier converted two boilers to run on digester gas. Board Staff imply that this customer would have converted the boiler which was the subject of the program in any event.

It should again be recalled that free rider rates are approved by the Board on an aggregated market sector basis and for this reason it is inappropriate and duplicative for a detailed project by project free rider rate review to be undertaken. This is the case in respect of both commercial and industrial custom projects and applies to Board Staff's comments in respect of free rider rates to those programs which Board Staff specifically identify in their submission.

Similar to other large commercial buildings and facilities, the mechanical room typically employs several boilers for the same task. This can improve efficiency by staging and allows redundancy to ensure some level of heating. This program, as approved, does not disentitle a prospective customer from participating simply because it already has had success with prior energy efficient projects. Contrary to the hypothesis of Board Staff, the fact that a customer has not upgraded an existing boiler, having had the experience and knowing the value of the more efficient boilers, could equally suggest that there is an existing barrier and need for the DSM program. The approved free rider rate for such projects is based upon the best information available and it adjusts the results for the fact that a certain percentage of customers would have undertaken the work without the Enbridge DSM program.

Given the above, Enbridge submits that there is no evidentiary, policy or other basis for the free rider rate to be adjusted. Board Staff are in effect asking the Board to adjust the free rider rate for this specific project because it has suspicions that the customer might be a free rider even though the audited results are already adjusted for this potentiality.

Adjustments for persistence

Board Staff suggest that it is likely that the Company's efforts have only advanced the conversion of the boiler in question (which seems at odds with the argument about the customer doing it without Enbridge in any event). Board Staff make this submission based only on the fact that this customer had other successful energy efficiency projects. Board Staff believe that the savings measure life should be reduced to reflect this "advancement" concept.

Generally the "advancement" concept is used when a customer has a relatively new existing natural gas technology which has base case (lowest) performance characteristics, and wants to "replace" this technology with higher efficiency early, before its standard "End of life". This is not the situation in respect of this project.

The measure life for the boiler burner technology and supporting digester gas processing technology has an accepted life of 25 years which is likely conservative (i.e. it understates the real useful life expectancy). Considering the economic impact of using free digester gas savings (fuel that is collected at this site) versus paid-for natural gas as the fuel, there is no reason to believe any customer would ever go back and not use the available digester gas. One could argue the measure life should actually be as long as the facility continues to operate and not be limited to the life of the boiler. Though the boiler will inevitably be replaced at some point (likely well beyond 25 years from now), it will no doubt be replaced with another boiler that uses digester gas, therefore preserving the savings further. Accordingly, this technology will continue to provide "persistent" energy savings for at least 25 years.

Calculation of Savings

Board Staff recommend that actual gas consumption information be used to validate the projected savings of an energy savings measure. The concept of using actual consumption data is a potential evaluation tool in the new Framework. It therefore appears that Board Staff are suggesting that this concept be applied retroactively to projects undertaken and evaluated under the 2011 Guidelines. Enbridge does not believe that this is appropriate.

As noted earlier, this validation method has numerous limitations most notably the fact that it requires a considerable amount of time to validate the savings including the recording of at least one year's data following the actual installation and commissioning of the measure. If the measure is completed in the later stages of the defined incentive year then this type of validation would not be possible within the audit timeframe. This also assumes that there is no other activity pre or post the energy measure installation which alters the natural gas usage and therefore extends the validation period or decreases the accuracy of the analysis. The reliability of using actual natural gas consumption billing requires considerable care to ensure that the operation of the gas customer is consistent and that no other energy changing efforts take place pre or post the defined energy measure being validated. To do this with high reliability of the

results requires additional and ongoing site surveillance beyond the present scope of the CPSV contract.

Measure life

The Board has implied that the measure life of the digester gas burners and supporting equipment should be shortened to reflect the "assumed" remaining life of the existing boilers to which these burners are attached. It should be noted that these particular boilers can be purchased with or without fuel burners. Therefore even if the retrofitted boiler shells require replacement before the end of the energy efficiency "measure life", they could be replaced with new boiler shells and the existing digester gas burners would remain in operation and complete their full "measure life". As noted by MMM in their report, a measure life of 25 years is reasonable for this type of retrofit.

Page 9 *RA.GOV.EX.021.13 (Exhibit B, Tab 5, Schedule 1, pp. 83-88)*

Board Staff question the impact of the incentive provided by the Company in respect of this project. Not surprisingly, customers look at total incentives for their projects (electrical + gas) when considering moving forward. Therefore, while the level of incentive is one relevant factor, it would not be accurate to isolate one incentive only when considering if it was influential or not.

Board Staff point to the investment in 6 new fans to replace 143 fume hood exhaust fans and conclude that the primary goal was to reduce electricity consumption and that the subsequent gas savings measure identified as air balancing would have occurred without requiring an incentive.

