



Direct Dial: 416 862 4830
File: 6706

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August 12, 2015

Ontario Energy Board
P.O. Box. 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Attention: Kristen Walli, Board Secretary

Dear Ms. Walli:

**Re: Ontario Sustainable Energy Association's ("OSEA") Interrogatory Responses
Board File No. EB-2015-0029/EB-2015-0049**

Please find enclosed OSEA's Response to Interrogatories from

- ♦ Enbridge
- ♦ OGVG
- ♦ APPrO
- ♦ GEC
- ♦ VECC

Yours truly,

Joanna Vince

Encl.

cc. Nicole Risse, Executive Director, OSEA
Intervenors

Document #: 880136

OSEA Response to VECC Interrogatories

Question #1

Ref: General

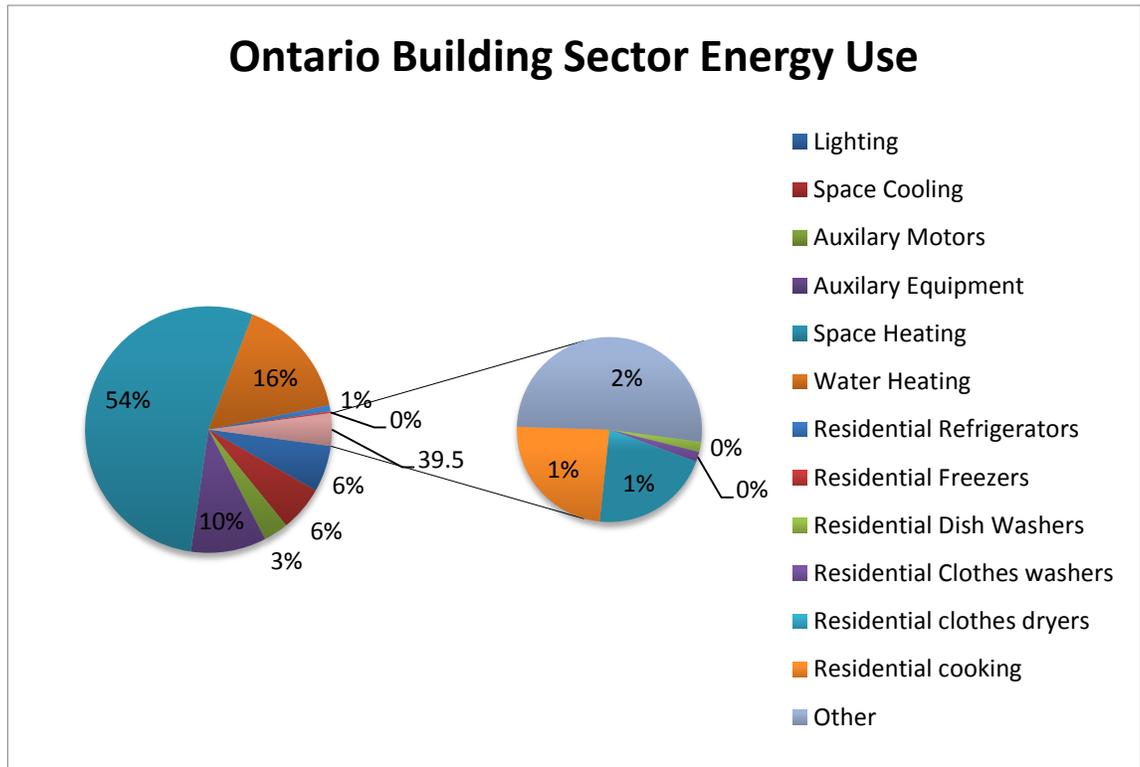
Preamble: Mr. Young's scope of work from OSEA was to provide his expert opinion on sustainable energy opportunities that natural gas utilities can incorporate into their Demand Side Management Plans (DSM Plans) and address some of the barriers that prevent action on conservation and greenhouse gas emission reduction.

- a) Please summarize in bullet form the key barriers that prevent action on conservation and greenhouse gas emission reduction.
- b) Please summarize the key conclusions from Mr. Young's work.
- c) Please summarize the key recommendations from Mr. Young's work.

Response

- a) The key barriers to prevent action on conservation and greenhouse gas emission reduction are as follows:
 - i. low levels of energy literacy across the province
 - ii. restrictions on citizens/communities looking to produce their own energy
 - iii. regulatory and operational silos with respect to local electricity distribution companies (LDCs) and the natural gas utilities
 - iv. emphasis within the Ministry of Energy on electricity generation and not on end use consumption, and
 - v. lack of a holistic approach linking all of our needs including transportation, buildings and manufacturing to sustainable sources of energy.
- b) The Province is focused on electricity generation which has not been seen as a direct contributor to delivering the thermal energy needs for the vast majority of our buildings. Now that natural gas heating makes up roughly 70% of the energy consumed in a building, it is reasonable to look at thermal demand as a resource that can be used to anchor development of a smart grid driven combined heat and power network that can reliably deliver electricity to the point of consumption.

Opportunities are lost to create synergistic energy systems. Resources focused on electricity CDM could have a greater impact if applied to the largest energy consuming activities.



