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September 29, 2015

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Our File No. 152806

**VIA RESS, EMAIL AND COURIER**

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

Attention: Kirsten Walli  
Board Secretary

Dear Ms. Walli:

**Re: Enbridge Gas Distribution Inc. (EB-2015-0049) and Union Gas Limited (EB-2015-0029)  
Multi-Year DSM Plans (2015-2020)**

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Please find attached BOMA's Argument.

Yours truly,

**FOGLER, RUBINOFF LLP**

A handwritten signature in black ink, appearing to read "Thomas Brett", written over a horizontal line.

Thomas Brett

TB/dd

Encls.

cc: All Parties (*by e-mail*)

## **ONTARIO ENERGY BOARD**

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

**AND IN THE MATTER OF** an Application by Enbridge Gas Distribution Inc. pursuant to Section 36(1) of the Ontario Energy Board Act, 1998, S.O. 1998, for an order or orders approving its Demand Side Management Plan for 2015-2020

**AND IN THE MATTER OF** the Ontario Energy Board Act, 1998, S.O. 1998, c. 15 (Schedule B); **AND IN THE MATTER OF** an Application by Union Gas Inc. pursuant to Section 36(1) of the Ontario Energy Board Act, 1998, S.O. 1998, for an order or orders approving its Demand Side Management Plan for 2015-2020

## **Final Argument of Building Owners and Managers Association, Greater Toronto ("BOMA")**

### **Introduction**

BOMA's argument is organized as follows:

- General comments on the Companies' Adherence to the Guiding Principles
- Comments on the Synapse Report
- Specific comments on the topics identified by the Board numbered 1 through 12.
- BOMA's comments on topics 5, 6, 7 and 8 have been grouped together.

*Where a Guiding Principle from the Board's Guidelines, a LTEP or Directive Priority or a Board Priority applies to the particular topic, it is included and identified for reference.*

### **General Comments on the Companies' Adherence to Guiding Principles**

BOMA believes that both companies have generally adhered to the Board's Guiding Principles (the "Guidelines") as best they can. However, the Guidelines have created issues that have

presented difficulties for the Companies in developing their plans. BOMA will provide examples of the effect of some of the Guidelines.

In some ways, the new Guidelines have, especially in the case of Enbridge, resulted in a less strategic plan than those developed under previous guidelines, and its core programs are supplemented with a series of not always related initiatives in an attempt to respond to both the Guiding Principles and the Board Priorities.

**Reference: Response to BOMA Interrogatory, Exhibit I.T5.EGDI.BOMA.22**

*Enbridge has proposed twenty-two separate offerings in its Multi-Year DSM plan in response to the Board's guiding principles and key priorities which include a wide variety of objectives beyond the simple reduction of national gas consumption.*

The weakest element of Union's Plan is, in fact, its adherence to the guidelines with respect to Large Volume Customers. Give the predominance of the industrial sector in Union's territory this is a significant issue. BOMA examines this issue in more detail below.

Both companies have been severely restricted by adherence to the Guideline's limit on residential budgets that has clearly negatively impacted their ability to pursue all cost effective DSM per 4(ii) of the Minister's Conservation Directive to the Board dated March 26, 2014 ([http://www.ontarioenergyboard.ca/oeb/Documents/Documents/Directive to the OEB 20140326 CDM.pdf](http://www.ontarioenergyboard.ca/oeb/Documents/Documents/Directive%20to%20the%20OEB%20140326%20CDM.pdf)). While BOMA accepts that a ramp up to plans to address all cost effective DSM would take time, the budget restrictions and the guidelines have resulted in the companies making a step change for the 2016 budget which level essentially then remains flat for the remaining five years of the long term plan. Surely one of the benefits of a longer term plan should have been to building more capacity, do more research and establish more pilots for expanding the range of program options and explore the innovative and creative approaches to achieving greater results as well as a reasonable and meaningful ramp up of budgets in order to respond more fully to the Minister's Directives.

One step change in budgets and then essentially a continued reliance on inflation hardly

captures the spirit or the strategic importance of Ontario's commitment to "Conservation First".

## Comments on the Synapse Report

The Board should not accept the Synapse Report as a valid assessment of either company's DSM Plan. The scope of its assignment appears to be extremely narrow excluding any fundamental or quantitative analyses, and the briefing of the individuals responsible for the study appeared to have failed to include any contextual or historical information beyond the 2014 Framework and Guidelines. Synapse admitted that it had never reviewed the Minister's Directives or even made a detailed study of the Framework.

### Reference Transcript Volume 3 page 3

*Mr. Brett: Have you had a chance to read and study this directive?*

*MS. NAPOLEON: I have reviewed the framework.*

*MR. BRETT: Right. Have you made a detailed study of it?*

*MS. NAPOLEON: No, not a detailed study.*

Most of the Synapse recommendations focus on screening and evaluation, yet it was clear that Synapse did not know the role of the intervenors in both the Technical Evaluation Committee and each Company's Annual Audit Committee nor the results of previous evaluations. One of the key witnesses for Synapse admitted how little beyond the Plans and the Framework/Guidelines they had been exposed to.

### Reference: Transcript Volume 3, page 88.

*MR. TAKAHASHI: we also noted that we did not see previous evaluation studies across many offerings, so if there is a study available, then there's less need to investigate further the impact and the process of specific offerings.*

In contrast, Mr. Woolf's evidence during cross examination was enlightening and generally supportive with respect to both companies' approaches once both intervenors and counsel to

the companies provided a fuller context for those approaches in general discussion rather than an analysis of the two Plans.

Given the new evaluation approach, the Synapse recommendations should be reviewed by the new Advisory Committee but it is unfair for the Board to rely on the apparently uninformed opinions of Synapse Staff, particularly where they were unaware of results of the consultations with intervenors that had established evaluation procedures, program guidelines or the format and content of scorecard elements. Mr. Neme's strong disagreement, on the matter of requiring two measures illustrates this point.