Ventilation energy consumption and savings includes a significant portion (approximately 1/3) of the natural gas supplied to commercial customers, and consequently one of the largest natural gas energy savings measures. Generally, commercial buildings require mechanical ventilation which involves a process of pushing conditioned fresh air into a building. This jointly involves electricity and natural gas energy. Significant energy savings can be realized by controlling and reducing ventilation air, and the savings of both of these energy sources is well understood and

proportional such that with every reduction of ventilation airflow there is a reduction in electric usage and gas consumption. Therefore, it is not reasonable to identify this measure solely as an electric savings measure.

Energy savings for ventilation air is supported by two energy sources – "electricity" which moves the air, and "natural gas" which provides the energy to heat the air. In this project, the main driver was a long-term plan to control operating costs at the [redacted] (not a focus on electric savings). As part of this project, heating and cooling the [redacted] space was identified as a major opportunity to save energy. Enbridge worked jointly with the local electric utility to calculate the energy savings opportunity for this project. As part of this joint work, Enbridge was provided the number of fume hoods which were to be connected to this new system (200), the proposed new air flow schedule, and the controlled air temperature of the [redacted]. These were input values which were used to calculate the energy savings. Over the course of the project, a number of the fume hoods were not transferred to the new system resulting in only 143 being connected.

This project included upgrading the fume hood exhaust system along with the associated fresh air supply system and air controls. A major cost of this project was installing new duct work and dampers and controls to ensure that the face air velocity on all remaining operating fume hoods was constant and maintained as required by strict [redacted] regulations. A much smaller portion of the total project cost was associated with electrical components and components related to supplying and controlling heat.

Under these circumstances, Enbridge submits that it is pure speculation to associate the approval of this project to the savings of any one energy source, as both were integral to this project. This project was for a significant sized public building, and the Director identified Enbridge as one of its partners that assisted in improving the energy efficiency of this particular building.

Finally, Board Staff question the appropriateness of assuming that the ventilation system will be operating for 15 years producing the same annual savings. This facility is a [redacted] government operated [redacted] used for testing purposes. There is no indication that it will not remain operating as designed. The costs of converting this type of facility to another use would be prohibitive. It therefore follows that the ventilation system will continue to be required and that the efficiency measures installed will continue to benefit this facility for the measure life of the equipment. It should be noted that the 15 year measure life was reviewed, considered and agreed upon by the auditor, technical CPSV consultant and AC.

Page 10 *RA.UNIV.EX.006.13 (Exhibit B, Tab 5, Schedule 1, pp. 136-140)*

Board Staff believe that the payback period of 11 years indicates that this customer invested in this project primarily to reduce electrical consumption. As stated earlier, payback periods should take into account total energy costs saved (electrical and gas) vs. project costs. Further, payback period is not the only criteria considered for this type of decision.

Enbridge was heavily involved with the creation of the innovative, "first in class" technology, as well as its development and implementation in this University [redacted]. This was to be used as a demonstration project and is expected to be adopted in other buildings at this University. Enbridge was intimately involved in developing the business case presented to the school for implementing this measure.

Board Staff suggest that the estimated gas savings over a 15 year period appears to be optimistic because it depends on the ventilation system continuing for this period. This project involves one of the main [redacted] at this University. There is no indication that the [redacted] will not continue to exist for many years to come. The ventilation system which has been upgraded and the energy efficiency measures installed will continue to be required and will provide the anticipated benefits over the applicable measure life of 15 years.

Responses Specific to Industrial Custom Projects

Page 12 *RA.IND.LG.RT.013.13 (Exhibit B, Tab 5, Schedule 1, pp. 43-45)*

This project included the installation of various equipment to recover heat from the [redacted] exhaust. There are three heat recovery loops: i). process water, ii). pond water and iii) process heating and ventilation. The bin analysis which Board Staff note on page 12 of their submission which was used by Genivar was used only for the heating ventilation portion of the project. Other savings calculations were done using the heat and mass balance method.

Adjustments for free ridership

Enbridge had been working with this customer for many years, testing the [redacted] hoods, boilers and steam systems, and promoting energy efficiency at the [redacted]. Enbridge was involved in suggesting heat recovery options at the early stages of project development. The cost and financial incentive information was provided to the CPSV contractors.

As free riders are approved on an aggregated market sector basis, it is not appropriate to review the free rider rate on a project by project basis.

Adjustments for persistence

Board Staff's comments are made at a general level without specific knowledge of this project and the business of the customer which manufactures tissue paper. Unlike traditional pulp into paper industries, the tissue paper industry is very stable and growing as no other alternatives are available to displace the use of tissue paper. Based on the high demand for this product and the ideal plant location, this [redacted] is expected to stay operational for a long period of time. These factors, which were known at the time of the audit, remain true today.

Measure life

The [redacted] in this instance is a brand new paper machine which typically lasts many decades. The [redacted] will easily outlast the heat recovery device.

The methodology for estimating life time savings was clearly addressed in the CPSV contractor's scope of work and this scope was endorsed by the AC. The heat exchangers used in the heat recovery hood are built from industrial grade stainless steel. These exchangers will easily last for more than 20 years, as confirmed by the CPSV contractor, Genivar, and accepted by the Auditor and AC.

