

COMPLIANCE PLAN – ABATEMENT ACTIVITIES – CUSTOMER

1. Enbridge anticipates that renewable natural gas, low-carbon technologies and energy efficiency will play a role in future compliance plans where possible and appropriate.
2. As also noted in Exhibit C, Tab 2, Schedule 1 of the Framework, the Board lists a number of Potential GHG Abatement Measures for consideration including:

Table 1 – Customer-related and facility-related emission abatement opportunities

Measure	Applicability to Utilities
Customer abatement activities	Customer emissions
Renewable energy and fuel switching	Facility and customer emissions
New technologies	Facility and customer emissions
Building retrofits	Facility and customer emissions
Measures to mitigate and reduce fugitive emissions	Facility emissions
Biogas, renewable natural gas ¹	Facility and customer emissions

3. The Board goes on to state in section 5.3 that in its evaluation of the cost consequences of the Utilities' Compliance Plans it will consider whether the utility has "engaged in strategic decision-making and risk mitigation," "whether the Utility has considered a diversity (portfolio) of compliance options" and "whether a Utility has selected GHG abatement activities and investments that, to the extent possible, align with other broad investment requirements and priorities of the Utility in order to extract the maximum value from the activity or investment."

¹ Enbridge notes that biogas and renewable natural gas should be broadened to include renewable hydrogen and other renewable content as applicable for natural gas pipelines.

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4. Lastly, the Board notes in section 5.6 of the Framework that the introduction of abatement activities under the Cap and Trade program “creates the potential for significant overlap between existing DSM programs and future Compliance Plans.” The Board concludes that “The DSM Framework also includes a mid-term review provision (to be completed by June 1, 2018) that will provide an appropriate opportunity to assess the DSM Framework in light of the Cap and Trade program.”

A. Demand Side Management (“DSM”)

5. Enbridge shares the Board’s view regarding the potential for overlap between DSM programs and future Cap and Trade Compliance Plans.
6. Further, the Company agrees that the DSM Mid-Term Review will provide ample opportunity to consider the relationship between DSM programs and other future customer abatement activities, which should include a review of DSM’s role within the Company’s overall compliance planning activities. A focused evaluation of the level, pacing, and cost effectiveness of DSM as a compliance tool within the DSM Mid-Term Review will allow the Company to consider the inclusion of DSM within a Compliance Plan beyond 2017, while also avoiding disruption of the Company’s existing DSM programs currently in market.
7. Given the timing of the release of the Framework, the Company has not had sufficient time to plan, design, or implement any proposals for additional rate payer funded DSM customer abatement activities within its 2017 Compliance Plan. As stated above, this is a topic area that the Company believes is more appropriately dealt with during the DSM Mid-Term Review.
8. While the Company has not incorporated incremental ratepayer funded abatement activities into its 2017 Compliance Plan, the forecast presented in Exhibit B, Tab 2,

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Schedule 1 does, however, include incremental customer abatement activities as part of the Green Investment Fund (GIF) program, that has been funded by taxpayers.

9. In 2016 Enbridge entered into an agreement with the Ministry of Energy (“MOE”) to offer an advanced home energy audit and retrofit program over the course of three years through the GIF. The primary objective of this program is to help homeowners save on their energy bills year after year while also reducing overall GHG emissions. The whole home retrofit program was designed to be similar to Enbridge’s existing DSM offer, the Home Energy Conservation program, and is available to all customers regardless of primary fuel type. In addition, the funding was also meant to increase the deployment of the Adaptive Thermostats offer, also consistent with the Company’s DSM program, as well as funding to pursue educational and behavioural-based GHG reductions.
10. For illustrative purposes the following table, Table 2, outlines the forecasted lifetime savings related to the incremental GIF program:

Table 2 – Green Investment Fund Forecasted Results

Program Impacts	Unit	2016	2017	TOTAL
Budget	\$ Millions	\$9.70	\$22.70	\$32.40
Number of Participants	Homes	3,000	10,000	13,000
Total GIF Program Savings¹	Annual m ³	2,059,500	10,984,000	13,043,500
Total GIF Program Savings	Lifetime m ³	61,785,000	205,950,000	267,735,000
Total Lifetime CO₂e Reductions	Tonnes	115,847	386,156	502,003
Estimated CO₂e Reductions Taking Place in Each Year¹	Tonnes	3,862	20,595	24,457

1. CO₂e reductions and volume savings taking place in each year include the 50% of the impact of annual reductions achieved in the current year and 100% of the reductions achieved in past years. This methodology is intended to roughly capture the reality that participants do not all begin reducing emissions on Jan. 1st of a given year; they are enrolled throughout the year. For example, in the 2017 calendar year the full 100% impact of 2016 achievement and 50% of 2017 achievement has been included. The “TOTAL” column listed for this row represents the total annual CO₂e reductions and volumes that will persist in 2019 and beyond.

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11. The numbers shown in Table 2 represent the forecasted m³ volumes and CO₂e reductions for this 2017 compliance period. The forecasted 2016 values have been presented along with 2017, as the anticipated program impacts (due to the timing launch of the program) will be most notable in the 2017 compliance period. For the purposes of determining impact on the annual carbon compliance, 502,003 tonnes in CO₂e reductions is the best estimate of the lifetime savings attributable to the GIF program delivered by Enbridge.