**Reference: Transcript Volume 11, Page 152**

*-- when you asked are there any other ones that jump to mind that I disagree with, only one comes to mind, and that has to do with the residential retrofit program and the recommendation that you eliminate the two-measure minimum requirement. I personally disagree with that recommendation and the 15 percent minimum requirement as well. I do think it's important to promote some level of comprehensiveness in the treatment of residential retrofit opportunities. **I don't think two measures is very hard. Anytime you install insulation you should do air sealing first, or you could significantly degrade the effectiveness of the insulation down the road by allowing moisture into it, so it is not a very tall order. It forces a more building science-centric approach to things, but that's the only one that -- that's the only one that comes to mind.** (Emphasis Added)*

BOMA suggests that the approach in this example demonstrates that the Companies in consultation with the intervenors are ahead of best practices on such program design matters and should be applauded for their innovation.

## **1. DSM Targets**

BOMA is convinced that by any measure of success, both Enbridge and Union have effectively and efficiently delivered DSM over the past 20 years in so far as their limited budgets and the regulatory landscape have allowed.

**Reference: Transcript Volume 6, Page 121**

*MR. ELSON: I also understand that Enbridge's DSM programs have generated approximately \$2.5 billion in net TRC benefits since 1995 and that's at tab 2; can you confirm that?*

*MS. OLIVER-GLASFORD: Yes, confirmed.*

Both the Working Group for the DSM Framework and the Framework itself noted that the relationship between Targets and Budgets is iterative. Given that the budget was constrained, comments on targets in and of themselves are meaningless; except BOMA urges the Board to direct Union to restore its large volume program including custom and prescriptive programs and use the self-direct feature it introduced under the previous framework for its largest customers, and revise the targets accordingly. When Panel Chair, Ms. Long freed Ms. Lynch from the Framework and Targets, Ms. Lynch admitted she would focus on commercial and industrial.

**Reference: Transcript Volume 13, Pages 49-50.**

*I am interested in your views -- you deal with DSM on the ground every day, and if we could park the framework and we could park the targets so you are*

*MS. LYNCH: So my choice would be the commercial-industrial market, and I would say, because I think there is great savings opportunity, one, but I think there is also a range of opportunities for new technologies. **There are areas that we can go further into that market. And I think that that would be certainly, from an overall savings perspective, a valuable focus.** (Emphasis Added)*

Twenty years have demonstrated that industrial customers deliver the most cost effective results; for both Enbridge and Union. The predominance of large gas users in Union's territory and Ontario's policy on carbon make it imperative that their industrial customers play a larger role in DSM not a smaller one. With DSM and a cap and trade program, industrial customers, who are large final emitters who have benefited for decades from the fact that the environmental costs associated with GHGs were not borne by them, will benefit from improved energy productivity and hopefully improve Ontario's energy efficiency standing compared to other industrial nations and states.

**Reference: KT4.3, Mowat Centre Report Entitled "Ontario-Made: Rethinking Manufacturing in the 21st Century"**

*Figure 29 displays energy efficiency—in terms of electricity and natural gas consumption only—in total manufacturing for Ontario relative to U.S. and German peers. As the ranking shows, Baden-Württemberg is the most energy productive jurisdiction in this group both with regard to electricity and gas usage, followed by Indiana, Bavaria and North Carolina. **Out of these 19 jurisdictions, Ontario ranks 17th, or third last, in terms of energy efficiency.** (Emphasis Added)*

Furthermore, the Ontario government has ensured that large transmission connected electricity customers, almost all of whom are large industrial gas customers as well are served by CDM, it is imperative that the large gas users have these opportunities as well (Ministerial Directive dated July 25, 2014 to the OPA regarding the Industrial Accelerator Program; see <http://www.powerauthority.on.ca/sites/default/files/news/Jul-25-14-Industrial-Accelerator-Program.pdf>).

The very fact that the paybacks on energy efficiency investments in large industrial plants are shorter than those associated with DSM (and CDM) generally makes these customers critical for any pursuit of all cost effective DSM, i.e., cost effective under the Total Resource Cost test Plus, even before the economic impacts of greenhouse gas emissions are considered.

The cross examination of the GEC witnesses by Mr. Mondrow demonstrates exactly why the broader TRC criteria for “cost-effectiveness” creates the imperative for industrial customers to be assisted by utilities, whether gas or electric, in order to ensure that they are making good economic decisions from the perspective of the total resource cost test, not solely from their own specific payback criteria. If utility regulators used an industrial customer definition of what is economic, no gas or electricity supply system would ever be built to serve that customer.

**Reference: Transcript Volume 11, Page 12-13**

*MR. MONDROW: All right. And in the preamble to the interrogatory, we put a quote from your evidence, and in that quote you used the term "cost effective", and the second part of our interrogatory asked you what you meant by "cost effective", and your response is that you meant TRC, the TRC test. And that's fair enough, but I wanted to just ask you to confirm, if you can, that large industrial gas customers don't evaluate their*

*investments with reference to the TRC test.*

*MR. NEME: Absolutely.*

*MR. CHERNICK: Yes.*

*MR. MONDROW: Absolutely not.*

*MR. NEME: Correct.*

*MR. CHERNICK: Yes. And that's our point, that they use tests like a one-year payback, two-year payback and therefore -- and, therefore, don't pursue all cost-effective energy efficiency.*

*MR. MONDROW: Cost effective from the definition of a TRC test or some other test that you use?*

*MR. NEME: Cost effective from the perspective of the energy system.*

*MR. MONDROW: Yes.*

*MR. NEME: Yes*

*MR. MONDROW: Fair enough. Okay. Now I understand that disjunct (sic).*

With respect to large volume customers who are generators of gas fired electricity (excluding generators of CHP) APPrO raised the issue of contract provisions that somehow prevent improved efficiency. No evidence was filed to support that assertion. In a competitive electricity market, generators have a financial incentive to improve their efficiency, but that is not the case in Ontario where long term contracts protect generators and gas is used in intermediate loads, ramping or peaking.

Enbridge serves all of its large electricity generators under a single rate class; perhaps if Union did the same, the resulting confusion between large industrial customers and generators could be avoided. This would not, however guarantee that large generators would be driven to be either maximize energy efficiency or minimize greenhouse gas emissions; the Ontario government would then have to find other instruments to make this happen just as it did for greenhouse gas emissions from coal fired generation.

