

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 a generic proceeding on natural
gas expansion in communities that are not served.

SUBMISSIONS OF ENVIRONMENTAL DEFENCE

June 20, 2016

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**Submissions of Environmental Defence
Generic Proceeding on Natural Gas Expansion in
Communities that are not Served**

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Overview

1. The utilities are proposing major exemptions from the key requirements for natural gas community expansion projects set out in the EBO 188 guidelines, including changes that would allow hundreds of millions of dollars in subsidies from existing customers. The projects under the highly relaxed criteria would result in gross capital costs of over \$21,000 per new customer on average based on current estimates (not including financing costs and not including customer conversion costs).¹ Despite the much more lax rules, the anticipated projects would only help lower energy costs for a mere 2% of the customers that do not have natural gas service.² This raises an obvious question: Is natural gas expansion the best option for these unserved communities?

¹ Comparison of Union and Enbridge Community Expansion Project (CEP) Proposals, Exhibit S15.Union.VECC.2, Attachment 1 (The gross capital cost per forecast customer for Enbridge is \$25,200 and for Union is \$14,800. The weighted average of both utilities is \$21,496.).

² Exhibit J5.4 and Exhibit S15.Union.VECC.2, Attachment 1 (There are approximately 1,328,000 electricity customers that are not provided natural gas service. The forecast new gas customers from Enbridge and Union's projects are 25,353, which is 2% of 1,328,000. The figure of 1,328,000 is the best estimate of the unserved gas customers that is available on the record. Although some apartments have a single gas meter and multiple electricity meters, which impacts the estimate, even reducing the estimate of unserved gas customers by 20% does not materially impact the 2% figure due to rounding.).

2. There are many reasons to be cautious about the relaxed rules proposed by the utilities, including the very high cost per forecast customer, the large subsidy, the long-lived nature of the assets, the small number of customers who will benefit, and the potential for inconsistency with Ontario's greenhouse gas ("GHG") emissions initiatives and our economy's movement away from fossil fuels. To protect consumers, Environmental Defence requests that the utilities be required to fully justify community expansion projects, including in comparison with alternatives such as conservation and renewable energy (e.g. geothermal), and clearly establish that a project is consistent with Ontario's anticipated reduction initiatives. This would help ensure that we do not make a large, irreversible investment in a project if there is a better, less risky alternative.

Proposed Criteria for Community Expansion Projects

3. The Board has asked whether community expansion projects should be exempt from various aspects of the EBO 188 guidelines, including the profitability index requirements which ensure that no subsidy is provided from existing customers for expansion projects as a whole.³ The Board has also asked what the eligibility criteria would be for projects to qualify for exemptions.⁴ Environmental Defence submits that exemptions should only be allowed for a project if the utility has established that:
 - a. The proposed expansion is consistent with anticipated GHG emission reduction initiatives in Ontario and its GHG emission targets;
 - b. The proposed expansion will result in net GHG emission reductions;
 - c. The proposed expansion is preferable to alternatives; and
 - d. The proposed expansion requires a subsidy in order to proceed.
4. These criteria are discussed below.

³ Procedural Order 1, Schedule B, Issues List, issue 4 and 4(a).

⁴ *Ibid.*, issue 4(d).

Consistency with GHG Emission Reduction Initiatives

5. In order to receive approval from the Board, a proposed expansion should be consistent with Ontario's anticipated GHG emission reduction initiatives and its GHG emission targets. This requirement could weed out projects that appear justified today but will turn out to be bad investments in the future in light of GHG emission reduction initiatives. There is ample evidence on the record to show that this is an important consideration that should be addressed in a leave to construct application.
6. For example, Enbridge and Union commissioned a report by ICF International on the impact of Ontario's emissions policy on natural gas demand.⁵ It found that residential, commercial, and institutional natural gas consumption could need to decline by approximately 40% by 2030.⁶ It also found that this would involve the electrification of buildings (i.e. converting heating from natural gas to electrical heating, such as geothermal).⁷ This may mean that Ontario would be simultaneously subsidizing conversions to natural gas and away from natural gas! The utilities should be expected to address this significant possibility.
7. Utilities should also ensure that leave to construct applications account for the impact of anticipated GHG emission reduction initiatives. These initiatives may pose significant risks to the financial viability of potential expansion projects. For example, the number of customers that convert to natural gas could drop if carbon prices cause an increase in the cost of gas vis-à-vis alternatives such as electricity.⁸ Subsidies for alternatives such as geothermal could also reduce conversion rates.⁹ A drop in conversion rates would increase the financial burden on existing customers, increase the per-customer costs, and decrease the net benefits of a project. Proponents should be required to quantify and assess these risks in their applications.

