

Reducing Ontario's Greenhouse Gas Emissions Due to Natural Gas Consumption

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The combustion of natural gas is Ontario's second largest source of greenhouse gas (GHG) emissions. Specifically, in 2012, it was responsible for approximately 30% of our GHG emissions (50 megatonnes [MT]). In 2011 residential consumers were responsible for approximately 33% of our natural gas consumption, commercial and industrial consumers were each responsible for approximately 23% and natural gas-fired power plants were responsible for approximately 20%.

Natural gas energy efficiency investments are an excellent option to reduce our GHG emissions for the following reasons:

- No lifestyle impacts;
- Lower energy bills;
- Increases our industrial and commercial energy productivity which leads to more well-paying jobs in our manufacturing and resource industries and a more attractive commercial environment; and
- Reduces the outflow of Ontario dollars to western Canada and Pennsylvania to purchase natural gas.

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Enbridge Gas Distribution and Union Gas have been offering natural gas energy efficiency or demand-side management (DSM) programs since 1995. They are the most cost-effective DSM programs in North America.¹

For example, Union's \$32.8 million DSM budget for the year 2013 is generating \$326.4 million of cumulative bill reductions for its customers.² That is, on average, every \$1 of Union DSM spending leads to \$9.95 of cumulative net bill savings for its customers. The bill reduction benefits, per \$1 of Union DSM spending, are greatest for large volume industrial customers. See Table 1 below.

Table 1: Customer Bill Reductions per \$1 of Union DSM Spending³

Residential	\$3.76
Commercial/Industrial	\$5.28
Large Volume Industrial	\$53.68
Average	\$9.95

In March 2014 Ontario's Energy Minister, Bob Chiarelli, issued a legally binding directive to the Ontario Energy Board to create a new DSM Framework which would "enable the achievement of **all** cost-effective DSM." (emphasis added)

On December 22, 2014 the Ontario Energy Board (OEB) issued its new Demand Side Management Framework for Natural Gas Distributors (2015-2020), which is contrary to the Conservation First directive that it received from Energy Minister Chiarelli.

Specifically, the OEB failed to create a regulatory framework that will enable the achievement of **all** cost-effective DSM. Instead it:

1. Arbitrarily capped Enbridge's and Union's conservation budgets at \$75 million and \$60 million per year respectively;
2. Directed Enbridge and Union to stop providing financial incentives designed to increase energy productivity to large volume industrial customers; and
3. Eliminated the profit incentive for Enbridge and Union to expand their energy conservation programs and budgets.

Arbitrarily Capping Enbridge's and Union's Conservation Budgets

The OEB's decision to arbitrarily cap the gas utilities' conservation budgets will prevent the achievement of all cost-effective DSM and associated greenhouse gas emission reductions.

Gas utilities new combined conservation budgets are still 65% lower than Ontario's electricity conservation budget, despite higher natural gas use

According to a report prepared by Navigant Consulting Inc., the cost-effective DSM potential for Enbridge's franchise area will be equal to 28% of its forecast natural gas distribution volumes in 2024.⁴

A 28% reduction in Ontario's annual natural gas consumption would reduce our GHG emissions by more than 13.8 MT.⁵ That is, it appears reasonable to assume that the achievement of all of Ontario's cost-effective DSM potential could provide 50% or more of the incremental GHG reductions (approximately 19 MT) that are necessary to achieve the province's 2020 GHG reduction target.

While the new budget levels set by the OEB do represent a significant increase in spending, it is worth noting that the gas utilities' new combined maximum conservation budget of \$135 million per year⁶ is still 65% lower than Ontario's annual electricity conservation budget despite the fact that our natural gas consumption is more than 50% greater than our electricity consumption.⁷

According to the OEB, its arbitrary budget caps are appropriate since it assumes that many customers will not be able participate in energy conservation programs.⁸ However, this assumption ignores the fact that virtually all of the gas utilities' customers have participated in the utilities previous energy conservation programs. For example, in 2013, 82% of Union Gas' large industrial customers had taken advantage of efficiency incentives.⁹

It also ignores the fact that, in the future, comprehensive, high-quality conservation programs (e.g., a home energy retrofit program combined with low interest rate on-bill financing) can be used to reduce the bills of **all** of Ontario's gas consumers.

Of course, the OEB's argument also ignores the very real costs of climate change borne by all Ontarians. Recent flooding events and the December 2013 ice storm in Toronto have cost us millions of dollars in clean up and repair costs and highlighted the need for more robust infrastructure. It is in all our interests to reduce GHG emissions, which gas CDM programs have a proven track record of doing in a very cost effective manner.

