

**ONTARIO GEOTHERMAL  
ASSOCIATION**

**CROSS-EXAMINATION  
MATERIALS**

**EB-2016-0004**

**ENBRIDGE WITNESS PANEL**

- b) An ongoing System Expansion Surcharge (the “SES”) to be applied to Community Expansion Projects and, Small Main Extension Projects of \$0.23/m<sup>3</sup>;
- c) Incremental Tax Equivalent (“ITE”) mechanism to collect municipal contributions (for a ten year duration from the date of energizing assets);
- d) Creation of an additional portfolio, the Community Expansion Portfolio (the “CEP”), where the portfolio would be managed such that the PI is maintained at a level of 0.5 or greater, and an exemption from EBO 188 that would allow individual community expansion projects to proceed at a PI of less than 0.8; and
- e) A capital pass-through mechanism to incorporate Community Expansion Projects in rates immediately following their in-service dates.

a) Definition of Community Expansion Project and Small Main Extension Project

60. For the purpose of this proposal Enbridge will adopt the Union Gas proposed definitions for a community expansion project and a small main extension project as outlined in the evidence provided by Union in EB-2015-0179. These project types are defined as follows:
- 1) A Community Expansion Project – Defined as a natural gas system expansion project which will provide first time natural gas system access where a minimum of 50 potential customers in homes and businesses already exist, for which economic feasibility guidelines permit a PI of less than 1.0; and
  - 2) A Small Main Extension Project – Defined as all other forms of distribution expansion which provide first time natural gas system access to customers.

b) System Expansion Surcharge (“SES”)

61. The twin objectives of managing rate impacts for existing customers and providing greater access to natural gas for new communities have led the Company to conclude that it will be necessary to implement a different, higher, distribution rate for customers served through the completion of a community expansion project. Enbridge proposes that an ongoing SES to be applied to community expansion projects of \$0.23/m<sup>3</sup>.
62. The surcharge would be paid by all customers located in areas served by designated community expansion projects for up to forty-years or until the project

- 2) Small Main Extension Project – Defined as all other forms of distribution expansion which provide first time natural gas system access to customers.

**Issue #2:** *Does the OEB have the legal authority to establish a framework whereby the customers of one utility subsidize the expansion undertaken by another distributor into communities that do not have natural gas service?*

4. The Board's authority to approve rates for the sale of gas and for the transmission, distribution and storage of gas is set out in section 36 of the *Ontario Energy Board Act, 1998*. Section 36 says that the Board may make orders approving or fixing just and reasonable rates and that, in approving or fixing just and reasonable rates, the Board may adopt any method or technique that it considers appropriate.
5. The scope of the Board's authority under section 36 was considered by the Ontario Divisional Court in a case (the "Low Income" case) involving the Board's jurisdiction to implement a low income affordability program (*Advocacy Centre for Tenants-Ontario et al v. Ontario Energy Board, 2008 CanLII 23487*). In the Low Income case, the majority of the Divisional Court made clear that the "traditional approach" of cost of service continues to be the root principle of the determination of rates by the Board under the statutory provisions that authorize the Board to adopt any method or technique in approving or fixing just and reasonable rates. The majority of the Court said that a cost of service approach is necessary to meet the fundamental, core objective of balancing the interests of all consumers and the natural monopoly utility in rate/price setting. The majority also referred to cost of service as the "starting point building block in rate setting".
6. The majority decision in the Low Income case goes on to indicate that, so long as the global amount of return to the utility based upon a cost of service analysis is achievable, then the rates to generate that amount are a matter for the Board's discretion in its ultimate goal and responsibility of approving and fixing just and reasonable rates. The Court said that, when the Board determines rates to recover the global amount based on a cost of service analysis, the Board has the jurisdiction to take into account ability to pay. In reaching these conclusions, the Court noted that the power granted to a regulatory authority must be exercised reasonably and according to the law and cannot be exercised for a collateral object or an extraneous and irrelevant purpose, however commendable.

gas distributors, Enbridge acknowledges that these funds could be treated as contributions in aid of construction.