More generally, the utilities each have DSM programs that apply to more than one rate class, as they should, since differentiation of consumers for ratemaking purposes are and should be



different than the eligibility criteria for DSM programs. The purpose of rate classes is to make it easier to match the costs, that various more or less homogenous groups pay for the benefits such groups receive from utility services. The DSM program eligibility criteria, on the other hand, should be structured so as to allow DSM programs to address the opportunities for energy savings in various types of customers in a logical and orderly manner, that takes into account the customers' level of knowledge, financial capabilities, commercial environments. So it should be equally possible to have only some members of a rate class eligible for a particular DSM program, without that fact constituting undue discrimination.

## **2. DSM Budgets**

*Framework Guiding Principle: Achieve all cost-effective DSM that result in a reasonable rate impact.*

There is no evidence on the record or in the Guidelines that the \$2.00 per month limit on residential rates is reasonable. The Companies' approach to calculating rate impacts has not encompassed all of the benefits of DSM both to participating and non-participating customers. Both of these shortcomings must be addressed. BOMA believes that the best way to deal with the rate impact on non-participants in DSM programs is to increase the participation rate in programs making them more accessible to customers.

Ironically, it is these very budget restrictions that limit the penetration of DSM programs, particularly in the residential sector. Not only has Enbridge's home energy conservation program been limited this year by budget restrictions, limitations going forward prevent it from being expanded to serve a broader range of customers including low income customers.

**Reference: Transcript Volume 8, Page 123.**

*MR. JANIGAN: Are low income residential homeowners eligible for the home energy conservation program?*

*MS. BERTUZZI: No, they are not.*

Given that the incentives associated with any program net out in the Total Resource Cost Test and given that the direct install feature with no upfront capital required are both included in the Framework with respect to Low Income programs, there is no reason why this program could not be also delivered to low income families.

Electricity represents less than 20% of the energy consumed in Ontario but the budget for CDM is considerable higher with fewer benefits for customers, the environment and society.

**Reference: Transcript Volume 6, Page 124.**

*MR. ELSON: And subject to check, would you agree that the conservation budget for electricity in Ontario is **3.83 times larger** than the conservation budget for natural gas?*

*MS. OLIVER-GLASFORD: That does seem consistent with what I believe to be the magnitude difference, yes.*

*MR. ELSON: Thank you. And again, turning back to the document, table 3 compares the relative cost-effectiveness of natural gas and electricity conservation. These are 2013 numbers and include both resource acquisition and low-income programs, and this table here shows that Enbridge's programs were **twice as cost-effective** as those for electricity generation, and Union's programs were three times as cost-effective as those for electricity generation. Is that fair to say?*

*MS. OLIVER-GLASFORD: Giving the mix of customers and programming, yes, that would be accurate. It looks like that's the calculation here.*

*MR. ELSON: So in sum, looking at all of these pieces of data together, would you agree that natural gas conservation budgets are roughly **a quarter of electricity conservation budgets, even though natural gas accounts for over four times the greenhouse gas emissions and natural gas conservation programs are roughly two or three times more cost-effective?***

*MS. OLIVER-GLASFORD: I don't disagree with your data. I think there is probably some additional context that's required, but certainly the data doesn't seem flawed.*

When compared on a BTU basis, the gap between incentives to customers to save gas and the incentive for customers to save electricity is even greater.

Reference: EXHIBIT I.T11.EGDI.BOMA.35;

*Response To Interrogatory: Given feedback from our LDC partners, customers, business partners and our own project experiences, Enbridge is confident that the*

*reference statement highlighted above is not only accurate, it is a material factor influencing conservation decision making today. As an example, consider a custom non-lighting retrofit project in the industrial sector. It is our understanding that CDM incentives for a custom track non-lighting project incents the greater of \$800/kw or \$0.10/kWh for the first year of annual savings. Given that 1 [kWh] generates about 3,412 [BTU] that could be translated to equal an incentive per unit of energy (BTU) of \$0.0000293/BTU or better. The Enbridge custom industrial program pays a blended incentive of \$0.085/m<sup>3</sup> for the first year of annual savings. Given that 1 [m<sup>3</sup>] generates about 35,734 [BTU] that could be translated to equal an incentive per unit of energy of \$0.00000238/BTU. In this example, **an industrial customer would receive roughly 12 times the incentive from the CDM program than they do from the DSM program when measuring the incentive payment per unit of energy.** (Emphasis added)*

While BOMA accepts that much has been accomplished in the past 20 years by both Companies with respect to DSM, the relatively smaller budgets for gas DSM than electric CDM does present a serious problem. How many of its customers have each company reached? How much of the existing potential has been tapped? Clearly the methodological differences between GEC's witnesses and the consultant used by Enbridge, Navigant (for its "energy savings potential" study), are significant. What is missing from the discussion is any evidence on either penetration or participation. We do not know what is left on the table.

BOMA suggests that budget restrictions have limited the market research that the Companies have been able to afford. In BOMA Interrogatories, 28, 29, 30, 32, 37, 39, 58, and 60, Enbridge noted areas where program design considerations were made in the absence of any research on the issue. In one case, the free rider rate for so-called "hard to reach" customers (small commercial) was assumed to be the same as for large commercial customers. Not only does this make small commercial seemingly less cost effective, such an assumption reduces the value of the savings achieved.

Reference: Exhibit I.T.8.EGDI.BOMA.14

*RESPONSE: The current free rider rates are listed in the assumptions table filed jointly with Union Gas on 2015-03-27 in the New and Updated DSM Measures Application: EB-2014-0354, Exhibit B, Tab 1, Schedule 2, as referenced in the application at Exhibit B, Tab 2, Schedule 6. The Company is using the free rider rate determined for the Commercial*

sector, which is 12%.

### **3. Shareholder Incentive**

*Framework Guiding Principle: Shareholder incentives will be commensurate with performance and efficient use of funds.*

BOMA supports the use of shareholder incentives which succeed in garnering the attention of senior management in both Companies. However there is a significant disconnect between the allowance of a 15% variance account and the use of 150% of target for the Upper Band. In various settlement conferences, intervenors and the Companies agreed to the 75% -100%-125% structure for the scorecards which was accompanied by the Companies having the freedom to move funds around to ensure well performing programs were not cut off prematurely because of budget limitations.