Natural Resources Canada, Office of Energy Efficiency, online:
http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/data_e/query_system/report.cfm?datasourceid=28§orid=2&datatype=32&header=0;2012|99;6096,6097,6098,6099,6100,6101,6102&row=95;6063&column=96;6068,6069,6070,6071,6073,6074,6075,6076,6077,6419,6072&percentage=N>

- c) The key recommendations are as follows:
 - i. focus conservation measures on reducing top energy uses
 - ii. prioritize local development of clean and sustainable energy resources, infrastructure and technologies.

Question #2

Ref: Page 5, paragraph 17

Preamble: The evidence indicates that compared to single-fuel programs, combined natural gas and electric energy efficiency programs often deliver additional energy and dollar savings at lower cost to utilities and consumers. Many dual-fuel programs demonstrate these benefits.

- a) Please provide examples of dual-fuel programs beyond Home Weatherization.
- b) Please summarize Union and Enbridge's DSM programs that are dual-fuel programs.
- c) Please discuss any adjustments that could be made to Union and Enbridge's DSM Plans to maximize opportunities to combine natural gas and electric efficiency programs.

Response

- a) Typically the measures involved may include a wide array of activities and technologies such as: blower-door-guided air sealing, duct-blaster-guided duct sealing, efficiency measures such as lighting, CHP, motors/drives, compressed air, pumps, blowers, controls, filtration, refrigeration, aeration, vacuum, HVAC, information technology, process heating and cooling, and other manufacturing processes. On the natural gas side, the program targets steam systems, hot water, process heating, comfort heating, building shell, heat recovery, biomass, and biogas conversion.
- b) Both Enbridge and Union Gas Conservation programs are run separately from the SaveOnEnergy program run by the IESO on behalf of the LDCs.
- c) A contribution agreement could be reached between IESO, Union Gas and Enbridge to consolidate all energy conservation programs into one initiative thus creating a "Dual-Fuel" program. Under such an initiative, the LDCs would be able to better address the dominant energy consumption areas in most buildings rather than spending significant resources trying to change low impact items such as residential refrigeration or freezers which combined make up less than 2% of overall energy use in the home.

Question #3

Ref: Page 7, paragraph 20

Preamble: OSEA's expert Mr. Young states that without strong policy or regulatory direction to avoid lost opportunities, Ontario will not be able to address all of the new construction opportunities.

In Mr. Young's view, what are the ideal policies and regulatory direction that would need to be in place in Ontario to better address all of the new construction opportunities.

Response

The concept of a Net Zero Energy Building should be incorporated into all new building construction where feasible and as soon as possible.

The concept of a building as an energy producer should be extended to all existing buildings whereby solar, wind, CHP and ground source energy retrofits are encouraged. Buildings should make use of locally available energy sources and be integrated with our Smart Meter network.

Understanding fuel efficiency is a key to good decision making. As such, all buildings being sold should have an independent energy rating disclosure available to perspective buyers so that they understand the energy economics of the building allowing for rational choices in the market place.

Question #4

Ref: Page 10, paragraph 28

Please describe the type of customer that would be a good candidate for CHP.

Response

First it is important to define CHP. For the most part the concept of CHP has been limited to industrial, institutional (MW scale) or large commercial settings (>100kW scale) with a steady hot water demand. More recently the emergence of microCHP units and thermal cooling are redefining expectations of Combined Heat and Power. Currently, MicroCHP (1-50kW) units are being deployed in Europe and Asia.

When sized to meet existing thermal needs, there is the potential to place CHP capacity in every building. The result of this approach is GW scale electricity generation potential with only a marginal increase in natural gas consumption.

Question #5

Ref: Page 17, paragraph 44

Preamble: OSEA's expert Mr. Young states that Ontario CHP and district energy services providers such as Markham District Energy and Toronto's Enwave could provide these types of services immediately while new proponents could offer similar services if the regulatory environment was further strengthened in Ontario.

- a) Please summarize specifically how the regulatory environment in Ontario could be strengthened.
- b) Please discuss how Union and Enbridge's DSM Plans could be adjusted to incorporate the sustainable energy opportunities identified in Mr. Young's work.

Response

- a) From a development perspective, there are a number of considerations for district heating that would exist primarily at the local level related to rights of way and zoning. These would likely be no different than considerations for existing natural gas, electricity or telephone services. From an operability perspective, there would be a need to coordinate the electricity generation aspects with LDCs, however the interconnection standards are well defined and this should not be a barrier especially within the context of the Smart Meter capabilities of the province.
- b) Some options that the Board may want to consider:
 - i. enabling the creation of sustainable heating firms for the sale of metered thermal energy to end consumers as an alternative to the sale of raw commodity
 - ii. allow Union Gas and Enbridge to augment their natural gas delivery with bio-methane or hydrogen to reduce the CO₂ impact of natural gas consumption
 - iii. encourage the deployment of clean thermal energy technologies including solar thermal, ground source heat pumps and CHP as permitted DSM activities
 - iv. include the energy content of the commodity delivered expressed in per kWh in all customer billing.