**Issue #4:** *Should the OEB consider exemptions or changes to the EBO 188 guidelines for rural and remote community expansion projects?*

18. Yes. With respect to the specific questions raised by this issue:

*Issue #4(a) - Should the OEB consider projects that have a portfolio profitability index (PI) less than 1.0 and individual projects within a portfolio that have a PI lower than 0.8?*

19. Enbridge is of the view that if the extension of the natural gas distribution system to currently unserved communities is to occur that the OEB will need to exempt many of these projects from this requirement.

*Issue #4 (b) - What costs should be included in the economic assessment for providing natural gas service to communities and how are they to be determined and calculated?*

20. It is the position of Enbridge that there are no changes required to EBO 188 with respect to the costs that should be included in the economic assessment of providing natural gas service to communities and that there are no changes required in terms of how such costs are treated or the economic feasibility of projects calculated.

*Issue #4( c) - What, if any, amendments to the EBO 188 and EBO 134 Guidelines would be required as a result of the inclusion of any costs identified above?*

21. Enbridge believes that further revisions or exemptions from the current EBO 188 Guidelines will be required in order to extend gas service to currently unserved communities in Ontario. With respect to the EBO 134 Guidelines the Company does not believe that any changes are required. The Company's proposal in this regard is outlined later in this evidence.

*Issue #4(d) - What would be the criteria for the projects/communities that would be eligible for such exemptions? What, if any, other public interest factors should be included as part of this criteria? How are they to be determined?*

**Table 10: Other Public Interest Factors Including Stage 2 Benefits for New Customers**

Col 1	Col 2	Col 3
<b>Stage 1 Benefits: Based on project cash flows</b> Stage 1 NPV (at social discount rate = 4%)	A	<b>NPV</b> (122,702,977)
<b>Stage 2 Benefits: Based on Customers' cash flows</b> Energy cost savings		379,631,637
Less: Conversion costs		(35,535,433)
Stage 2 Benefits (NPV)	B	344,096,203
<b>Combined benefits (Stage 1 + Stage 2)</b>	A+B	221,393,226

1. In the absence of any contribution in aid of construction the Community Expansion Portfolio produces a negative NPV of utility cash flows (Stage 1 analysis) of approximately \$123 million. A social discount rate of 4% was used for these calculations.
2. A Stage 2 assessment was also done to evaluate new customer benefits for switching to natural gas at significantly lower retail rates than competitive fuels. The customers' cost of natural gas was compared to the cost of either propane or fuel oil or electricity and any savings are netted against the conversion costs. The net savings are then discounted at a social discount rate to produce an NPV of customer cash flows. The resulting NPV of customers' net fuel savings from this Stage 2 assessment for all 39 projects is approximately \$344 million.
3. In a Cap and Trade (C&T) environment those using electricity for heating and water heating are expected to have lower exposure to the cost of carbon compared to those using natural gas, propane or heating oil for the purpose of heating and water heating. A revised Stage 2 analysis based on information provided in the Province's 2016 Budget indicates that under a C&T environment it would be expected that there would be a modest reduction in Stage 2 benefits reducing them to \$338 million from the figure noted in Table 10.
4. The analysis summarized in Table 10 shows that in combination Stage 1 and Stage 2 benefits result in a total quantifiable public interest benefit of approximately \$221 million. The revised Stage 2 benefit analysis indicates that the combined Stage 1 and Stage 2 benefit under a C&T environment would be reduced to \$215 million.

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF PARKLAND

INTERROGATORY #2

Reference: Enbridge EB-2016-0004 Evidence, pg. 7, para. 25

Enbridge states that extending natural gas service to unserved communities will benefit all ratepayers. Enbridge also states that the incremental revenue generated by future customer attachments on expansion projects will benefit all of Enbridge's customers.

- a. Fully describe how existing natural gas ratepayers will benefit from extending natural gas service to unserved communities. In this discussion, please distinguish between benefits that may be experienced by all Ontarians versus benefits that will be experienced solely by existing natural gas ratepayers.
- b. Explain how existing customers will benefit from the revenue associated with expansion projects if those projects have a PI of less than 1.0.