This disconnect may be exacerbated by the additional incentive for underspending budgets through the efficiency rollover - a rollover with no impact on targets. If a given years results can be achieved at less than the annual budget, surely the lesson must be that the relationship between costs and results was incorrect or has changed. Surely some part of the excess budget rolled over should be factored into an increase in targets. The objective is clear – increase results.

### **4. Program Types**

*Framework Guiding Principle: Design programs so that they achieve high customer participation levels.*

The companies' major effort to increase customer participation rates has been to increase incentives for both custom and prescriptive programs. They will consider incentives to parts of the supply chain as suggested by GEC and used effectively by Ontario Hydro more than twenty years ago. However, both companies have overlooked the opportunities to increase

participation by a very tepid approach to performance based conservation in their DSM Plans. The TRCA pilot identified Union's response to BOMA IR 13 is a model of increased participation.

In addition, O Reg 397 requiring energy management plans by the broader public sector also represents a huge opportunity to expand participation but the companies have chosen a limited role in related initiatives, e.g. Exhibit B.T.13.Union.BOMA.12.

Reference: Exhibit B.T12.Union.BOMA 12.

*Union's effort...involves assistance in providing historical consumption data and recommendations to improve efficiency for consideration in the development of customers' energy plans.*

*Framework Guiding Principle: Minimize lost opportunities when implementing energy efficient upgrades.*

New construction is the largest example of lost opportunities – the program area that Ms. Oliver-Glassford noted in response to Ms. Long on the last day of the hearing. Enbridge's program for both residential and commercial is a an excellent example of such programs, but the budget constraints and the ever-present pressure for short term (annual) CCMs severely limit the resources and penetration necessary to more fully address the extent of lost opportunities in new construction. It is also disappointing that Union's plan fails to address new construction due to uncertainty with respect to Building Code changes by the province. Union should continue its existing program as EGD has proposed. Both companies should work with others including the LDCs to accelerate the introduction of net zero buildings in addition to incremental improvements to the Ontario Building Code.

Reference: OSEA Evidence, Exhibit L.OSEA.1, Page 6/7

*NET ZERO BUILDINGS: While both Enbridge and Union are pursuing opportunities in new construction, their involvement in the new construction market could be much more robust with a full market transformation approach rather than a hybrid of resource acquisition programs and market transformation. Traditionally, the programs have used a process to build better than code by a fixed per cent while no research has been done to understand how Ontario's Building Code actually performs with the current*

*patchwork of compliance at the municipal level, where traditional code compliance has focused on safety, not energy. The potential for working with the local electric distribution utilities is further limited given their short term focus on saving kWh as embedded in their targets. Without strong policy or regulatory direction to avoid lost opportunities, Ontario will not be able to address all of the new construction opportunities (emphasis added).*

*Approximately one third of Canada's GHG emissions are attributed to building energy consumption. Buildings also account for about 53% of Canada's electricity consumption. They are largely responsible for the peaks in electricity demand associated with space heating, cooling, lighting and appliances. These peaks, if not reduced and shifted in time, will impose additional requirements to build new power plants. Without a major transformation in the way we design, build, and operate buildings, Canada cannot expect to meet its goals for reductions in greenhouse gas (GHG) emissions and for clean air in its cities. Mechanisms that allow the building to act as a net energy generating system and also shift peak demand can provide the basis for this transformation. At the same time, a comparison of the Canadian construction industry with that in other industrialized nations, points out the urgent need for Canadian innovations. This convergence of the need for innovation and the requirement for drastic reductions in energy use and GHG emissions provides a unique opportunity to transform the way we conceive buildings and their energy systems. This Network is a vital step along the way to achieving these goals. It links researchers from academia, industry and government in a united effort to develop the technologically advanced smart net-zero energy buildings (NZEBS) of the future. A net-zero energy building is defined as one that, in an average year, produces as much energy (electrical plus thermal) from renewable energy sources as it consumes. Sources: NSERC Smart Net-Zero Energy Buildings Strategic Research Network, online:*

*<[http://www.solarbuildings.ca/documents/FINAL%20SNEBRN\\_executive%20summary%20extended%20%20REVISED%20JULY%202014.pdf](http://www.solarbuildings.ca/documents/FINAL%20SNEBRN_executive%20summary%20extended%20%20REVISED%20JULY%202014.pdf)>.*

*Framework Guiding Principle: Programs should be designed to pursue long-term energy savings.*

It appears that both Companies and many intervenors assume that long term savings can only be achieved by specific measures with long service lives. BOMA's members find that the key to long term savings is better and continuous access to information about energy use and ongoing measurement and verification from savings projects that are complemented with full attention to operational improvements to maintain savings just as other assets are managed and maintained along with replacing inefficient equipment at the end of its useful life.

*Framework Guiding Principle: Ensure low-income programs are accessible across the province; LTEP and Directive Priority: Expand the delivery of low-income offerings across the province.*

Both Companies have stepped up to the plate with respect to addressing low income conservation, however budget constraints limit their full expansion. In particular, where cost effective, the elements of retrofit programs not currently aimed at the low income segment should also be open to all low income customers with incentives covering the full cost of implementation, as incentives, are netted out of the TRC test of cost effectiveness.

*LTEP and Directive Priority: Development of new and innovative programs, including flexibility to allow for on-bill financing options;*

I. Innovation

Enbridge's work on the Low Income Program deserves special mention with respect to innovation. Most utility and government programs across North America only focus on the social housing aspect of low income housing. Working with the United Way, Toronto Hydro, FRPO, LIEN and others, Enbridge has developed an innovative approach to addressing low income households living in private sector rental buildings – where most low income people in Ontario actually do live.