⁵ ICF International, Results from Aligned Cap & Trade Natural Gas Initiatives Analysis, November 2015 (Exhibit S3.EGDI.0GA.3, Attachment).

⁶ Enbridge, Natural Gas & Ontario's Energy Mix, January 2016, p. 15 (Exhibit S3.EGDI.ED.6, Attachment).

⁷ *Ibid.*

⁸ Shifting from natural gas to electrical heating causes an increase in GHG emissions. See ICF, Economic and Emissions Benefits of Expanding Natural Gas Distribution Pipelines to Canadian Consumers (EB-2015-0179, Ex. B.CCC.5, Attachment 1).

⁹ Ontario is planning \$500,000,000 to \$600,000,000 in assistance for homeowners to replace fossil fuel space and water heating with low-carbon technology such as geothermal. See Ontario's Five Year Climate Change Action Plan, 2016-2020, p. 67 (http://www.applications.ene.gov.on.ca/ccap/products/CCAP_ENGLISH.pdf).

8. Community expansion projects could also have perverse impacts on GHG initiatives and result in higher energy costs for Ontarians. Initiatives to reduce natural gas consumption will require significant investments, especially on the margin. Expanding natural gas consumption could serve to increase the costs of future initiatives to reduce overall consumption (e.g. by requiring more buildings to electrify and by requiring the pursuit of marginal, less cost-effective conservation measures).
9. Under its recently-released Climate Change Action Plan, Ontario will spend \$500,000,000 to \$600,000,000 to assist homeowners replace fossil fuel space and water heating with low-carbon technology such as geothermal.¹⁰ Further investments will likely be rolled out beyond 2020. The Climate Change Action Plan also foresees the “increased use of electricity for residential and commercial space and water heating.”¹¹ This raises an obvious question that proponents should be required to address: Why spend so much money converting to natural gas when we need to be moving to low-carbon options such as geothermal?
10. Expanding natural gas consumption could also increase the carbon credits Ontario must purchase from other jurisdictions. This would result in a loss of jobs and investment to other jurisdictions. These impacts of expanding natural gas on the costs to achieve Ontario’s GHG reduction targets should be considered as part of the societal cost-benefit analysis of a project.¹²
11. The utilities do not necessarily agree with their own consultants forecast of a potential 40% decline in residential, commercial, and institutional gas consumption. However, they have done no analysis to contradict their own consultant’s report. Although initiatives such as renewable natural gas and increased natural gas for transportation may mitigate demand declines, these initiatives are already included in the ICF analysis.¹³ Furthermore, increased natural gas for

¹⁰ *Ibid.*

¹¹ *Ibid.*, p. 82.

¹² See EBO 188, s. 3.1(d), regarding the requirement to assess the benefit-cost ratio using a Societal Cost Test.

¹³ ICF International, Results from Aligned Cap & Trade Natural Gas Initiatives Analysis, November 2015, p. 5 & 8 (Exhibit S3.EGDI.OGA.3, Attachment); Enbridge Natural Gas Demand Appendix, p. 3 (Exhibit J3.1, Attachment); Union Natural Gas Demand Appendix, p. 3 (Exhibit J5.5, Attachment).

transportation does not increase the allowable emissions from residential and commercial customers and there is a limit on the amount of renewable natural gas that can be purchased.¹⁴