Page 14 *RA.IND.LG.RT.007.13 (Exhibit B, Tab 5, Schedule 2, pp 16-17)*

Adjustments for free ridership

Enbridge had been working with this customer for many years, promoting energy efficiency at the [redacted]. The Company's incentive contributed 22.3% towards the total project cost. While this incentive should not be considered in isolation, it undoubtedly played a role in the customer's decision.

As free riders are approved on an aggregated basis, it is not appropriate to review the free rider rate on a project by project basis.

Adjustments for persistence

This facility produces specialty [redacted] for which no alternative is available. Based on the high demand of this product, this [redacted] is expected to stay operational for a long period of time.

Base case

Board Staff question whether the CPSV contractor assessed whether the customer would have installed the energy efficiency measure some time in future in any event and if so, whether the project should have been considered an advancement. The fact is that this project is clearly a replacement project, not an advancement. The old heat exchanger was isolated and bypassed as it had reached the end of its useful life. The customer had been operating in this mode for some time without recovering any heat from the exhaust gases. The [redacted] in question had been wasting a substantial amount of heat through the stack prior to the installation of this the energy efficiency measure. The concept of "advancement" does not apply to this project.

Measure life

While [redacted] are designed to last for very long periods of time, typically for many decades, the age of the machine is not relevant. The [redacted] in this project is expected to outlast the efficiency measures (even if it was installed in 1976). However, even if it is replaced earlier than expected, the measures will continue to function as anticipated with the new machine because the measures are external to the [redacted]. Further, as noted by Genivar in their report, heat exchangers used in industrial applications are typically designed to more robust criteria than commercial or residential installations and are often seen to exceed 30 to 40 years of service.

Page 16 *RA.IND.LG.NRT.023.13 (Exhibit B, Tab 5, Schedule 2, pp 33-34)*

Adjustments for free ridership

Enbridge had been working with this customer for many years, testing the Aluminum melting furnace and promoting energy efficiency at the site. The financial incentive contributed 20% towards the total project cost.

As free riders are approved on an aggregated market sector basis, it is not appropriate to review the free rider rate on a project by project basis.

Adjustments for persistence

The standard [redacted] melting furnace uses cold air burners with no heat recovery, with a combustion efficiency of approximately 33%. It is challenging to recover heat from an [redacted] melting furnace due to the presence of corrosive particulates in the hot exhaust. The energy efficient options such as Regenerative burners or shaft heat recovery are expensive. In this case, the Enbridge DSM financial incentives helped this customer offset the cost premium associated with the energy efficient furnace. Given the nature of the equipment, there is no reasonable expectation that it will be removed before the end of its measure life. There is no basis to adjust the savings estimate generated by this project.

Base case

It is not uncommon for the process industry to continue to use old [redacted] furnaces for a long period of time. This customer could have continued to use the old furnace for many more years. It was Enbridge's on-site furnace testing and furnace performance evaluation work that raised the awareness of energy efficiency which helped influence the customer's decision to purchase a new energy efficient furnace.

Response to the Submissions of Energy Probe

Energy Probe confirmed its acceptance of the 2013 DSM Audited results and therefore confined its comments to matters that relate to future years.

The first concern raised by Energy Probe related to its belief that Enbridge was not becoming more efficient in its delivery of savings through the Company's Residential Resource Acquisition ("RA") program offering. This is not in fact the case. Enbridge noted in its Annual Report the cost of each CCM, or $/CCM, achieved through its Residential Resource Acquisition ("RA") offering at $/0.068 (B-1-1, p.30, Table 13). In Energy Probe IR 1 b) and c) Enbridge was asked to provide the number of CCM that are achieved for each dollar spent on this same program or CCM/$, which is a different calculation than the one provided in the Company's Annual Report. The difference in these calculations appear to be the source of the confusion as a result of which Energy Probe came to precisely the opposite conclusion to what has actually occurred. Specifically, the 2012 Residential RA offering realized 12.44CCM for each dollar spent. In 2013, the same offering achieved 16.40CCM for each dollar spent, representing an increase in cost-effectiveness in its second year.

At Paragraph 12 of its submission, Energy Probe suggests that the fact that the Company exceeded a target by a good measure stands for the proposition that the target was too low. There is no doubt that the response to Enbridge's Community Energy Retrofit offering has been very positive. As well, given that this program is consistent with the Board's new Framework and its priorities of high participation rates, a whole home approach, deep savings and a robust residential offering, Enbridge

supported this program and is pleased with its uptake. Enbridge submits that one of the important features of DSM is the flexibility that exists to pursue programs that are well received so as to maximize the generation of savings. The fact that a program is successful does not stand for the proposition that the target was too low. If it did, then this would mean that anytime a target is not reached, the target was too high. Enbridge does not believe that such a simplistic explanation can be reached as if Energy Probe's logic holds true, then it appears that the Commercial and Industrial Resource Acquisition targets were clearly too high.