**Reference: Transcript Volume 8, Page 80.**

*MS. LONTOC: -- I cannot say definitively that we are the only one in the private multi-residential space. But I've had conversations very, very recently with stakeholders and evaluators in the energy efficiency space, and they were quite excited with the breakthrough that we've had in developing an eligibility criteria for privately owned buildings.*

BOMA supports adding innovative elements and features to the usual existing framework programs: New Construction – Residential; New Construction – Buildings; Home Retrofit – Residential, Building Retrofit – Commercial and Industrial (including Institutional) rather than the creation of a long list of programs that customers are left to sort out whether they are eligible. However both Companies, in order to be seen responsive to this priority, have

seemingly added what appear to artificial eligibility criteria to differentiate their new programs.

Both Companies have developed a new comprehensive program, albeit with different names, but limited it to a very narrow segment of their customers. The strategic underpinnings of this comprehensive approach should be the basis for all of the programs aimed at the commercial, industrial and Institutional sector; i.e., recognizing that DSM is a fundamental relationship with customers rather than a simple transaction. After all, one of the fundamentals of the gas distribution industry is its long term relationship with customers – delivery of gas, ensuring safety and with DSM, to ensure efficiency.

Currently, both companies use an account management process, but it is limited to the very large customers, and usually differentiated by the meter and customer volume – differentiation better left to ratemaking than DSM. They are often referred to as key accounts. In some other situations, the term national or chain accounts is used to denote a grouping of customers, but to date, there is no province wide coordination between the Companies; worse eligibility for certain programs is restricted due to size limitations with respect to a single location. It appears that budget restrictions also limit both Companies ability to reach more of its customers.

**Reference: Exhibit I.T2.EGDI.BOMA.15**

*INTERROGATORY: Some segments of the commercial market are made up of numerous multi-location customers where decision making is to some degree centralized such as schools, retail, hotels and motels, etc. Does Enbridge take this into account when applying these size limits?*

*RESPONSE: Each individual property is assessed on its own merits with respect to determining the annual consumption regardless of whether or not the decision making is centralized.*

Furthermore customer awareness remains an issue in spite of the fact that Companies have been delivering DSM programs for 20 years. Restricted budgets have also limited customer awareness of the benefits of energy efficiency and even of the programs themselves.



**Reference: Exhibit A, Tab 1, Page 16 of 23**

*Union recognizes that future success with DSM Program offerings requires an understanding of the market and a focus on meeting customer needs. Over the years, Union has consistently reached out to customers to get their perspective on the barriers to adopting energy efficiency improvements and what is meaningful to them in their pursuit of energy savings. Union heard the following from customers: **Awareness of the potential to save energy remains a key barrier** to customer participation in DSM Programs. In the Residential market, many customers have no plans to make their home more energy efficient, believing instead that their homes are already energy efficient. **In the general service Commercial/Industrial market more than half of Union's customers are unaware of Union's DSM Program Offerings.** These indicators suggest that Union can play an important role as a source of information on the potential to make energy efficiency improvements and how customers can save energy. New offerings such as Residential Behavioural will play a critical role in addressing this barrier. (Emphasis Added)*

Innovation should be used to find unique ways to meet the needs of specific groups of customers: BOMA is most concerned about its many members who have multiple locations treated as one-of accounts, but the broader public sector is also a case in point. Individual schools can't participate in DSM without involvement of the school board; whether the element of the program is improving the efficiency of school buildings or education of students where the school board has responsibility to translate provincial requirements for curriculum. If the utilities want to work toward improving energy literacy, they require an all-encompassing approach. That is the hallmark of TRCA's Sustainable Schools Program. Hospitals already have shown a strong propensity to work together and share best practices through TRCA's Greening Health Care; so too municipalities with the TRCA's Mayors' Megawatt Challenge. Both Companies have the option of leveraging TRCA's segment specific approach to assist them in expanding the coverage to other segments, and leverage the data associated with O Reg 397.

II. Financing

With respect to on bill financing, BOMA suggests caution in going beyond the open bill concept that Enbridge currently employs. Union should be encouraged to follow suit. Both could also offer options to use financial incentives to buy down interest rates offered by financial

institutions or provide a payment free period. However, BOMA believes that the utilities should not be a financing institution; that work including assessment of customer credit risk is best left to the financial institutions themselves. Asking the Companies to re-establish a financing facility like the ones used prior to unbundling is a step backward and will raise objections from lenders and contractors.

The province (Municipal Affairs and Housing) has established a regulation for the use of Local Improvement Charges (LICs) to attach energy efficiency and other improvements to the property through a property tax mechanism. Enbridge is already working with Toronto on a pilot. Given that retrofits to property, for efficiency or other reasons are best attached to the building and not the customer, this approach deserves to be fully explored. The utility could be the payment mechanism, but the true benefit of the LICs is that it becomes part of property taxes. It is also consistent with the province's initiatives on building labeling. BOMA suggests that this mechanism would be of particular benefit to senior citizens who own their own home, but do not have the capital to invest in improvements.

*Board identified Priority: Implement DSM programs that are evidence-based and rely on detailed customer data;*

Fundamentally, there are two types of programs that fit with this priority. One is the Performance Based Conservation that was cited by OSEA and has been pioneered by TRCA and provided the basis for Environmental Defense's evidence in EB-2012-0451 and addresses gas electricity, steam and water. The other is a gas only behavioral based program introduced by both Companies in their applications and developed by an American based company, Opower based on success in applying the process to electricity use. The former applies to buildings, their operation and management; the latter applies to residents in homes. Opower is interested in piloting it in the small commercial sector. Meanwhile the province is continuing to develop the Green Button Program, a data access program and has broadened that program to include natural gas. It remains unclear how these initiatives fit together.

### III. Performance Based Conservation

For Commercial and Institutional Buildings, BOMA believes that that Performance Based Conservation should be the basis for DSM. Savings are measured rather than estimated and scorecards could easily be developed to improve the performance of targeted buildings to a better than median performance level with a targeted maximum of First quartile performance.