12. The period from 2030 to 2050 raises even greater risks. The potential 40% decline in demand is only up to 2030, when the province-wide GHG reduction target is 110 Mt CO₂e.¹⁵ Even greater reductions are needed by 2050 to meet the far lower province-wide emission target of 35 Mt CO₂e.¹⁶ To put the 2050 target in perspective, the emissions from natural gas alone are currently in the range of 50 Mt CO₂e.¹⁷ The gap that must be closed by 2050 is enormous. Although that seems far away, it is well within the lifespan of the assets under consideration and well within the time during which Enbridge would be collecting its customer surcharge.¹⁸ With respect to 2050, ICF International concluded that “demand destruction vs. BAU [business as usual] is inevitable.”¹⁹
13. The full ramifications of Ontario’s anticipated emissions policies for potential expansion projects cannot be decided in this proceeding. That is not the purpose of this generic proceeding. However, there is sufficient evidence on the record to show that there are extremely important risks in this regard that should be quantified and taken into account. Expansion projects should not be allowed to proceed if they are inconsistent with Ontario’s future GHG emissions initiatives or if these considerations have not been adequately quantified or addressed by the proponents.

Net GHG Emission Reductions

14. Environmental Defence submits that community expansion projects should be required to result in net GHG emissions reductions. Outside of potential GHG emission reductions benefits, it is difficult to see how a subsidy from existing customers for community expansion could be justified. If the aim is to provide benefits to certain communities, why not allocate the costs to

¹⁴ *Ibid.*

¹⁵ Enbridge, Natural Gas & Ontario’s Energy Mix, January 2016, p. 8 (Exhibit S3.EGDI.ED.6, Attachment).

¹⁶ *Ibid.*

¹⁷ *Ibid.*, p. 9.

¹⁸ Comparison of Union and Enbridge Community Expansion Project (CEP) Proposals, p. 2 (Exhibit S15.Union.VECC.2, Attachment 1).

¹⁹ ICF International, Results from Aligned Cap & Trade Natural Gas Initiatives Analysis, November 2015, p. 19 (Exhibit S3.EGDI.OGA.3, Attachment).

the communities that will see the benefits? If the aim is to lower energy costs or encourage economic activity, why not look at conservation or other potential alternatives?

15. To justify the subsidies from existing customers, the utilities have repeatedly referred to the letter from the Minister of Energy to the Board dated February 17, 2015.²⁰ However, this letter does not justify the exemptions proposed by the utilities. The relevant portions of the letter read as follows:

In my letter to you on June 26, 2014, with respect to the OEB's 2014-2017 Business Plan, I asked that the Board **examine** its oversight of the natural gas sector and to **assess what options may exist** to facilitate connecting more communities to natural gas.

I am writing to you today to **encourage** the Board to continue to move forward on a timely basis on its plans to **examine opportunities** to facilitate access to natural gas services to more communities, and to reiterate the government's commitment to that objective. I appreciate your continued support to ensure the **rational expansion** of the natural gas transmission and distribution system for all Ontarians. (emphasis added)²¹

16. The following aspects of the letter are worthy of note:
- a. The letter clearly does not direct the Board to authorize subsidies for gas expansion, or even refer to that as an option to be considered.
 - b. The language of the letter is permissive and general. Compare this to the Minister's directive to the Board regarding its conservation first policy (dated March 26, 2014). In contrast to the February 17, 2015 gas expansion letter, the wording in the Minister's conservation directive is mandatory (e.g. "The board shall establish...") and specific (e.g. "the DSM Framework shall enable the achievement of all cost-effective DSM...").²²
 - c. The February 17, 2015 letter merely asks that the Board assess options that *may* exist and examine opportunities. It does not set any targets, presuppose any options, or set any criteria.
 - d. The letter refers to the "**rational expansion**" of the gas system. This is identical to the wording of the Board's gas objectives set out in s. 2 of the *Ontario Energy Board Act* ("To

²⁰ Union's Application in EB-2015-0179, Exhibit A, Tab 1, Appendix A, Page 1.

²¹ *Ibid.*

²² Environmental Defence Cross-Examination Materials for Union, tab 6, p. 43 (Exhibit 5.4).

facilitate rational expansion of transmission and distribution systems.”) This wording does not mandate the kind of wholesale departure from past rules that the utilities are proposing. By using the same language as in the *Act*, the Minister was sending the opposite signal – that the Board should review options that are in line with the principles it has applied in the past.