In terms of Energy Probes apparent preference for commercial and industrial RA programs as expressed at paragraph 13 of its submission, it should be noted that both the Guidelines and the new Framework requires that DSM be directed at all program types and rate classes not just the most cost effective. Higher costs per CCM for the residential sector are consistent with the whole home approach, generating deep savings, and the consumption size and nature of these consumers. Further, both DSM budgets and shareholder incentives are recovered by rate class which means that a rate class only pays for DSM budgets and shareholder incentives which drive benefits to that specific rate class (with the exception of Low Income costs which are borne by all Rate Classes as per the LEAP allocation). While shifting DSM budget dollars to commercial and industrial rate classes would remove these costs from the rates of residential Rate 1 customers, these customers would see an even greater loss in terms of the bill reduction impacts of DSM programs on the residential ratepayers.

Energy Probe expresses concern at paragraphs 14 and 15 about whether Enbridge's current RA program should be carried forward into 2015. It appears that this concern is motivated by the mistaken belief that the residential RA program offering is becoming more costly per CCM to deliver. The Company believes that once this reality is acknowledged, the concern should dissipate. In addition, it should be recalled that the carry forward of programs is not a matter relevant to the disposition of the Company's 2013 DSM variance accounts. Enbridge's application for a DSM Plan for the years 2015 – 2020 will include a discussion of its 2014 results, although these may be

preliminary in nature given the timing of the application filing. These results and all of the other considerations that must be included in an application for a multi-year DSM Plan will allow for a robust review of the proposed future program offerings.

Summary and Conclusion

Enbridge submits that the evidence filed in support of this Application coupled with the knowledge that the audited results were reviewed by and have either been accepted or are not opposed by any stakeholder group provides a full and sound record and basis for the Board to approve the Application as filed. There is no evidentiary basis or public interest concern which supports any further adjustments to the audited results.

Further factual support for this Application is found in the attached Memorandum prepared by the Principal of the independent auditor Optimal, Mr. Philip Mosenthal, which addresses the issues raised by Board Staff and provides a response from the perspective of Optimal. While Optimal agrees with Board Staff that there may be some value in undertaking future formal studies, something which Enbridge agrees, subject to the work being appropriately prioritized and the necessary resources made available, Optimal does not agree with many of the material assertions and conclusions made by Board Staff. Optimal further disagrees with the option suggested by Board Staff that there be an additional reduction to the audited savings values. Enbridge adopts the attached memorandum prepared by Optimal as part of its response to the submissions of Board Staff.

Given that: (1) Optimal was retained as an independent auditor of the 2013 DSM results pursuant to the Guidelines; (2) Optimal's retainer was the subject of a consensus reached by members of the Enbridge 2013 AC; (3) its detailed and extensive review of the 2013 DSM results was guided by the terms of reference again developed by consensus amongst the members of the 2013 Enbridge AC; and (4) members of the 2013 Enbridge AC had an opportunity to review draft CPSV contractor reports, discuss same with the contractors and to provide guidance and direction as contemplated under the Guidelines, Enbridge submits that the views of Optimal both in its Audit Report and

the attached memo stand for the proposition that the options proposed by Board Staff should not be entertained by the Board. Optimal as an independent auditor supports the conclusions reached by the Company that many of the submissions made by Board Staff are overly simplistic. This should not be surprising given that Board Staff were not involved in the review and verification of Enbridge's 2013 program results. As such, Board Staff are not familiar with the degree to which the issues it raises were specifically addressed by Enbridge, the AC, the Auditor and the CPSV firms, throughout the 2013 Audit.

Enbridge therefore respectfully requests approval for the relief sought in this Application as filed.

Optimal ENERGY Integrated Energy Resources

MEMORANDUM

To: Ravi Sigurdson, Enbridge Gas Distribution
From: Philip Mosenthal, Optimal Energy, Inc.
Date: January 30, 2015
Subject: **Optimal Energy Response to *Board Staff Submission on Enbridge Gas Distribution Inc.'s Application for Clearance of the 2013 Demand Side Management Variance Accounts, EB-2014-0277*, January 22, 2015**

INTRODUCTION

Board Staff assert that it has concerns about a number of issues related to Enbridge's estimated 2013 DSM Program savings and the related custom savings verification (CPSV) evaluation and Independent Audit of Enbridge Gas Distribution 2013 DSM Program Results. Staff states "these issues relate to the appropriate consideration of free-ridership, base case, effective useful life, persistence of savings and advancement of DSM investment decisions in the calculation of project savings for the commercial and industrial custom projects."[1] Board Staff further asserts that its review revealed that savings estimates "were not always consistent with the DSM Guidelines in many of the areas described above."[2]

This memo addresses the Board Staff's concerns and Optimal Energy Inc.'s (Optimal's) opinion on them. Optimal undertook the Year 2013 DSM audit. As part of the audit Optimal reviewed the CPSV analyses and independently verified Enbridge 2013 program savings.