12. In summary, the Company believes that DSM should be considered a vital part of its overall long-term Compliance Plan. This is especially so where the results from conservation and energy efficiency can be shown to be more cost effective over the long term than the purchase of compliance instruments. Given the timing of the release of the Framework, and given the scheduled Mid-Term Review for the Company's DSM Framework, the Company believes the issue of including the existing and any incremental DSM activity into the Company's compliance planning activities is best suited for the Mid-Term Review.

B. Renewable Content Objectives for Natural Gas Pipelines

13. Enbridge believes that establishing a renewable content objective for natural gas pipeline systems can provide a flexible low-carbon solution that offers good value to customers because it leverages the existing natural gas transmission, distribution and storage infrastructure as well as the heating, water heating and other gas-fired equipment used by our customers. Next to conservation, the addition of a renewable content objective, for natural gas pipelines, is expected to offer one of the more cost-effective carbon abatement measures for Ontario to broadly meet its GHG reduction and climate change mitigation goals.

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14. Several near-term opportunities exist to establish renewable gas supplies for pipeline networks. Today, various biogas supplies are derived from landfill operations, municipal water treatment facilities, and anaerobic digestion of municipal organic collection programs and farm/agricultural wastes. These biogas supplies are typically flared or converted into electricity at relatively low efficiencies of 40% or less. A more compelling use of this biogas involves upgrading the gas to pipeline quality standards and injecting this into the natural gas network where it can be utilized at thermal efficiencies of up to 96%. This upgraded biogas is referred to as Renewable Natural Gas (“RNG”).

15. Other near-term renewable gas supplies that can help Ontario increase the renewable content in natural gas pipelines is electrolytic hydrogen. This renewable hydrogen is derived from surplus and off-peak electricity in a process known as power-to-gas, and the hydrogen can be injected into the natural gas network to decarbonize pipeline fuel. In effect, power-to-gas plants can become a new energy intertie that connects Ontario’s wholesale electricity grid to the province’s wholesale natural gas network. The result is Ontario can leverage the pipeline network’s seasonal storage capability to store low-carbon energy from the electricity grid that would have otherwise been curtailed or exported. Power-to-gas offers a means for Ontario to ensure its abundant low-carbon power supplies are used for the province’s competitive advantage under Cap and Trade rather than exporting this low-carbon energy.

16. Over the medium and long-term, natural gas pipeline systems can achieve deep decarbonization with renewable content through the commercialization of methanation technologies and the development of solar fuel technologies. These technologies are not commercially ready today but their ongoing development can

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ensure the renewable content in pipelines can grow significantly beyond the near-term market opportunities that will focus on RNG and power-to-gas.

17. Enbridge has been actively supporting the industry's efforts to understand the market potential related to renewable pipeline fuels, including technical assessments and feasibility studies related to bringing renewable gas supplies to market. RNG has similar environmental benefits when compared to renewable electricity, but it offers some unique benefits. These include improved cost-effectiveness for renewable energy, when measured on an equivalent energy basis. RNG and power-to-gas also offer the ability to leverage existing, cost-effective energy storage so this renewable energy can be storage until the market demand is real and carbon abatement can be guaranteed. Since the early supplies of renewable pipeline fuel will be predominantly derived from waste streams, RNG can help reduce GHG emissions through both the displacement of conventional natural gas and also through the creation of carbon offsets that account for the capture of biogenic created methane that would otherwise have been vented to atmosphere as a fugitive emission. RNG development represents an innovative way for Ontarians to turn a waste product into a useful energy source and lower GHG emissions at the same time.

18. Many jurisdictions are ahead of Ontario in moving to renewable natural gas, and several models exist for delivering it to customers. European markets are actively developing renewable pipeline fuels through both RNG and power-to-gas developments. In North America, California, British Columbia and Quebec have all moved forward with the early development of RNG to complement the renewable energy options that have traditionally been focused on the electricity grid. British Columbia's model also includes a voluntary opt-in model where Fortis BC

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customers have the option to buy RNG as some or all of the gas they use. Customers who choose RNG also receive a carbon tax credit on their bill.

19. The typical development timeline for RNG and power-to-gas projects is expected to range from 18 to 30 months. Some potential producers of renewable gas supplies are at the early stage of project development in anticipation of market opportunities developing in Ontario. As a result, this 2017 Compliance Plan does not include renewable natural gas volumes; however, Enbridge anticipates that renewable content will play an increasing role future compliance plans as these projects are developed and brought into commercial operations.

C. Natural Gas Transportation

20. In partnership with the government, the Company also plans to increase in the use of natural gas for vehicles used in activities such as waste collection, trucking, and transit. It should be noted that while this initiative will see total natural gas volumes increase, GHG emissions will decrease significantly as natural gas displaces diesel, a more carbon intensive fuel. The province has committed up to \$270m in their Climate Change Action Plan (“CCAP”) to “increase the use of low-carbon trucks and buses”, which includes but is not limited to those powered by natural gas. The CCAP states that:

The province intends to work with the Ontario Trucking Association, Union Gas, Enbridge and others to establish a network of natural gas and low- or zero carbon fueling stations. It will work with utilities to ensure the recovered biogas content of the fuel provided is increased over time to further lower the carbon footprint of this alternative fuel. Natural gas has a lower carbon content than diesel and also burns cleaner, producing less local air pollution.

As natural gas use for vehicles becomes more prominent, it is important that natural gas volumes not be considered in a vacuum, but rather in the broader context of provincial GHG impact and government policy objectives.

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