17. The February 17, 2015, letter should also be read in a way that is consistent with other government policy, including its greenhouse gas emissions targets, its Climate Change Action Plan, and the Minister’s conservation directive. In light of these other policies, an expansion project should not be approved if it results in a net increase in GHG emissions.
18. The February 17, 2015, letter asks that the Board look at options. It does not direct the board to approve projects no matter the cost, to abandon the fundamental principles underlying the “rational expansion” of the gas system, or approve projects even if they would result in net GHG emission increases.

Preferable to Alternatives

19. As a precondition to any subsidy, the utilities should be required to establish that a community expansion project is preferable to alternatives such as conservation and renewable energy (e.g. geothermal). The rationale for this is obvious. Why approve the spending of many hundreds of millions of ratepayer’s money if there is a preferable alternative?
20. Although Environmental Defence believes that conservation or renewable energy would always or almost always be preferred to gas expansion, that is not an issue to be decided in this hearing. It is sufficient to show that these alternatives would be strong contenders meriting further review by this Board in a leave to construct application. There is ample evidence of this.
21. The annual energy costs for a home heated and cooled with geothermal are roughly *half* of the costs for a home with natural gas heating.²³ In addition, the GHG emissions for the geothermal home would be a mere 10% of the emissions from the home with natural gas (0.45 versus 5.1

²³ Ontario’s Low Carbon Future: Geothermal Heat Pumps, Dr. Stanley Reitsma, P. Eng., David Hatherton, Martin Luymes, p. 36 (OGA Evidence, Exhibit Reference R11); transcript, vol. 5, p. 72, lns. 5-9.

tonnes).²⁴ On average, the capital costs for installing geothermal would be more than \$5,000 less expensive than the average cost of Union’s proposed community expansion costs and more than \$15,000 less expensive than the average cost of Enbridge’s projects.²⁵ Although the capital costs of installing geothermal are generally more expensive than natural gas in communities that already have gas service, that is not the case in the communities under consideration for gas expansion. After factoring in the cost of the proposed gas expansion (i.e. building pipes to a new community), geothermal becomes the more cost-effective option on average by a significant margin.²⁶

22. As stated in the Long-Term Energy Plan, conservation “is the cleanest and most cost-effective energy resource, and it offers consumers a way to reduce their electricity bills.”²⁷ Conservation programs provide GHG emission reductions at no cost because every dollar invested in conservation brings significantly more than a dollar in energy savings. Conservation programs dramatically reduce consumer energy costs. For example, Union’s conservation programs have resulted in **\$2.786 billion** in net benefits since the inception of its program, mainly through avoided energy costs.²⁸ These benefits are calculated according to the Board’s guidelines relating to the Total Resource Cost (“TRC”) test and therefore account for all the costs incurred by the customer and the utility and also factor out assumed free ridership.²⁹ Electricity conservation also results in massive net energy bill savings for consumers - \$250 million from the 2014 programs alone.³⁰
23. Both renewable energy (e.g. geothermal) and conservation create positive economic activity by creating jobs, generating savings that can be spent elsewhere, and improving efficiency (i.e. “stage 3” benefits). Enbridge and Union have not studied whether gas expansion would

²⁴ *Ibid.*, p. 23.

²⁵ *Ibid.*, p. 34 (Compared to Union’s 29 projects, the capital costs for geothermal would be \$5,115 less expensive on average. The capital cost per customer for Enbridge’s projects is over \$10,000 higher than Union’s (per Exhibit S15.Union.VECC.2) and therefore over \$15,000 higher than geothermal.).

²⁶ *Ibid.*, p. 34.

²⁷ Achieving Balance – Ontario’s Long-Term Energy Plan, p. 20.

²⁸ Union Gas, Final Demand Side Management 2014 Report, p. 9 (EB-2015-0276, Exhibit B, Tab 1; filed at tab 9 of Exhibit K5.4 in EB-2016-0004).

²⁹ EB-2014-0134, Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020)

³⁰ Environmental Commissioner of Ontario, Annual Energy Conservation Progress Report – 2015/2016, p. 125 (http://docs.assets.eco.on.ca/reports/energy/2015-2016/ECO_Conservation_Lets_Get_Serious.pdf).

produce more or less economic activity as compared to renewable energy investments or conservation.³¹ However, one would expect natural gas expansion to create *fewer* economic benefits in Ontario because it results in money flowing out of the province to purchase a commodity created elsewhere.