FREE-RIDERSHIP

Board Staff notes that the DSM Guidelines state that free-ridership should be assessed as part of program evaluations. It further notes that Enbridge appears to have failed to perform a study to assess free-ridership and simply continued to use planning estimates for free-ridership that

[1] Board Staff Submission on Enbridge Gas Distribution Inc.'s Application for Clearance of the 2013 Demand Side Management Variance Accounts EB-2014-0277, January 22, 2015, page 2

[2] Ibid.

were established as part of the approval of its DSM plans. Optimal concurs that the DSM Guidelines direct Enbridge to annually assess for reasonableness free-ridership rates and that a formal study can be a useful effort to better refine estimates of free-ridership in the future. However, we also note that the DSM Guidelines do not appear to provide a schedule or required date by which formal studies should be completed.

Further, it is Optimal's understanding that OEB policy is that savings estimates should rely on the best available information at the time of assessment and auditing. As such, Optimal believes the current planning estimates of free-ridership represented the best available information for Enbridge's programs, and were provided in an approved DSM plan. In the role of auditor, Optimal considered the reasonableness of these free-ridership planning assumptions that were used. In our opinion, based on familiarity with numerous DSM programs and evaluations, including numerous studies to estimate free-ridership, spillover, and net-to-gross (NTG) ratios throughout North America, we deemed the planning free-ridership estimates reasonable and appropriate in the absence of an existing Enbridge-specific study.

PERSISTENCE

Board Staff raised concerns regarding persistence that are similar to those of free-ridership. Namely the OEB Order issued regarding clearance of the Year 2012 DSM variance accounts indicated that a persistence study "would be useful" and that Enbridge has not undertaken such a study.[3] As with free-ridership, Optimal concurs with the OEB that a persistence study can provide valuable information about the longevity and cost-effectiveness of energy savings. It further acknowledges that this can be particularly important in the industrial sector, where manufacturers may retool and redesign their process equipment more frequently than the technical useful life of equipment installed. However, as with free-ridership, it is Optimal's understanding that Enbridge had not performed a persistence study at the time of its audit. Therefore, Optimal reviewed and considered measure life estimates for all projects reviewed, and found them to generally be reasonable and consistent with common DSM practice in North America. We did adjust lifetime savings where we believed the measure life used to be inappropriate. We note that most jurisdictions rely on technical estimates of useful life for various equipment in the absence of strong evidence from a persistence study that some other adjustment should be made.

BASE CASE

Board Staff raised some concerns related to base case. Some of these are tied to issues around persistence and whether some projects should be viewed as advancement rather than replacement. We generally find that, while Board Staff points out some possible situations where that might be the case, it presents no clear evidence of such. As part of Optimal's

[3] OEB Decision and Order dated May 1, 2014, EB-2013-0352, page 3.

thorough review of the CPSV reports we did consider whether the base case was appropriate and whether any projects treated as replacement should have been considered advancement. We also carefully reviewed all measures that where a control "add-on" to existing equipment to ensure that the measure life used was based on the expected lifespan of the existing equipment and not the "add on" control. Where we found instances where we believed an inappropriate base case or choice of advancement was used, we noted that and made explicit adjustments.

Board Staff made a specific recommendation related to base case for boilers. It noted that most cases assumed a standard boiler has an efficiency of 80.5%.[4] This efficiency level is based the actual Ontario energy code for new boiler installations. Board Staff states that this estimate "does not appear to be based on market research and it is possible that the market has moved to higher efficiency levels."[5] Board Staff also notes that Optimal raised this possibility and recommended Enbridge conduct a baseline boiler study to refine this estimate.[6] Optimal continues to support the further investigation and refinement of baseline efficiencies, subject to any competing analysis needs and available evaluation, monitoring and verification (EM&V) resources. However, in the absence of specific and recent base case studies, most jurisdictions assume that prevailing codes and standards define baseline practices for new equipment installations. This appears to be allowed as a minimum base case in the OEB DSM Guidelines[7], and our review of custom projects indicated that was being used. While it is certainly possible the average baseline might exceed code, Optimal viewed code level efficiencies as a reasonable baseline assumption and consistent with best practices elsewhere in North America. In accordance with the OEB DSM Guidelines, the use of the Ontario Energy Code as the baseline represented the best available information at the time the audit was performed.

SAVINGS IMPACTS

While Optimal concurs with Board Staff that undertaking free-ridership, persistence and base case studies would be useful to refine future estimates of DSM savings, we take no position on whether those should be applied retroactively to 2013 savings estimates, as that should be guided by OEB and Enbridge agreements and policy. However, Board Staff further argues that "the cumulative gas savings reported for the commercial and industrial custom projects are

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[4] Board Staff Submission on Enbridge Gas Distribution Inc.'s Application for Clearance of the 2013 Demand Side Management Variance Accounts EB-2014-0277, January 22, 2015, page 5.

[5] Ibid.

[6] Ibid.