RESPONSE

- a. The Board's EBO 134 decision provided for use of two further economic tests beyond consideration of discounted cash flows associated with a system expansion project. The Stage 2 analysis generally takes into account the energy cost savings that potential customers could achieve relative to their existing fuel usage. The Stage 3 analysis adds quantifiable and non-quantifiable public interest benefits associated with a project. Given that Stage 3 benefits address the broader societal benefits of a gas distribution system expansion project they would typically be felt beyond the confines of a single gas distributor's service area. Since all of premises served by Enbridge are located in Ontario the Company's customers benefit from Stage 3 benefits substantially.
- b. The discounted cash flow analysis called for in EBO 188 is limited in that it does not consider that when customers are added to the Company's gas distribution system that the fixed costs of operating the system are spread over a broader customer base, or that additional customers typically continue to be added to the these portions of the system after the ten year customer addition forecast horizon applied in the feasibility test has elapsed. The EBO 188 tests also do not recognize that at some future point in time the revenues associated with a project

will exceed the revenue requirement associated with a project. Further, the EBO 188 tests do not factor in the societal benefits captured in the EBO 134 Stage 2 and 3 analyses noted in part (a) of the Company's response to this interrogatory.

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF BOARD STAFF

INTERROGATORY #10

Ref: Evidence of Parkland Fuel Corporation

The evidence filed in this proceeding by Parkland Fuel Corporation offers an extensive critique outlining a number of concerns with the use of cross subsidies to support system expansion.

Is Enbridge able to provide a high level response to the concerns regarding cross subsidies raised by Parkland Fuel Corporation's evidence?

RESPONSE

From the Ontario Energy Board website:

*The Board is required to determine if the construction of a natural gas pipeline is in the public interest by considering need, safety, economic feasibility, community benefits, security of supply and environmental impacts.<sup>1</sup>*

It is clear from this statement that when considering proposals for the construction of natural gas pipelines the Board takes into account the need, economic feasibility and community benefits associated with such projects among other things. Further, the Board has made it clear that it is appropriate for existing customers to subsidize, through higher rates, financially non-sustaining extensions that are in the overall public interest if the subsidy does not cause an undue burden on any individual, group or class.<sup>2</sup> Subsidies are implicit in any circumstance where postage stamp style rates are applied to multiple customers. The proposal brought by Enbridge in this proceeding is in response to the Board's invitation to interested parties of February 18, 2015 to bring forward applications that address the regulatory criteria that have limited the expansion of the Province's gas distribution system to unserved areas of Ontario in recent years. The Company believes that its proposal is consistent with the objectives of the Board and represents a reasonable balancing of the interests of existing customers and those potential customers located in currently unserved areas of the Province.

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<sup>1</sup> <http://www.ontarioenergyboard.ca/OEB/Industry/About+the+OEB/What+We+Do>

<sup>2</sup> Ontario Energy Board Filing Guidelines on the Economic Tests for Transmission Pipeline Applications, EB-2012-0092.

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF BOMA

INTERROGATORY #8

General

Ref: Page 6, Issue #4(a)

Why, in EGD's view, is it fair to ask existing EGD customers to subsidize the expansion of service to new communities through projects that have a P/I lower than 0.8%, which is already a subsidy? Why should this not be a role for the government of Ontario, through its recently announced program?

RESPONSE

The EBO 188 guideline requiring individual system expansion projects to achieve a PI of at least 0.8 only provides for cross subsidization within the group of projects undertaken during a rolling twelve month period since the Rolling Project Portfolio must maintain a PI of 1.0 or greater. Further, the EBO 188 Guidelines do not provide for existing customers to subsidize new customers in the long term since the Company also needs to maintain an Investment Portfolio PI greater than 1.0. The Company believes that limited subsidization from existing to new customers in community expansion projects is in the overall best interest of the Province in that the economic benefit to these communities will outweigh the burden borne by its existing customers. The Company is supportive of the pending Provincial government's loan and grant program that will be designed to support the extension of gas distribution services to currently unserved areas of the Province. Further assistance from the Province would be welcome. Beyond this the Company has no comment on what the role of government might be with respect to how it might fund gas distribution system expansion to currently un-served communities.

