GEC Response to APPrO Interrogatory #4

Question:

Reference: L.GEC.1, i) Page 16 ii) Ontario's Climate Change Update, page 16

Preamble: Mr. Neme's evidence indicates that natural gas accounts for approximately 30% of all greenhouse gas (**GHG**) emissions in the province of Ontario (the **Province**) and that the 2030 projected emissions are anticipated to be at 1990 levels in a business as usual (**BAU**) scenario.

a) Please provide any and all data and documentary support and all third party verification relied upon to arrive at the assertion that natural gas accounts for 30% of all GHG emissions in the Province.

b) Please confirm that 1990 GHG emissions in Ontario are approximately 25 MT lower than 2005 emissions and 2014 emissions are approximately 42 MT lower than BAU.

c) Please confirm that the assertion that Provincial emissions will increase to 1990 levels (they are currently more than 6% below 1990 levels) by 2030 is in the absence of the announced cap and trade program and conservation measures that are set out in footnote 32 of Mr. Neme's evidence.

d) Please confirm that the implementation of a carbon policy in Ontario will have a direct impact on Union and Enbridge's large volume customers (**LVC**), who are intended to be included in the cap and trade scheme.

e) Please confirm that the evidence suggests that LVCs should be required to both pay for DSM in rates and pay for any and all required emission allowances.

f) Please confirm that even if a customer responded to the intended carbon price signal and decreased usage, it would still be required to pay for DSM in rates under your proposal.

g) Please justify your adopted carbon price estimate and complete the following chart:

Auction Period		Auction Price		
2013	Q1	California	Québec	RGGI[2]*
	Q2			
	Q3			
	Q4			
2014	Q1			
	Q2			
	Q3			
	Q4**			
2015	Q1			
	Q2			

*while not technically linked, Québec provides for consideration of RGGI allowances in related export transactions for power.

**California/Québec linked auction.

h) Please provide the net present value (**NPV**) of each and all measures and their lifespans (a) using the actual carbon prices for Québec, (b) reflecting the actual lifespan of each measure, and (c) adjusting for free-ridership.

i) Please provide any and all assumptions that you have made about the point of carbon regulation for each and all of the following sectors:
i. transportation
ii. buildings
iii. electricity
iv. industry

Response:

a) Please see reply to M.GEC.EP.3(a).

b) According to Canada's National Inventory Report 1990-2013 Ontario's GHG emissions were 182 mt in 1990 and 211 mt in 2005. Therefore emissions grew by 29 mt between 1990 and 2005. For 2014, based on Figure 9 in Ontario's Climate Change Update 2014 Ontario's "business as usual" emissions in 2014 would have to be ~213 mt for actual emissions (~171 mt) to be 42 tonnes lower. However based on Figure 9 the BAU projection for 2014 appears to be between 185 and 190 mt. Therefore 2014 emissions appear to be 14-19 mt below "business as usual".

c) Confirmed.

d) It is my understanding that the government intends to cover emissions from natural gas consumption under the cap. See M.GEC.IGUA.1 Attachment 1. It is not clear yet whether emissions from gas consumption by large users will be regulated as part of the cap on emissions by each large user, or as part of regulation of gas distributors, but the former is more likely.

e) Yes, the LVCs should pay for the gas and infrastructure they use, the allowances related to their carbon emissions (whether those are assessed on the LVC directly or through the utility) and the cost of DSM programs. The LVCs would benefit from gas utility DSM from their reduced purchases of gas, their reduced emission-allowance responsibility (whether that is regulated at the utility or emission-point level), and the lower price of allowances (for their gas use and other sources of emissions) as a result of the reduced demand for allowances. These benefits would be partially offset by the DSM charges in rates. Put another way, this would not be a "double payment" requirement as the wording of the question could be read to imply. Even if their emissions are regulated directly, the LVCs would only pay for emission allowances associated with the gas they are still consuming. They would not have to pay for the emission allowances that would have been associated with the gas that DSM helped them to avoid consuming.

f) A customer that is interested in reducing gas use through increased efficiency (as opposed to reducing economic activity) would be eligible for assistance from the DSM programs. Reducing its usage would reduce its payments for gas, infrastructure, emission

allowances, and payments for DSM programs. As stated in my testimony, it may be appropriate to modify the design of the T2/R100 program so that the (probably rare) customer that has actually implemented all cost-effective DSM would no longer be obligated to pay for the program.

g) See Section III.B.1 of Mr. Chernick's evidence. For historical data on the requested carbon prices, see the following tables.

For California/Quebec:

		Current Vintage		Future Vintage		
	Settlement Price	USD	CAD	USD	CAD	Year
Joint Auctions						
4	August 2015	$12.52	$16.39	$12.30	$16.10	2018
3	May 2015	$12.29	$15.01	$12.10	$14.78	2018
2	February 2015	$12.21	$15.14	$12.10	$15.01	2018
1	November 2014	$12.10	$13.68	$11.86	$13.41	2017
Quebec						
	March 2014		$11.39			
California Air Resources Board Quarterly Auctions						
8	August 2014	$11.50		$11.34		2017
7	May 2014	$11.50		$11.34		2017
6	February 2014	$11.48		$11.38		2017
5	November 2013	$11.48		$11.10		2016
4	August 2013	$12.22		$11.10		2016
3	May 2013	$14.00		$10.71		2016
2	February 2013	$13.62		$10.71		2016
1	November 2012	$10.09		$10.00		2015

For RGGI:

Auction Number	**Clearing Price**
Auction 28 6/3/2015	$5.50
Auction 27	$5.41

Witnesses: Chris Neme & Paul Chernick

3/11/2015	
Auction 26 12/3/2014	$5.21
Auction 25 9/3/2014	$4.88
Auction 24 6/4/2014	$5.02
Auction 23 3/5/2014	$4.00
Auction 22 12/4/2013	$3.00
Auction 21 9/4/2013	$2.67
Auction 20 6/5/2013	$3.21
Auction 19 3/13/2013	$2.80

h) The GEC witnesses have not conducted an analysis of all possible efficiency measures using the assumptions in the question. Such an analysis was not necessary to reach the conclusions we reach in our testimony and would be extremely time-consuming to pursue. Several other factors make the proposed analysis even more problematic:

- The T2/R100 program is a custom program, promoting custom measures. By their very nature, they cannot be anticipated or characterized ahead of time at the measure level.
- We do not know the "actual carbon prices for Québec" after 2015 (or 2018, if the future vintage allowances, plus interest, are considered to be "actual"). That said, as Mr. Chernick's testimony makes clear, fully valuing avoided carbon emissions will result in higher avoided costs and higher TRC net benefit across the board.
- It is inappropriate to include free ridership factors in measure screening. They should only be applied at the program level. That said, free ridership assumptions tend not to affect benefit-cost ratios very much under the TRC.

i) Mr. Neme did not make any explicit assumption about the point of regulation for any of these sectors. For the natural-gas component of the buildings sector, regulation is likely to be at the utility level, for efficiency. For electricity, regulation is likely to be at the

generator or possibly the EDC. For the natural-gas component of industrial emissions, regulation may be at the utility or at the burner-tip. The point of regulation does not affect either the cost-effectiveness of reducing emissions or the benefits of reduced emissions for participants and energy consumers throughout the province.