[7] Demand Side Management Guidelines for Natural Gas Utilities, EB-2008-0346, June 30, 2011, page 25.

overstated."[8] After detailed review of Board Staff comments, we find this assertion is speculative and unsupported. In short, we believe it is based on many unfounded assumptions that do not rely on actual detailed data or information about customers' intentions or practices. Rather, it appears that Board Staff simply raise some issues that perhaps might be cause for concern, but are not in themselves evidence that the current free-ridership, persistence and base case estimates are biased. Below we address this in greater detail.

PROGRAM SPECIFIC ISSUES

Run It Right (RiR)

Board Staff states that the Net to Gross (NTG) ratio (free-ridership + spillover) has "not been approved by the Board for RiR, but it was accepted by Optimal to be 0%."[9] As indicated in Optimal's audit report, Enbridge provided an estimate of 1.0 NTG ratio based on its internal research.[10] We believe that an appropriate NTG estimate should always include consideration of both free-ridership and spillover. For RiR this is particularly important. While Board Staff generally just refers to free-ridership, we note that in some cases the NTG values reflect both free-ridership and spillover, and our review and opinions on the NTG were made accordingly.

As stated above, Optimal does not disagree with Board Staff that a NTG study for RiR might be worthwhile in the future. In fact, Optimal explicitly recommended that a free rider rate be established for the RiR Program.[11] However, given the current size of this program and its overall contribution to Enbridge's DSM portfolio savings and spending, and the significant costs involved in performing such studies, consideration should be given to whether EM&V resources might be better spent refining other program savings estimates instead.

Board Staff states that "no research [was] provided to substantiate the 0% free-ridership [really NTG ratio of 1.0 including spillover] for the RiR program."[12] However, as noted in Optimal's

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[8] Board Staff Submission on Enbridge Gas Distribution Inc.'s Application for Clearance of the 2013 Demand Side Management Variance Accounts EB-2014-0277, January 22, 2015, page 4

[9] Board Staff Submission on Enbridge Gas Distribution Inc.'s Application for Clearance of the 2013 Demand Side Management Variance Accounts EB-2014-0277, January 22, 2015, page 6. The 0% refers to the free-ridership + spillover rate, and is the same as a 1.0 NTG ratio.

[10] Independent Audit of Enbridge Gas Distribution 2013 DSM Program Results; FINAL REPORT; Prepared for the Enbridge Gas Distribution Audit Committee by Optimal Energy, Inc., June 24, 2014; page 22.

[11] Independent Audit of Enbridge Gas Distribution 2013 DSM Program Results; FINAL REPORT; Prepared for the Enbridge Gas Distribution Audit Committee by Optimal Energy, Inc., June 24, 2014, page 8

[12] Ibid

audit report, "Optimal reviewed retrofit-commissioning free rider rates in other jurisdictions to develop a recommended free rider rate for the Run It Right program."[13] Optimal found that the 1.0 NTG ratio proposed by Enbridge was a reasonable estimate, and generally consistent with other C&I retrofit-commissioning (RCx) programs that have undergone NTG evaluation. Optimal provided a range of free-ridership and spillover estimates for retrofit-commissioning programs, and found that a 1.0 NTG ratio was reasonable and consistent with experience provided. It is Optimal's experience that free-ridership is typically extremely low for RCx programs, and that often spillover effects are greater than any free-ridership, often leading to NTG ratios above 1.0. We therefore support continued use of this value as reasonable until such time as more specific primary research is completed.

Commercial Custom Program

Board Staff raises concerns about a number of commercial custom projects. We do not attempt to address these concerns exhaustively. However, we provide some further detail and basis for why Optimal believes Board Staff recommended savings adjustments are not appropriate. Board Staff concerns generally derive from a review of the gas-only estimated customer payback for each project.[14] Board Staff notes that a number of projects had estimated gas-only paybacks of 1 year or less, and a number had very long gas-only paybacks above 10 years. Based on this very limited information, in isolation, Board Staff seems to therefore conclude that most if not all of these customers represent free-riders.

In support of this conclusion for the low payback projects Board Staff points to an assumed customer penetration curve that estimates potential program participation as a function of customer payback, provided in Appendix A. This graph implies that measures/projects with less than a one year payback will typically be adopted by around 80% of customers. For the longer payback projects, Board Staff assumes that some other motivating factor such as electric savings must have influenced the customer to install the measure because it doesn't appear to be a good deal for the customer based solely on the gas-only payback.

Both of Board Staff's arguments are speculative, incorrect, and are not supported by the evidence. Staff's reliance on the Navigant penetration curve in Appendix A is particularly troubling. This simplistic hypothetical relationship was intended to estimate future possible

[13] Independent Audit of Enbridge Gas Distribution 2013 DSM Program Results; FINAL REPORT; Prepared for the Enbridge Gas Distribution Audit Committee by Optimal Energy, Inc., June 24, 2014, page 16.