**Reference: EB-2012-0451, Exhibit L.EGD.ED.1 (Emphasis Added)**

*Performance based conservation begins with identifying high energy intensity buildings through benchmarking and then works systematically towards identifying and fixing the particular inefficiencies causing the high use in each building. The nature of the inefficiencies runs the range of errors in design and construction, through equipment deterioration over time, to changes in use and operation of the building, and poor performance of controls and automation systems. It is the compound effect of these problems that leads to gas use levels in some buildings **which is 3 to 5 times** what is needed and already achieved by comparable, more efficient buildings. Fixing these problems requires a systematic methodology. The work involved in equipment repairs and replacement, right-sizing and rebalancing, refurbishment and re-programming, typically provides relatively short payback periods.*

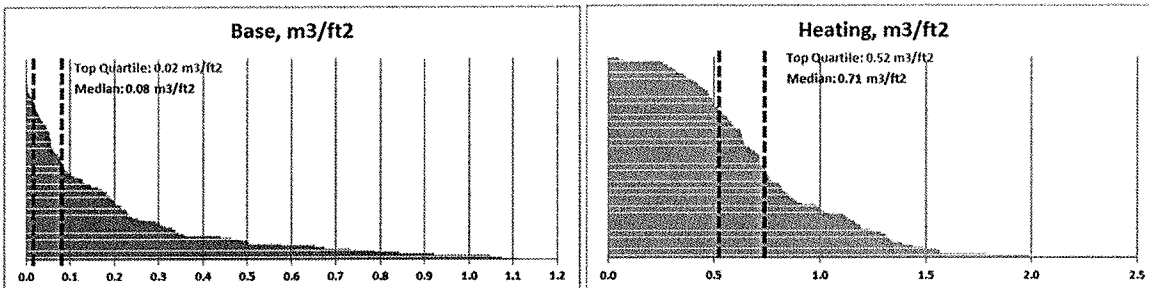
*Rather than relying on technologies, assumed penetration levels and engineering calculations, the Performance-Based Model analyzes actual, benchmarked energy use of different building types and establishes the potential savings due to all buildings reaching intensity levels already achieved by one half (median) or one quarter (top-quartile) of the peer group. **Simply bringing high gas use intensity buildings down to meet median base and heating energy levels of existing buildings yields overall percentage savings in the order of almost 19% for commercial and 12% for apartment buildings. Going further to meet top-quartile performance levels raises the potential to over 31% for commercial buildings and almost 24% for apartments.** It should be noted that attainment of today's top quartile gas use is by no means the greatest savings level that can be planned for and expected within the timelines in question. By definition, one quarter of existing buildings are already performing at or better than this level. Energy efficiency initiatives such as such as REALpac's 20 by '15 Target and TRCA's Town Hall Challenge and Greening Health Care programs use top quartile gas use to set energy targets. Measures to improve efficiency in high gas intensity buildings go beyond those included in Marbek's DSM Potential Study and are typically site-specific equipment repairs, upgraded control of buildings systems, and testing, tuning and rebalancing of heating plant and systems. Such projects show generally good Total Resource Cost ("TRC") test values, can be implemented quite quickly, and serve to improve building performance as well as energy efficiency. They require a systematic approach to identify*

*target buildings, engage owners, isolate the inefficiencies, implement the necessary improvements and verify the results.*

**Sector: Office Buildings**Number of buildings: 123  
Total building area, ft<sup>2</sup>: 42,000,827

Gas usage	Savings potential, % at the attainment of	
	Median	Top Quartile
Base	65%	87%
Heating	23%	39%
Total	29%	46%

Based on 2010 data weather-normalized to Toronto. Data centres have been excluded.

**IV. Behavioral Conservation**

Both companies have included major expenditures to introduce behavioral conservation programs. Enbridge has already contracted with Opower and it appears that Union plans to do so. However, neither Company has demonstrated that the program is cost effective. At the least, the Board should ensure that program is cost effective before full implementation by both Companies. As mailing costs are significant, the Board should request that the Companies investigate the potential for using mobile applications as well as have a clear understanding whether it links with or duplicates the Province's Green Button initiative.

*Board Identified Priority: Ensure that programs take a holistic-approach and identify and target all energy saving opportunities throughout a customer's home or business.*

See above comments with respect to Performance Based Conservation which takes a holistic approach which identifies and targets all energy saving opportunities throughout customers' buildings.

## **5. Program Evaluation (including Adjustment Factors)**

## **6. Input Assumptions**

## **7. Cost-Effectiveness Screening**

## **8. Avoided Costs**

*Framework Guiding Principle: Invest in DSM where the cost is equal to or lower than capital investments and/or the purchase of natural gas.*

BOMA has grouped these topic areas together for a reason. These topic areas represent the foundation of traditional demand side management as first developed in California; indeed, the document, California Standard Practice, was a fundamental source for the DSM structure enunciated in EBO-169-III.

While Ontario's DSM framework has evolved since then, the fundamentals with respect to economics of DSM have not really changed: efficiency measures are identified and screened for cost effectiveness based on the value of deemed savings in term of avoided costs. In the simplest of terms, a program that gets 1000 participants to install a product that saves 100 m<sup>3</sup> delivers 100,000 m<sup>3</sup>. If 10 per cent of those participants would have bought the product without the incentive, the program results are discounted by 10% for free riders; if an additional 5% of customers install the measure, but do not claim the incentive, the spillover effect is 5%.

The documented and approved input assumptions are updated when better data are available – either up or down, e.g. when the base case changes through improved building or equipment standards or when technical improvements enhance the savings from the measure. Research may update free rider rates, spillover rates, or other aspects of the assumptions, but what

remains true is that the all of this so called data are “assumptions” – no more.

**Reference: Exhibit B.T6.Union.BOMA.16**

*INTERROGATORY: How does Union account for interactive effects when multiple prescriptive measures are used in a given project? Prescriptive incentives are based on savings per measure in an average or typical situation. Has Union done any research on the frequency with which the deemed savings are less than or more than the actual savings in a particular situation?*

***Response:** Union claims prescriptive measure savings based on the Board approved input assumptions for every measure installed. Prescriptive input assumptions based on engineering equations convey information clearly and transparently, and are widely accepted in the industry. The interactive effects between measures are not automatically captured. Union relies on a prescriptive offering approach based on input assumptions outlined in substantiation documents. These input assumptions are developed by an independent third party technical expert. TEC comments, references, and information are taken into consideration during the development and review process. The overriding goal of the input assumptions development process is the creation of accurate and well-defined measure substantiation documents that facilitate proper program development, operation, and evaluation. This includes the best practice industry principle that on the aggregate portfolio level the actual savings deviations both above and below the average will balance out. (Another Assumption)*

While DSM programming has progressed to encompass custom projects, most often, the savings are based on engineering estimates rather than measured or more specifically “metered” data. The use of assumptions and estimates began when metering and sub metering were expensive, time consuming and difficult to interpret. “Big data” and mobile communications and mobile applications have transformed many industries; the same can be true for DSM (and CDM).