*implementation? (e.g. Issuance of Request for Proposals to enter into franchise agreements)*

33. As noted in Enbridge's response to Issue #7 the Company is not aware of any barrier to a municipality soliciting proposals for natural gas service. In Enbridge's view the larger question is whether or not adding new entrants to the market for regulated natural gas distribution services is in the best interest of the Province. If the Board does determine that the addition of regulated natural gas distributors in Ontario is beneficial then these new entrants should be required to demonstrate their qualifications as an operator of natural gas facilities in a public forum in addition to demonstrating the economic benefit to the market beyond that provided by incumbent service providers.

***Issue #10: How will the Ontario Government's proposed cap and trade program impact an alternative framework that the OEB may establish to facilitate the provision of natural gas services in communities that do not currently have access?***

34. Enbridge has been actively working with the Province to make certain that natural gas and the infrastructure that delivers it will continue to be a significant part of a low carbon future.
35. In order to keep the Province's desire to reduce CO<sub>2</sub> emissions in perspective it is important to consider the scale of the challenge in terms of the Ontario natural gas market. The peak day energy supply from the Ontario natural gas system is over 80,000 MW. In order to meet this demand with electricity, it would require the addition of over 90 nuclear reactors to produce the equivalent amount of energy. The delivery of energy would impose significant additional costs on the electricity transmission and distribution grid to meet peak day and annual demand. Annually, Enbridge alone delivers almost the equivalent amount of energy as Ontario's entire electricity grid. Enbridge's annual throughput of 440 BCF of natural gas which is equivalent to 130 TWh of electricity, is only 10 TWh less than Ontario's 2014 total electricity demand of 140 TWh. This information makes it obvious that an orderly economically efficient transition to a low-carbon economy will need to leverage existing pipelines and gas storage capabilities. There are a number of ways that this can be achieved. Enbridge is actively investigating:

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF BOMA

INTERROGATORY #20

General

Ref: Issue 10

What is EGD's estimate (or measured amount) of the amount of GHG emissions resulting from methane emissions from its natural gas operations in Ontario currently, including emissions from pipelines, compressors, storage facilities, and all other equipment? Does EGD measure such emissions? Please discuss in detail. What quantitative targets, if any, does EGD have to reduce such methane emissions over the next few years? What additional methane and GHG emissions would result from the proposed CEP?

RESPONSE

The total emissions from Enbridge's natural gas operations in Ontario as reported to Environment Canada for 2014 were 298,414 tonnes of CO<sub>2</sub>e. This contains emissions from our natural gas distribution and storage operations in Ontario, including stationary combustion, venting, flaring and fugitive emissions. Enbridge does not measure these emissions rather Enbridge uses standardized industry specific quantification methods and emission factors to calculate GHG emissions.

Enbridge Inc. is currently working with all of its business units, including Enbridge Gas Distribution, to develop multi-year targets for GHG reductions specific to the individual business units operations. It is expected that these will be made publicly available in early 2017.

It is difficult to determine what additional GHG emissions would result from the proposed CEP, without having specific data on each community expansion project.

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RESPONSES TO INTERROGATORIES OF OGA

INTERROGATORY #2

Ref: [p. 12]

Attached is a journal article dated April 22, 2014 authored by Professor Robert Howarth of Cornell University. Please advise whether Enbridge agrees with the conclusion of the author that, in addition to carbon dioxide emissions from combustion of natural gas, natural gas upstream and downstream methane emissions are equivalent to 3.8% of conventional gas, and 5.8% of unconventional gas including shale gas. Please advise the forecast mix of conventional vs. unconventional gas in years 10, 20, and 30 of its gas forecasts. Please provide a calculation of equivalent carbon dioxide emissions reflecting the upstream and downstream methane emissions. Please advise the total equivalent carbon dioxide emissions (including CO<sub>2</sub> equivalent of methane from upstream and downstream emissions) for each cubic metre of natural gas expected to be burned in the expansion communities.