According to the Navigant report, Enbridge would need an energy conservation budget in excess of \$200 million per year to achieve 50% of the cost-effective DSM in its franchise areas by 2024. Energy conservation programs on this scale would lead to a \$9.66 billion (2015 \$) net reduction in energy bills, representing a tremendous boost to our economy.¹⁰

A steady increase in the gas utilities' DSM budgets to \$200 per million per year each by 2020 would raise gas rates by approximately 1% per year.¹¹ However, actual gas bills would fall since the percentage reduction in natural gas consumption would be greater than the percentage in-

crease in rates (see Table 1 for a sense of the savings). In addition, it is important to remember that natural gas commodity prices have fallen by 35% since 2010.¹²

The rate impact of larger DSM budgets can also be offset by changing the way these efficiency investments are treated. For example, the rate impact of supply side infrastructure investments (e.g., the GTA Gas Pipeline) are minimized by amortizing costs over the expected economic life of the infrastructure. On the other hand, 100% of the costs of the utilities' conservation investments are recovered from ratepayers during the year in which they are incurred (even if the measure, such as a new furnace, will be in place for many years). As a result, the rate impact of a dollar invested to improve energy efficiency is much greater than the rate impact of a dollar invested in a new pipeline. Amortizing efficiency investments over the lifetime of the measure is a logical and reasonable approach for minimizing the rate impact of rising energy conservation budgets.

To meet Ontario's GHG reduction targets at the lowest possible cost we must undertake comprehensive DSM potential studies to determine the potential for energy conservation and efficiency investments to cost-effectively reduce our natural gas consumption.

Unfortunately, the recent Navigant DSM potential study for Enbridge is not comprehensive. Specifically, it does not review all the cost-effective energy efficiency measures and it does not examine the potential for renewable technologies (e.g., air and ground-sourced heat pumps) to cost-effectively reduce our natural gas consumption. (Even at temperatures well below zero, air heat pumps can extract heat from air and save significant energy).

Furthermore, Union Gas does not have an up to-date DSM potential study.

The gas utilities should be directed to complete comprehensive DSM potential studies by July 31, 2015 in consultation with OEB Staff and intervenors, the Ministry of Economic Development, Employment and Infrastructure, the Ministry of Energy and the Ministry of Environment and Climate Change. Once these studies are complete, Enbridge and Union should be directed to develop DSM programs and budgets that will ensure that Ontario achieves its maximum, practically possible, cost-effective energy efficiency savings by 2020.

Capping utility conservation budgets is a short-term saving with significant long-term costs. It will lead to higher GHG emissions, less productive industry, higher commercial costs and higher residential bills. In other words, we will all pay a steep price for the OEB's false assumptions that most customers will not be able to participate in energy conservation efforts and that our large volume industrial consumers have invested in all their cost-effective energy efficiency options. Instead of capping budgets, we need to press utilities to develop innovative programs and budgets that will capture all the cost-effective energy savings potential in their service areas.

**Any rate
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Scraping the Most Cost-Effective Energy Conservation Program in North America

Union's large volume industrial energy conservation program, which provides financial incentives to stimulate energy productivity investments, is the most cost-effective energy conservation program in North America.

On average, each \$1 that Union provides to its industrial customers to encourage them to invest in energy efficiency leads to \$54 of cumulative bill savings.

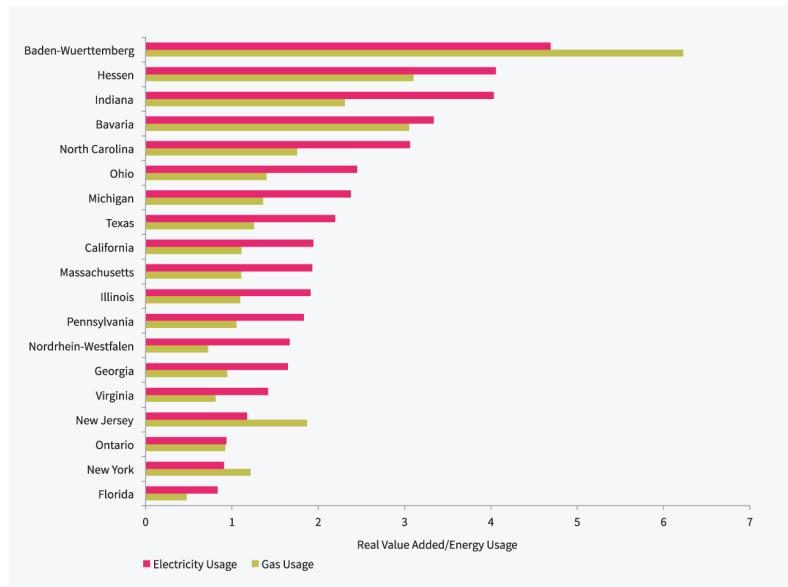
In 2013 this program was responsible for 77% of the \$326 million of bill savings created by all of Union's energy conservation programs. It was also responsible for 65% of the GHG emission reductions achieved by Union's 2013 DSM programs.¹³

In 2013, 82% of Union's large volume industrial customers received financial incentives from their utility to make investments to improve their energy productivity.¹⁴

Nevertheless, the OEB is directing the gas utilities to eliminate these financial incentives that generate huge bill and GHG savings. According to the OEB, financial incentives are not necessary since "these customers are sophisticated and typically competitively motivated to ensure their systems are efficient."¹⁵ However, this assertion ignores two important facts.