The new Framework has called for the implementation DSM programs that are evidence-based and rely on detailed customer data, but the Framework and Guidelines as well as evaluation procedures with respect to these four topics have not been revised to make room for evidenced based programs like performance based conservation and when it comes to evaluation, it is even less accepting given that most evaluation firms used are US based when

performance based conservation is predominantly a Canadian innovation.

**Reference: Transcript Volume 5, page 149**

*MS. SIGURDSON: So when I was talking about cutting edge, I was talking about the methodology by which that program is issued. So in context for when I was having the discussion with Mr. Brett, it was all around establishing a new methodology for some of the challenges we found. You know, we're trying to understand and help our customers better with their operational behavioural improvements and, in doing so, we were finding that we were using a methodology that is still yet to be established, and we've taken steps to further that methodology. **We've moved forward to doing surveys and yet we're still moving -- I think one of the excerpts that we talked about is that the auditor for Optimal had said that nobody was using a methodology such as the one we were currently. And that's what I was referring to in terms of cutting edge.***  
(Emphasis Added)

**Reference: Transcript Volume 6, Page 106**

*MS. SIGURDSON: The percentage would change, depending on the year. So there is a custom project savings verification that Ms. Oliver-Glasford was alluding to, that was established through the technical evaluation committee. And in that, we wanted a 90-10 confidence level and, in order to achieve that confidence level, the actual sample would change, depending on the mix of offers and the projects that went through in any given year.*

*MS. OLIVER-GLASFORD: Right, it is a little bit complicated because there is different strata for different sized projects, and that's how we determine how many projects. But generally speaking, we are going for a 90-10 confidence interval, and I think that's the --*

*MR. BRETT: So it is sort of based on a statistical analysis. What you don't do is -- and I don't mean to repeat myself, but you don't actually measure the output of each of the projects. That's not part of the project. What you would -- let me put this another way. You give an incentive for these projects, as I understand it, and the amount of the incentive that you give is based on an engineering estimate of what the savings ought to be if that project goes ahead; correct?*

*MS. OLIVER-GLASFORD: Using E-tools, yes.*

*MR. BRETT: And there is no -- having done that, apart from this -- I'll call it a verification/audit process, you don't actually confirm by a measurement that those savings were achieved?*

*MS. OLIVER-GLASFORD: I think just for clarity, the CPSV process to which Ms. Sigurdson was speaking does sample a statistically significant -- typically, you'd go for an 80-20 type of statistical variance. We actually shoot for 90-10, so very, very high precision in terms of what we're getting as output. And, you know, when we look at the costs of*

*doing these verification studies, and doing them in a manner that we do undertake them -- so using some of these deemed savings approaches for understanding, in general terms, what the savings are, then going through the verification of a statistical sample, if we were to broaden that base and look at metering for every single project, the costs would be significantly higher. So in looking at our plan as we always do with a balanced approach, in terms of what are -- what are the best use of dollars, ratepayer dollars to ensure the best level of certainty, it seems appropriate that we've got those safeguards and those governance processes in place.*

BOMA is concerned that the Board's continued reliance on input assumptions for calculation of savings remains a significant weakness in the Framework and limits the innovation that the Companies can employ in adopting "leading edge" approaches.

Further, Enbridge claims that for DSM to be relied on for avoiding infrastructure invested, additional certainty will be required in the measurement of DSM Results. BOMA suggests that this certainty is required for customers today as well as system planners for tomorrow.

**Reference: Transcript Volume 7, Page 116-7**

*MS. OLIVER-GLASFORD: I think it would be safe to say we would certainly, as we go down this -- one of the things we have mentioned, the catch phrase "certainty", and when you're looking to offset infrastructure, you'd want not just 80 per cent certainty, you'd want, you know, almost perfect certainty, or at least as close as you could get if that's -- you know, those kind of decisions are being made, so I think that would probably require additional metering at the customer sites and perhaps other metering as well.*

*MR. BRETT: Yes, I -- and safe to say, probably, it might also require additional metering - - well, as you say, at customer sites to be able to, among other things, record what savings you are getting with particular DSM initiatives? In other words, it seems to me there will be a tilt toward wishing to have more measurement rather than less of the results of various DSM programs and approaches; is that fair at a conceptual level?*

*MS. OLIVER-GLASFORD: At a conceptual level I don't disagree that we're going to need certainty around what the actual usages are in various customer sites, in order to make the kind of determinations that, you know, at some point in the future we may be able to make.*

*MR. BRETT: Yes, and actually, you've got a -- as I think about it, you've got a twofold reason: You've got to measure the volumes for purposes of knowing what your potential load growth is over time, but also for understanding what the results of certain DSM measures would be on that growth; fair enough?*



BOMA suggests that the certainty of results for DSM is even more important to the customer and 80% certainty may not be good enough for customers and perhaps not for the results in total for DSM. With millions of dollars in costs, incurred annually, and billions of dollars of benefits, claimed over the lifetime of the savings, savings should be metered. The energy management industry has done that for thirty years in Ontario.

## **9. Accounting Treatment: Recovery and Disposition of DSM Amounts**

*Framework Guiding Principle: Gas utilities will be able to recover costs and lost revenues from DSM programs.*

BOMA continues to support this guiding principle and supports the DSM Plans approaches to doing so. However, some of the initiatives identified by OSEA, such as GSHPs and CHP (particularly systems that feed multiple buildings both heating and cooling) or part of micro grids as well as solar thermal heating would be even more cost effective if included in the gas utilities' rate bases, funded by shareholders who would then earn a rate of return accordingly.