RESPONSE

Enbridge has reviewed the referenced study and has the following comments. The study by Professor Robert Howarth is based on U.S. data, which may differ from Canadian data. For example, Howarth estimates that the downstream emissions are 2.5%. In the U.S. there is still a large amount of cast iron distribution pipeline, which no longer exists in Canada. This number therefore is likely too high for Canadian natural gas use. Additionally, more recent studies from Environmental Defense Fund (“EDF”) in the U.S. have found that distribution emissions were lower than previous studies had estimated, in part due to the efforts by natural gas utilities in upgrades and replacement of equipment as well as due to improved detection and analysis. This also suggests that the downstream emissions may be high even when used for U.S. natural gas use.

The Howarth study also notes that there have been several other studies, which have shown a wide range of values for conventional and unconventional gas.

Enbridge believes additional studies on the life cycle analysis for natural gas in Canada are required and therefore cannot confirm agreement with the findings stated in the article.

Enbridge manages a portfolio of natural gas supply, transportation, and storage assets in order to provide safe, reliable, and cost effective delivery of natural gas to sales service and bundled transportation customers throughout the calendar year. The Company's gas supply plan is based on balancing the principles of reliability, diversity, cost and flexibility. Enbridge conducts its planning process on an annual basis, but the execution of the plan is a dynamic process that requires constant attention and frequent adjustment in response to market developments. In recent years, Enbridge has shifted a portion of its gas supply purchases from the Empress hub in Alberta to supply sources in the northeastern United States and Ontario, such as the Dawn and Niagara hubs. However, the integrated nature of North American natural gas infrastructure complicates distinguishing between the origin of supplies when purchasing at large liquid hubs such as Empress and Dawn. As long as the natural gas meets Enbridge pipeline quality standards, the Company does not attempt to distinguish between conventional or unconventional gas.

Enbridge does not currently have enough data to estimate the upstream emissions for the natural gas that will be supplied to the expansion communities or to determine the project specific net GHG impacts based on the incremental natural gas use and the benefits that may be derived by displacing more carbon intense fuels.

The emissions from the downstream combustion of natural gas in the expansion communities are 0.001875 tonnes CO<sub>2</sub>e/m<sup>3</sup>, based on the default emission factor for Ontario.

**ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF ED**

**INTERROGATORY #2**

Reference: Page 15

Please make best efforts to provide an estimate of the greenhouse gas emissions that would be produced by the consumption of natural gas by all customers estimated to convert to natural gas in the 40 communities currently under consideration by Enbridge for community expansion, cumulatively from the present until (a) 2020, (b) 2030, and (c) 2050. Assume that natural gas is expanded to all of the communities under consideration. Please make and state all necessary assumptions on a best efforts basis. Where possible, please use the same assumptions used in the profitability analysis and the stage 2 analysis contained in the Enbridge evidence.

**RESPONSE**

The greenhouse gas emissions produced by all customers by 2020, 2030 and 2050 are summarized in the following Table:

	<b>Natural Gas Consumption</b>		<b>GHG Emissions</b>
	(106 m <sup>3</sup> )	GJ	Tonnes
Annual by 2020 =	18.7	709,272	34,991
Annual by 2030 =	50.1	1,903,329	93,898
Annual by 2050 =	50.1	1,903,329	93,898

These GHG emissions are substantially lower than GHG emissions produced from alternate fuels such as propane, light heating oil and electricity.

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF ED

INTERROGATORY #5

Reference: Page 13

- a) Please provide a list of all documents that have been prepared by Enbridge to estimate the overall reductions in natural gas consumption that may be needed to meet Ontario's GHG emission reduction targets.
- b) Please provide a list of all documents possessed by Enbridge prepared by third parties to estimate the overall reductions in natural gas consumption that may be needed to meet Ontario's GHG emission reduction targets.
- c) Please provide a copy of all documents listed in (a) and (b) above. If a document is not provided, please provide a justification. A document need not be provided if it simply repeats the estimates and analysis contained in a document already provided.