24. Expanding renewables and conservation would also be much fairer and would benefit more Ontarians compared to natural gas expansion. Communities must be located close to existing pipelines to be eligible for a gas expansion project. The projects identified by Union and Enbridge would only provide service to a mere 2% of those without natural gas service.³² Renewables and conservation can have much wider reach and do not make the arbitrary and unfair distinction between communities near and far from existing pipelines.
25. Conservation and renewable energy projects (e.g. geothermal) are also far less risky than natural gas expansion. The latter is subject to a large risk that fewer customers will convert to natural gas than expected, increasing the per-customer cost of the pipeline. A large investment in pipelines must be made before knowing how many customers will convert. Renewables and conservation are not subject to this risk because they are rolled out building by building. Natural gas is also subject to massive risks associated with the de-carbonization of our economy, including the kind of “demand destruction” that the ICF International report described as “inevitable” by 2050.³³ Renewables and conservation are not subject to these risks because they are in line with a low carbon future.
26. As noted above, it is difficult to justify a subsidy for expansion projects except as a means to achieve GHG emission reductions. Therefore, Environmental Defence submits that an expansion project should be required to be the most cost-effective way of achieving GHG emissions reductions. However, conservation and renewables could be preferable to a gas

³¹ Exhibit S3.UNION.ED.10; Exhibit S3.EGDI.ED.11.

³² Exhibit J5.4 and Exhibit S15.Union.VECC.2, Attachment 1 (There are approximately 1,328,000 electricity customers that are not provided natural gas service. The forecast new gas customers from Enbridge and Union’s projects are 25,353, which is 2% of 1,328,000. The figure of 1,328,000 is the best estimate of the unserved gas customers that is available on the record. Although some apartments have a single gas meter and multiple electricity meters, which impacts the estimate, even reducing the estimate of unserved gas customers by 20% does not materially impact the 2% figure due to rounding.).

³³ ICF International, Results from Aligned Cap & Trade Natural Gas Initiatives Analysis, November 2015, p. 19 (Exhibit S3.EGDI.OGA.3, Attachment).

expansion project in all respects, including overall cost-effectiveness, bill reductions, GHG emission reductions, fairness, potential reach, and risk profile. The utilities should at least be required to look at these alternatives.

Filing Guideline Requirements re Alternatives

27. In order to assess alternatives as part of a leave to construct application it will be necessary for the utilities to file more information in this regard. To this end, Environmental Defence requests that the utilities be required to compare (1) the net costs and benefits of the alternatives from a societal perspective using the Societal Cost Test mandated by EBO 188, (2) the GHG impacts, (3) the risks, and (4) the breadth of consumers who could benefit. This will allow for a solid, apples-to-apples comparison and provide the Board with valuable information to decide whether a large subsidy is warranted.
28. A comparison of alternatives would need to include renewable energy (e.g. geothermal) and non-gas conservation even though the utilities do not provide those services. Rational and prudent planning requires that these alternatives be included. Ignoring these alternatives could create absurd and inefficient results whereby large sums are invested in an inferior alternative.
29. In the context of large proposed subsidies, it is reasonable for the Board to require that the utilities examine alternatives. This kind of analysis is very feasible. Indeed, the Ontario Geothermal Association (“OGA”) conducted an analysis of alternatives in this proceeding.³⁴ If the OGA can do this, why can’t the utilities, especially seeing as they have far greater resources? The utilities have also undertaken a comparison between natural gas and other energy sources, such as propane and resistance electrical heating, in this proceeding as part of its analysis of the cost savings resulting from a switch to natural gas. Furthermore, information about non-gas conservation programs is readily available.³⁵ An assessment of alternatives is completely feasible.

³⁴ Ontario’s Low Carbon Future: Geothermal Heat Pumps, Dr. Stanley Reitsma, P. Eng., David Hatherton, Martin Luymes (OGA Evidence, Exhibit Reference R11).