Given that Ontario's targets for greenhouse gas emissions can only be achieved with a drastic reduction in the use of natural gas for heating buildings, such an innovative approach should be encouraged by the Board. In fact, BOMA suggests that it should be **more profitable** for the natural gas utilities to distribute renewable energy via pipes in the ground or into buildings than transporting a fossil fuel.

## **10. Integration and Coordination of Natural Gas DSM and Electricity CDM Programs**

*LTEP and Directive Priority: Increase collaboration and integration of natural gas DSM programs and electricity CDM programs; Framework Guiding Principle: Where appropriate, coordinate and integrate DSM and electricity CDM efforts to achieve efficiencies.*

While this is a very critical element for the success of conservation in Ontario, the timing has

clearly been problematic for both gas utilities. The OPA-IESO merger and the new Conservation First Framework have created even more churn in respect of CDM than was admitted to in the Minister's Conservation First policy paper as part of the Long Term Energy Plan.

To date there have been some good examples of specific coordination on joint implementation efforts such as Union's delivery of some CDM programs in its service territory and Enbridge's work with Toronto Hydro and others with respect to its Low Income Program. However, there appears to have been little consideration given to the wealth of expanded opportunities that could result from combined screening of conservation options that save both gas and electricity, or even better: gas, electricity and water with the exception of the pilot program on performance based conservation developed by the Toronto and Region Conservation Authority which includes both gas utilities, Hydro One Brampton, Halton Hills Hydro and Milton Hydro as well as Peel Region Water and Halton Region Water.

BOMA suggests that the Board pay close attention to this TRCA pilot as it represents not only combined CDM and DSM, but innovation as well as evidence based (metered) results.

Further the kind of initiatives introduced by the Ontario Sustainable Energy Association (OSEA) such as ground source heat pumps (GSHPs), solar thermal water heating, net zero buildings, combined heat and power (CHP), micro grids, and performance based conservation should all be playing a greater role in DSM programs in Ontario.

## **11. Future Infrastructure Planning Activities**

*LTEP and Conservation Directive Priority: Implement DSM programs that can help reduce and/or defer future infrastructure investments; Framework Guiding Principle: Ensure DSM is considered in gas utility infrastructure planning at the regional and local levels.*

The timeframe for the infrastructure planning study will essentially mean that no substantial reductions of supply side investments will take place during the period of the plan. BOMA

suggests that the Board require that all Leaves to Construct include an interim place holder which would increase the DSM Budget to fund geographically targeted DSM initiatives with enriched incentives similar to the approach of Consolidated Edison in New York City. Ms. Oliver-Glassford's testimony with respect to the degree of precision required to use DSM in the deferral of new supply side projects is not borne out by evidence as Enbridge has done no analysis to determine how large the impact of twenty years of DSM has had on system needs for additional infrastructure.

## 12. Other

BOMA represents over 600 of Ontario's most influential property and facility managers, developers, leasing agents, service providers, industry influencers and commercial real estate professionals, representing 80 per cent of all commercial and industrial real estate companies in the Greater Toronto Area and beyond. BOMA believes that energy conservation is a critical component of good economic and good environmental policy. It is not alone in such a belief.

### Reference: Transcript Volume 6, Page 132 - 4

*MR. ELSON: And this is the Canadian Council of Chief Executives, and they're saying:*

*"Fundamentally, however, Canada needs to begin with a renewed commitment to energy conservation. We must use existing and future energy supplies as efficiently as possible, embracing the maxim that the cheapest form of energy is the unit that is not used. Better conservation practices will help insulate Canadians from volatile energy prices, reduce costs for public institutions such as schools and hospitals, and improve the international competitiveness of Canadian companies."*

*Would Enbridge agree with those conclusions?*

*MR. LISTER: I think by and large, yes, those are benefits of improved energy efficiency.*

*MR. ELSON: And in particular, would you agree that increased conservation can improve the international competitiveness of Canadian companies?*

*MR. LISTER: Very generically, I think that's a logical conclusion to draw.*

*MR. ELSON: Thank you. And if you could please turn to tab 16, and this is another interrogatory from that same proceeding, and at tab A there is a speech by the former Bank of Canada governor, Mark Carney, and I would again like you to comment on some*

*conclusions that he comes to in this speech, and if you could turn to page 71 of the document book. And page 71, Mark Carney says: "In a world where de-leveraging holdback demand in our traditional foreign markets, the imperative is for Canadian companies to invest in improving their productivity and to access fast-growing emerging markets. This would be good for Canadian companies and good for Canada. Indeed, it is the only sustainable option available. A virtuous cycle of increased investment and increased productivity would increase the debt-carrying capacity of all, through higher wages, greater profits, and higher government revenues. This should be our common focus." Now, following from that quote, would you agree that DSM is a form of investment that increases productivity and at the same output can be created with less natural gas?*

*MR. LISTER: Yes, I think that's a logical conclusion.*

*MR. ELSON: And does Enbridge agree with Mark Carney that Ontario would benefit if its industries increased their investment and productivity?*

*MR. LISTER: Yes.*

*MR. ELSON: Thank you, if you could turn to tab B, which is another schedule for this IR. And this is a report by Dr. Ernie Stokes of the Centre for Spatial Economics. The report quantifies the benefits of energy-efficiency investments which reduce Ontario's natural-gas consumption, and the conclusions are summarized on page 7 of the document, which is page 81 of the document book. And as you'll see on this page, the report found that a 16.1 percent reduction in Ontario's natural-gas consumption in 2021 would increase Ontario's GDP by \$5.5 billion, would increase employment by over 30,000 jobs, would raise corporate profits by over \$445 million, and would reduce the provincial deficit by over \$475 million. Now, of course I can't ask you to confirm these exact figures, and I wouldn't -- I wouldn't try to do so, but would you agree that increased DSM would have a positive impact on productivity and thus also on GDP, employment, and tax revenues?*

*MS. OLIVER-GLASFORD: Theoretically, using the basis of this particular evidence which you have before us, it would indicate it may.*