First, Ontario's industries are not undertaking all their cost-effective energy efficiency investments. According to a Canadian Manufacturers & Exporters (CME) report, if all the remaining economically feasible best practices were implemented, Ontario's total industrial energy consumption would fall by 29% by 2030 relative to the business-as-usual scenario. Fifty percent of these savings would be due to reduced use of natural gas.¹⁶ Similarly, according to the Mowat Centre, out of 19 peer jurisdictions in the U.S. and Germany, Ontario ranked 17th, or third last, in energy productivity.

Energy Productivity Total Manufacturing - Ontario vs. U.S. and German Jurisdictions 2010



Source: Ontario Made
Rethinking
Manufacturing in the
21st Century, Mowat
Centre, February 2014

Second, our manufacturing companies often require a payback period of one year or less for their energy efficiency investments¹⁷. As a result, financial incentives are necessary to motivate them to make cost-effective energy productivity investments that have payback periods that are greater than one year.

Large industry's unwillingness to take on longer payback efficiency measures will continue to be a significant drag on industrial productivity in the absence of measures to offset this tendency. Previous programs have shown that incentives work when it comes to getting industry to invest in important productivity measures, in part by encouraging investment in large cost saving measures and in part by opening the door to a deeper dialogue about improving energy performance. It is misleading to think that industry will undertake this work on its own – the track record clearly indicates that left to their own devices, many companies will fail to take full advantage of potential energy savings and productivity gains. And it is mistaken to assume that due to the wide uptake of previous incentives, there is little more that can be done. As the CME report makes clear, there is potential to do much more to improve energy productivity in Ontario's industrial sector.

Eliminating a Profit Incentive for Enbridge and Union to Grow Their Energy Conservation Programs and Budgets

In the past, the OEB linked Enbridge's and Union's profits to the size of their energy conservation programs and budgets. By expanding their programs and budgets, the gas utilities could increase their profits. The OEB has now severed this link.

According to the OEB, the maximum annual DSM profit bonus will be \$10.45 million and it "will not be a function of the gas utilities' DSM budget. The incentive amount available will not increase or decrease relative to approved DSM budgets, and is not to be increased annually for inflation."¹⁸

As a consequence, the gas utilities no longer have a profit incentive to seek OEB approval for bigger and better conservation programs to create larger bill savings for their customers. On the contrary, as a result of the OEB's decision, the gas utilities' must increase their natural gas throughput volumes and associated GHG emissions and/or their supply-side infrastructure to increase their profits.

At a time when we need our utilities to be ambitious and innovative in driving energy conservation, the OEB has sent a completely contrary signal. The OEB's approach is also counter to the government's direction in its Conservation First framework for utilities to be conservation leaders. As we have seen, there is wide scope for deeper gas conservation efforts in Ontario, including the deployment of new technologies and approaches, which means that we need to restore the incentive for utilities to go beyond basic measures.

Conclusion

The Ontario Government needs to revisit the natural gas conservation framework established by the OEB to ensure that is better aligned with the province's objectives for GHG reductions, increasing productivity, and reducing costs for consumers. We believe a more balanced view that is concerned more with medium and longer-term outcomes and less with short-term and very manageable rate impacts would lead to significantly different conclusions about the value of many measures. Facing an increasingly dire climate crisis, this is no time to be pulling back on our efforts to reduce emissions from one of the largest sources of GHG emissions in Ontario.

Ontario really has nothing to lose from fully embracing gas conservation. Almost every dollar spent on natural gas flows straight out of the province and natural gas consumption represents a significant cost for both businesses and residents. Reducing these costs will make our industries more competitive, increase our GDP and government revenues, and keep household costs down. Meanwhile, our utilities can build on their North American leadership in delivering effective and innovative energy efficiency programs at a time when improving energy efficiency has become a top priority for governments around the world.