RESPONSE

- a) Please see c).
- b) Please see c).
- c) Enbridge jointly procured the services of ICF Consulting with Union Gas Ltd. to develop an understanding of cap and trade and its potential impact on the natural gas utilities and their customers. The ICF Consulting report was foundational work and has been used as a reference informing Enbridge's planning for the introduction of the Province's Cap and Trade Program. Please refer to Enbridge's response to OGA Interrogatory #3 at Exhibit S3.EGDI.OGA.3.

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF OSEA

INTERROGATORY #3

Reference: Issue 10, Page 12 of 36

Preamble: *“Enbridge has and will continue to work cooperatively with the Province to help lower CO2 emissions. There are a number of initiatives that Enbridge is pursuing that will help the Province achieve its carbon reduction goals. Some of these will result in reduced gas consumption in some market sectors while others will increase gas usage.*

*In the case of heating oil, diesel fuel for vehicles and propane natural gas provides a carbon reduction benefit. With respect to electricity the natural gas carbon advantage is clear when comparing the carbon footprint of natural gas to electricity for specific applications. Although counterintuitive, when natural gas is considered as the marginal fuel supporting electricity generation converting heating and water heating loads from electricity to natural gas will lead to reductions in the Province’s CO2 emissions.”*

- a) Has Enbridge completed an analysis of the environmental benefits of converting heating and water loads from alternative fuels to renewable energy sources (e.g. the use of ground source heat pumps)? If so, please provide the results of the analysis.
- b) Please describe the specific applications where natural gas provides a lower carbon footprint than electricity. Please provide supporting calculations and analysis.

RESPONSE

- a) No, Enbridge has not completed an analysis of the environmental benefits of converting heating and water loads from alternative fuels to renewable energy sources (e.g. the use of ground source heat pumps).
- b) Comparing the carbon footprint of electricity to natural gas applications requires the identification of the source energy for the generation of electricity. In Ontario marginal electricity is produced using natural gas fired power generation plants. The evidence indicates that typical water heating and space heating natural gas

appliances will create less CO<sub>2</sub> emissions than typical electric power resistance space heating and domestic hot water heating where the electric power is created from a natural gas fired generation plant. The assumptions and results of the analysis can be found in response to FRPO Interrogatory #6 at Exhibit S3.EGD.FRPO.6.

**ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)**  
**RESPONSES TO INTERROGATORIES OF SEC**

**INTERROGATORY #10**

[p.10] Please provide Enbridge's forecast of annual natural gas consumption for each of the next 40 years, on a per customer basis, for the average:

- a. Residential customer
- b. Commercial customer
- c. Industrial customer

**RESPONSE**

The Company's latest long-term average use forecast by sector was produced in February 2015 for the period of 2016-2030. Average use forecasts are generated only for General Service customers on Rate 1 and Rate 6.

	<b>Consumption per Customer forecast (m3)*</b>			
	Rate 1	Rate 6		
	Residential Average Use	Apartment Average Use	Commercial Average Use	Industrial Average Use
2016B	2,480	145,181	19,826	109,381
2017	2,454	143,314	19,741	109,600
2018	2,425	141,454	19,656	109,820
2019	2,396	139,533	19,576	110,036
2020	2,367	137,409	19,498	110,154
2021	2,343	135,334	19,438	110,274
2022	2,319	133,138	19,381	110,394
2023	2,296	130,822	19,326	110,517
2024	2,273	128,380	19,272	110,644
2025	2,251	125,808	19,221	110,773
2026	2,228	123,106	19,172	110,905
2027	2,207	120,273	19,125	111,041
2028	2,185	117,308	19,079	111,181
2029	2,164	114,367	19,036	111,323
2030	2,144	111,448	18,993	111,469

\*Normalized to 2016 Budget Degree Day. Includes the Company's planned DSM programs

**Issue #11:** *What is the impact of the Ontario Government's proposed cap and trade program on the estimated savings to switch from other alternative fuels to natural gas and the resulting impact on conversion rates?*

40. In November 2015, Ontario released its Climate Change Strategy and is currently developing an action plan to deliver on that strategy. A key component of that action plan is to implement a cap-and-trade program intended to result in reduced Greenhouse Gas ("GHG") emissions. This intention was confirmed with the release of the province's 2016 Budget on February 25, 2016 which stated that the government will be instituting legislation that will define future emissions reduction targets for Ontario and set-out criteria and rules for governing the cap-and-trade carbon market and for the use of proceeds that the new system generates.