³⁵ See e.g. Environmental Commissioner of Ontario, Annual Energy Conservation Progress Report – 2015/2016 (http://docs.assets.eco.on.ca/reports/energy/2015-2016/ECO_Conservation_Lets_Get_Serious.pdf).

Necessity

30. Lastly, Environmental Defence requests that the utilities be required to establish that a subsidy is necessary for the project to proceed. If a subsidy is not necessary, it would be hard to see how it could be justified. We do not know of any parties that have objected to this basic requirement.

Helping Municipalities

31. The Board has heard from a number of municipalities that want natural gas service so that their residents can benefit from lower energy prices. These are important interests. As a whole, unserved consumers would be better served if the Board requires the kind of comparison with alternatives as proposed by Environmental Defence and is cautious in making departures from EBO 188.
32. First, most municipalities do not have the capacity to conduct an in-depth assessment of a natural gas expansion project, compare the project to alternatives, and forecast potential future impacts on the community. It may only be through a Board hearing that it becomes clear that a municipality would be better served by another alternative, not the more obvious option of natural gas expansion.
33. Second, the support by municipalities in this proceeding is not an indication that natural gas is the best option. The utilities are proposing that the expansion to these communities be subsidized in the range of hundreds of millions of dollars – roughly 50% of the costs. What mayor or council would argue against such a huge subsidy for their residents? However, the municipalities ultimately support a subsidy for lower energy costs. There may be better ways to achieve that goal.
34. Third, alternatives such as geothermal actually result in lower energy costs. For a typical home, the annual energy costs from geothermal are *half* of the costs from a natural gas equivalent.³⁶

³⁶ Ontario's Low Carbon Future: Geothermal Heat Pumps, Dr. Stanley Reitsma, P. Eng., David Hatherton, Martin Luymes, p. 36 (OGA Evidence, Exhibit Reference R11); transcript, vol. 5, p. 72, Ins. 5-9.

35. Fourth, alternatives such as geothermal and conservation are much better for unserved consumers, *as a whole*, because they can be rolled out in a far larger proportion of unserved communities as compared to natural gas service. Although LNG could help the reach of natural gas service, that option remains very uncertain at the moment. As it stands now, only conservation and renewables can help lower energy bills across the province and in all areas without natural gas service.
36. Of course, the Board cannot direct, for example, that a subsidy be provided for geothermal projects in a certain community. However, a decision by the board finding that another alternative would be preferable could provide the impetus needed for that alternative to be implemented, including through government subsidies. Indeed, it is very possible that this could occur seeing as the Ontario government has earmarked \$500,000,000 to \$600,000,000 to assist homeowners replace fossil fuel space and water heating with low-carbon technology such as geothermal.³⁷ Natural gas is not the only option to lower energy costs in unserved communities. It will increasingly be the case that communities can take advantage of other programs that will allow them to leapfrog over natural gas to even cheaper and cleaner options.

Conclusion

37. This Board has been asked to “examine” and “assess” what options “may” exist for the expansion of natural gas. It has not been asked to approve natural gas expansion no matter what the cost is. As one option, the utilities have proposed a very significant departure from EBO 188 by allowing huge subsidies. Environmental Defence submits that it should be incumbent on the utilities to establish that these subsidies are justified by tangible benefits (i.e. GHG emissions reductions), that natural gas expansion is the best option available, and that natural gas expansion is consistent with Ontario’s anticipated GHG emission reduction initiatives.
38. There is a lot at stake in this hearing. The initial investment and the ongoing subsidies are large. So are the opportunity costs. Renewables (e.g. geothermal) and conservation have the potential to save consumers more money, reduce far more GHG emissions, and reach many more

³⁷ Ontario’s Five Year Climate Change Action Plan, 2016-2020, p. 67 (http://www.applications.ene.gov.on.ca/ccap/products/CCAP_ENGLISH.pdf).

unserved customers while also being more cost-effective and less risky. Natural gas expansion is an irreversible decision and an irreversible bet on one option over others. Environmental Defence requests that the Board proceed cautiously and that the utilities be required to meet the criteria set out above.

All of which is respectfully submitted this 20th day of June, 2016.



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