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Summary of Recommendations

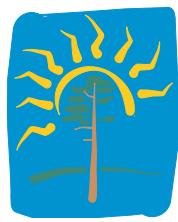
1. Enbridge and Union Gas should be allowed to each increase their energy conservation budgets by up to \$200 million per year by 2020.
2. To minimize the rate impact of rising energy conservation budgets, the gas utilities should be allowed to amortize the costs of their energy conservation investments over their expected economic lives.
3. The gas utilities should be directed to complete comprehensive DSM potential studies by

July 31, 2015 in consultation with OEB Staff and intervenors, the Ministry of Economic Development, Employment and Infrastructure, the Ministry of Energy and the Ministry of Environment and Climate Change. Once these studies are complete, Enbridge and Union should be directed to develop DSM programs and budgets that will ensure that Ontario achieves its maximum, practically possible, cost-effective energy efficiency savings by 2020.

4. Enbridge and Union should be allowed to provide financial incentives to their large volume industrial customers to encourage them to increase their energy productivity, especially considering that these investments are Ontario's lowest cost option to achieve incremental GHG emission reductions.
5. The achievement of all cost-effective DSM should be made the most profitable course of action for Ontario's gas utilities to ensure that they will do everything possible to achieve the largest possible GHG reductions and bill savings for their customers.

Endnotes

- 1 Ontario Energy Board Docket No. EB-2014-0134, *Union Gas Submission*, (October 15, 2014), pages 5 & 6; and Navigant Consulting Inc., *Natural Gas Energy Efficiency Potential Study: Final Report Prepared for Enbridge Gas Distribution Inc.*, (January 15, 2015), page E-10, Table E-3.
- 2 Union Gas, *Demand Side Management 2013 Annual Report*, (November 4, 2014), page 16.
- 3 Union Gas, *Demand Side Management 2013 Annual Report*, (November 4, 2014), page 16.
- 4 Navigant Consulting, Inc., *Natural Gas Energy Efficiency Potential Study: Final Report Prepared for Enbridge Gas Distribution*, (January 15, 2015), p.xiii.
- 5 In 2013 Ontario's total natural gas consumption was 26,103,377,000 cubic metres. Ontario Energy Board, *EB-2014-0134 Draft Report of the Board: Demand Side Management Framework for Natural Gas Distributors*, (September 15, 2014), page 14.
- 6 Ontario Energy Board, *EB-2014-0134 Report of the Board: Demand Side Management Framework for Natural Gas Distributors (2015-2020)*, (December 22, 2014), page 18.
- 7 Ontario's annual electricity energy efficiency budget is \$400 million per year. See Ontario Power Authority, *Conservation First Framework Update: Presentation to SAC*, (June 24, 2014), page 7. Electricity and natural gas provide Ontario with 20% and 34% of our electricity needs respectively. See Environmental Commissioner of Ontario, *2014 Annual Energy Conservation Progress Report*, Appendix A.
- 8 *EB-2014-0134 Report of the Board*, (December 22, 2014), page 17.
- 9 Union Gas, *Final Demand Side Management 2013 Annual Report*, (November 4, 2014), page 75.
- 10 *Natural Gas Energy Efficiency Potential Study*, pages xii and 118.
- 11 Ontario's natural gas costs are a function of Enbridge's and Union's distribution margins plus gas commodity costs. In 2013 the gas utilities' distribution margins were \$1.841 billion; the total natural gas consumption of their customers was 26,103,377,000 cubic metres; and the combined DSM budgets of the two utilities was \$63.2 million. See Ontario Energy Board, *EB-2014-0134 Draft Report of the Board: Demand Side Management Framework for Natural Gas Distributors*, (September 15, 2014), pages 14 & 21. According to the *Globe and Mail*, on January 12, 2015 the commodity cost of natural gas at Henry Hub was \$2.82 per MMBtu (U.S. \$) and the exchange rate was 0.8382. Therefore the total cost of gas for Enbridge's and Union's customers, at current commodity costs, is approximately \$5 billion per year.
- 12 In 2010 the average monthly natural gas spot price at Henry Hub was \$4.37 (U.S. \$) per MMBtu. U.S. Energy Information Administration, *Natural Gas Monthly*, (December 2014), Table 3.
- 13 Union Gas, *Final Demand Side Management 2013 Annual Report*, (November 4, 2014), pages 16 & 18.
- 14 Union Gas, *Final Demand Side Management 2013 Annual Report*, (November 4, 2014), page 75.
- 15 *EB-2014-0134 Report of the Board*, (December 22, 2014), page 27.
- 16 CME Ontario, *Advancing Opportunities in Energy Management in Ontario Industrial and Manufacturing Sector: Final Report*", (March 17, 2010), pages 39 & 40.
- 17 Christopher Russell and Rachel Young, American Council for an Energy-Efficient Economy, *Understanding Industrial Investment Decision-Making*, (October 2012), page 16.
- 18 Ontario Energy Board, *Report of the Board: Demand Side Management Framework for Natural Gas Distributors (2015-2020)*, (December 22, 2014), page 22.



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