Based on the current forecast for the price of carbon, the pump price of a litre of gasoline would increase 4.3 cents and the cost of a cubic metre of natural gas would rise by 3.3 cents as a result of cap and trade. (*Province of Ontario 2016 Budget, Chapter 1*)

The government will also take steps to ensure that the net impact of cap and trade would not result in an overall increase in electricity costs for commercial and industrial consumers, and that there would be a modest benefit of up to \$2 per month, on average, to residential consumers. (*Province of Ontario 2016 Budget, Chapter 1*)

41. The province's Budget document goes on to make reference to several programs that it has initiated that will also limit the financial impact of the introduction of cap and trade on energy consumers:
- Home Audit and Retrofit programs that provide homeowners with incentives to make energy efficiency upgrades. Under the programs, homeowners can receive incentives to offset the cost of energy audits and retrofits such as furnace and water heating systems replacement and insulation.
  - Home Winterproofing and Weatherization programs that provide eligible low-income households with a free home assessment, water conservation measures, programmable thermostat and weatherization services (e.g., insulation and air sealing).
  - Adaptive Thermostat program for Enbridge customers that offers participants a \$75 incentive for the installation of an adaptive thermostat.
42. Given the above, it is the Company's expectation that the energy savings associated with conversions from propane and heating fuel oil will result in greater cost savings compared to what is available today as the consumption of these two

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF BOMA

INTERROGATORY #25

General

Ref: Page 20, Paragraph 57

- (a) What are the "contingencies" built into the cost estimates for each of the thirty-nine projects in both dollar and percentage terms? By how much is the contingency amount for each of the projects expected to be reduced, once (i) detailed design; and (ii) tendering for each of the projects has been completed? What impact would that have on the weighted average "natural P/I" for the thirty-nine projects?
- (b) Will the contracts for the work be on a fixed price basis? If not, on what basis?
- (c) What is the forecast average cost per home of connecting the 16,000 homes compared with the average cost of connecting Union's 18,000 homes (twenty-nine communities), as provided in their evidence?

RESPONSE

- (a) The Company has not completed detailed costing for the thirty-nine potential community expansion projects referenced in its evidence in this proceeding. The estimated capital costs for these projects presented in the Company's evidence are based on standard costs and the Company's knowledge of the areas under consideration. Given the nature of these estimates contingency amounts have been included in the estimated capital cost of each potential project. These amounts are detailed in the Company's response to IGUA Interrogatory #5 at Exhibit S3.EGDI.IGUA.5. The Company currently does not have the information required to enable it to comment on how much the contingency amount for each of the projects could be reduced as detailed designs and tendering of these projects has not been undertaken. The PI for each potential project and the overall PI for the portfolio of thirty-nine projects will vary based on the actual costs incurred to complete the projects once these costs are known.

- (b) At this time the basis for the contracted prices for the work to extend gas service to the thirty-nine communities is not known.
  
- (c) The forecast average cost per home of connecting the 16,000 homes associated with Enbridge's proposal is \$25,625. Based on Union Gas's EB-2015-0179 application which references the connection of 20,000 homes and businesses at a total capital cost of \$150 million the average capital cost per customer underpinning Union Gas's EB-2015-0179 proposal would be \$7,500. (Ref. EB-2015-0179, Exhibit A, Tab 1, page 4)

basis for ten years (Column 8) only two of the thirty-nine potential community expansion projects would achieve PIs in excess of 0.4, the revised project PI proposed by Union Gas.

57. The estimated capital costs used to determine the PIs shown in Table 3 are based on transmission main that would need to be built to extend service to these communities. The main factor leading to the low PIs for these potential projects are high capital costs that are driven by long distances from the existing gas distribution system, difficult terrain and contingency amounts that have been factored into these estimates. Enbridge expects that once more detailed assessments of the design and construction requirements of these projects and scheduling are completed and once the work is tendered contingency amounts can be reduced resulting in lower overall capital cost estimates.