[14] "Gas-only payback" refers to the payback resulting if no other benefits or costs were derived from a measure/project other than the gas savings and the incremental project cost. In actual practice, customer payback will typically vary from this because many measures/projects include significant other benefits and costs faced by customers that are not included in this analysis. As a result, these values provide little rigorous evidence or indication by themselves of what might have driven customer decisions.

maximum achievable program participation for a potential study. There is a great deal of literature around market barriers to efficiency that indicates that customers almost universally under invest in efficiency (as compared to what would be in their economic interest). These barriers include things like lack of information, split incentives where one party pays energy bills but another party is responsible for capital investments, risk perception, and many others.[15] Well designed programs provide a great deal more than simply a cost subsidy. Rather, they help identify opportunities that customers might not otherwise know about; they provide education to customers and trade alleys that encourages installation, as well as stocking and promotion of efficient technologies; they often overcome transaction barriers; they provide an unbiased endorsement of measures that can reduce risk perception; and many other services. These services are integral and essential to successfully functioning efficiency programs.

Navigant's penetration curve is intended to reflect best practices related to all these other ancillary services to estimate maximum achievable program penetrations, in a hypothetical best case context. It is not meant to reflect the naturally occurring market activity absent well designed and implemented programs. This is patently true when one considers a program like RiR. Because programs like RiR typically promote low cost and no-cost behavioral changes, most RCx measures offer extremely fast paybacks, generally less than one year. However, NTG studies of such programs, as discussed above, have typically found very low free rider rates. This is because of the numerous other barriers that exist and prevent economically optimal efficiency. Another example is compact fluorescent lamps (CFLs). Because CFLs typically last far longer than incandescent bulbs, when considering the capital cost they offset by avoiding numerous replacement bulbs, CFLs often have a negative net incremental cost. In other words, they offer a virtual instantaneous payback. Despite this fact, and even after decades of sustained and aggressive CFL programs in many places that also provide educational and promotional services, even the leading states and provinces generally still only have socket saturations of CFLs of less than 50%, and often as low as 20% or less.[16]

Quite simply, to assume a number of projects are free-riders simply because they have a short gas-only payback is not grounded in appropriate data and analysis or rigorous EM&V practices, and is fundamentally speculative and suggestive, at best.

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[15] We note that Board Staff did indicate that other barriers may exist, but then seem to ignore that when it draws conclusions about free-ridership. For more information on energy efficiency market barriers see, for example, Eto, J. and W. Golove, *Market Barriers to Energy Efficiency: A Critical Reappraisal of the Rationale for Public Policies to Promote Energy Efficiency,* Lawrence Berkeley National Laboratory, 1996.

[16] See for example, Northeast Energy Efficiency Partnerships, *Northeast Residential Lighting Strategy: 2014-2015 Update*, December, 2014.

For the long payback projects, some of these are listed as ventilation projects. Board Staff makes the potentially erroneous assumption that because of the long gas-only paybacks and the fact that ventilation equipment generally consumes electricity, that therefore customers must already have been intending to install these and are therefore free-riders. It also raises the concern that customers may be also be participating in OPA electric programs. Again, these are unfounded assertions. First, while ventilation equipment like motors and fans do consume electricity, often the largest and most important efficiency savings from ventilation measures in cold climates can come from reducing space heating loads by minimizing unnecessary exhausting of conditioned air. Therefore, there is no reason to assume these are not valid and cost-effective gas efficiency measures. Further, because one cannot see what the electric or other impacts are for these projects, the gas-only paybacks provide a very limited picture and virtually no information on the true customer economics. While it is possible that a customer also received an OPA electric rebate, and that therefore savings should be allocated appropriately between OPA and Enbridge, this was not indicated from our review.

While it is certainly possible that some of these projects are free riders, to simply identify specific projects that appear to be possible free rider candidates based on gas-only paybacks and ignore others is not appropriate EM&V practice. Rather, we agree with Board Staff that Enbridge should pursue a NTG study that includes both free-ridership and spillover to better estimate custom program NTG ratios. However, in the absence of a new study, we believe Enbridge's estimates of free-ridership were in the reasonable range and reflected the best available information at the time.

Board Staff also raises some concerns related to persistence. For example, in regard to a commercial custom project that involved retrofitting two gas boilers to burn on-site produced digester gas, Board Staff notes that the customer had previously converted two other boilers so therefore this customer was likely a free rider and knew it could save money with this investment. Board Staff further asserts that use of the 25 year estimated technical life of the new boilers was inappropriate because this should be viewed as an advancement project and one should assume the customer would still have performed the measure at some later date even without an incentive. While these speculations are possible, Optimal does not believe there is satisfactory evidence to support these assertions, nor that would it be appropriate to assume them in the absence of such clear evidence. As discussed above, while Optimal does recommend Enbridge conduct a NTG study, it would be inappropriate to simply single out individual projects and deny savings from them without a proper and statistically valid analysis of the entire sample. Rather, Optimal relied on the planning estimates of overall program-level freeridership as the best available estimates and deemed to be reasonable based on other experience. Further, while the advancement argument is interesting, our review of the project concluded there was not a basis to support it. Clearly the customer chose previously to retrofit two boilers and not to retrofit the remaining two. We do not know why, but it is equally likely that it was because the first two boilers operated more and provided adequate economics to justify the investment first. The fact that the customer declined to address the remaining two

boilers initially and then later participated in the program and retrofitted those boilers could simply be that with the added Enbridge incentive and other services the customer now was able to justify this installation that otherwise might not have happened. We do not assert that we know this to be true, but it is just as possible as Board Staff's assumption that they are free-riders simply because they had already done a similar project in the past. In short, simply pointing out some information that might imply that possibly savings could be lower without a rigorous and statistically valid review is not appropriate.