#### Proposal Objectives

58. The parameters of Enbridge's proposal in this proceeding have been set to achieve the following objectives:
- To maximize the number of new communities to receive natural gas service without the use of provincial funding support, and
  - To limit the rate impacts on existing customers to a maximum approximating \$2 per month (\$24 per year) over the multi-year expansion program.
59. Under this proposal Enbridge expects that it could complete approximately thirty-nine community expansion projects that would provide natural gas service to approximately 16,000 homes and businesses in the first ten years at a total capital cost of approximately \$410 million. In assessing the second objective guidance can be found in the level of ratepayer subsidy that the Board has determined to be appropriate for the funding of the Demand Side Management programs of both Enbridge and Union Gas (EB-2015-0029/EB-2015-0049 Decision and Order, page 6).

#### Elements of the Enbridge Proposal

- a) Adopt Union's proposed definitions of a Community Expansion Project and a Small Main Extension Project;

describes how this additional revenue can be applied to lessen the impact of community expansion projects on existing customers.

104. With respect to issue seven, the capital costs associated with the potential community expansion projects identified in this document are not included in the Company's current incentive rate model cost base. Y-factor treatment of these costs will make it possible for Enbridge to commit the capital required to pursue these community expansion projects in the current incentive rate model and in future rate setting regimes. This issue is also addressed in the Enbridge proposal.
105. In its Filing Guidelines on the Economic Tests for Transmission Pipeline Applications in EB-2012-0092 the Board stated *"The Board continues to hold the opinion that it is appropriate for existing customers to subsidize, through higher rates, financially non-sustaining extensions that are in the overall public interest if the subsidy does not cause an undue burden on any individual, group or class."*
106. For much of the time the EBO 188 Guidelines have been in place they allowed the Ontario natural gas distribution utilities to expand service to outlying communities on the periphery of their systems in an economic way that limited rate impacts on the existing customer base of these companies. In recent years the interplay between the EBO 188 Guidelines and other physical, economic and administrative factors have combined to constrain the expansion of the Province's natural gas distribution networks to unserved communities.
107. Those communities that remain without natural gas distribution service today are typically distant from the existing gas distribution systems, have relatively low numbers of potential customers and in many cases are found in locations where the nature of the terrain gives rise to high construction costs. These challenges have further limited the ability of Ontario natural gas distributors to expand gas services to these locations.
108. On average the customers that attach to the Company's distribution system in these communities will benefit economically while also contributing to the cost of service associated with these areas through the implementation of a higher rate in the form of a surcharge. The burden on existing customers will be limited and managed by maintaining the PI of the CEP at or above a minimum level. The

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF CCC

INTERROGATORY #15

Reference: EGD Evidence/p. 26

If EGD's proposals are approved how will it decide how to prioritize which communities to serve first? Would EGD provide service earlier to communities willing to provide a contribution in aid of construction?

RESPONSE

Provided that the outcome of this proceeding will enable the Company to move forward with community expansion projects it is anticipated that these projects would be prioritized based on their individual project PI. If a community were to offer funding beyond the level provided for by the ITE it is expected that the PI of the project to serve that community would improve and therefore the priority of this project would likely increase relative to the other community expansion projects under consideration.

ENBRIDGE GAS DISTRIBUTION INC. (ENBRIDGE)  
RESPONSES TO INTERROGATORIES OF PARKLAND

INTERROGATORY #4

Reference: Enbridge EB-2016-0004 Evidence, pg. 21, para. 62

Enbridge proposes that its System Expansion Surcharge should be paid by all customers in the area served by the community expansion project for up to 40 years.

- a. If Enbridge's proposal is accepted by the Board, who would bear the risk of customers converting away from natural gas before 40 years?

RESPONSE

- a. As a regulated energy distribution utility operating in Ontario the central principle underlying the determination of Enbridge's rates is cost of service. Given this principle, provided that the Board agreed that the Company's costs had been prudently incurred such costs would be recoverable from all of the Company's customers even if some customers may from time to time leave the system.