Industrial Custom Program

Review of Board Staff criticisms of the industrial projects indicates many of the same issues are raised that are discussed above. As a result we do not exhaustively address these customer specific criticisms. Free-ridership of 50% was assumed for industrial projects based on existing planning estimates. This was considered the best available information and a reasonable NTG ratio by Optimal, in absence of a NTG study. Board Staff indicates that no information was provided on customer payback, so it is impossible to "assess whether Enbridge could have influenced the decision of the customer."[17] The presumption that if gas-only paybacks were available that is sufficient to make determinations of free-ridership is incorrect and does not reflect best EM&V practices. Programs influence customers and market actors in many ways, which is why NTG studies are often difficult and costly to do, carry a significant amount of uncertainty, and must be done through established and rigorous methodologies in a statistically valid way.

Board Staff also has criticisms related to persistence with industrial projects. It correctly points out that some industries are economically volatile and sometimes close or modify practices that could result in savings not persisting for the entire technical life of the measure. We agree with this theoretical concern, and also support pursuit of a persistence study in the future. However, absent a valid persistence study, it is generally common practice and considered reasonably accurate on average, to rely on technical estimated equipment lives to estimate savings longevity. Optimal found no concerns with the measures lives assumed,[18] and believed them to be reasonable and consistent with standard EM&V practice absent a persistence study. Speculation made by Board Staff related to things like the fact that "the pulp and paper

[17] Board Staff Submission on Enbridge Gas Distribution Inc.'s Application for Clearance of the 2013 Demand Side Management Variance Accounts EB-2014-0277, January 22, 2015, page 13

[18] Other than any explicitly addressed and justified in "Independent Audit of Enbridge Gas Distribution 2013 DSM Program Results; FINAL REPORT; Prepared for the Enbridge Gas Distribution Audit Committee by Optimal Energy, Inc., June 24, 2014"

industry is economically volatile"[19] as evidence that the measure life is inappropriate is not sufficient to estimate a different number.

CONCLUSION

Overall, we understand Board Staff's concern about the lack of recent NTG, persistence and base case studies, given the DSM Guidelines direct Enbridge to pursue such studies. We recommend the appropriate use of EM&V resources, balancing the program savings contributions and likely uncertainty of existing estimates with the costs to significantly improve the precision of those estimates. Studies should be pursued where appropriate after considering these factors. However, Board Staff's presumption about the invalidity of current estimates are not sufficiently based on clear evidence, nor supported by EM&V industry best practices and available data. As such, we do not believe the proposed Board Staff savings adjustment is appropriate.

Enbridge has made me aware of Rule 13A of the OEB's *Rules of Practice and Procedure.* Notwithstanding the fact that I was retained to perform an independent audit and that the terms of reference governing my work were reviewed and approved by Enbridge's Audit Committee, I hereby acknowledge my duties to provide evidence in this proceeding that is fair, objective, and non-partisan. In accordance with subrule 13A.06, I attach an Acknowledgment of Expert's Duty executed by myself.

[19] Board Staff Submission on Enbridge Gas Distribution Inc.'s Application for Clearance of the 2013 Demand Side Management Variance Accounts EB-2014-0277, January 22, 2015, page 13

FORM A

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998,* S.O. 1998, c. 15, Schedule. B, as amended;

AND IN THE MATTER OF an application by Enbridge Gas Distribution Inc. for an order or orders approving the balances and the clearance of certain Demand Side Management Variance Accounts into rates, within the next available QRAM following the Board's approval.

ACKNOWLEDGMENT OF EXPERT'S DUTY

1. My name is Philip Mosenthal. I live at Hinesburg, in the State of Vermont.

2. I have been engaged by or on behalf of Enbridge Gas Distribution Inc. and the Enbridge 2013 Audit Committee to provide evidence in relation to the above-noted proceeding before the Ontario Energy Board.

3. I acknowledge that it is my duty to provide evidence in relation to this proceeding as follows:

   (a) to provide opinion evidence that is fair, objective and non-partisan;

   (b) to provide opinion evidence that is related only to matters that are within my area of expertise; and

   (c) to provide such additional assistance as the Board may reasonably require, to determine a matter in issue.

4. I acknowledge that the duty referred to above prevails over any obligation which I may owe to any party by whom or on whose behalf I am engaged.

Date February 2, 2015.

Signature