COMPLIANCE PLAN – ABATEMENT OVERVIEW

1. The Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities (the "Framework") recognizes that the natural gas utilities ("Utilities") have a number of compliance options available to meet their obligations under Ontario's Cap and Trade program. In addition to purchasing financial instruments, including allowances and offset credits, natural gas utilities can undertake GHG abatement measures to meet their compliance obligations.

2. Enbridge recognizes that Utilities are under a legal obligation to cover their emissions through the Cap and Trade program. The Utilities are statutorily mandated to procure allowances and offsets as part of regular business operations. Utilities are encouraged to take steps to reduce (abate) the emissions from their customers and from their own operations. This mandate is further articulated by the Framework which outlines several ways in which the Utilities may propose to meet their obligations which include: financial instruments (e.g. allowances, offsets), customer abatement (e.g. renewable natural gas ("RNG"), energy efficiency, fuel switching, new technologies), and facilities abatement (e.g. leak repairs, capital upgrades). In particular, at Table 2 of the Framework as shown below, the Board lists a number of Potential GHG Abatement Measures for consideration including:

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. Furthermore, in the Board's EB-2016-0300 Decision and Order on Enbridge's 2017 Compliance Plan (p. 27), the Board encouraged Enbridge to consider abatement activities in future Compliance Plans.

4. In the Framework, the Board states 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."[2]

5. Given that the applicable costs of a Utility meeting its carbon obligations are included in the distribution costs of customers' bills, Enbridge has a responsibility to manage costs where possible, and provide cost effective service. This will become increasingly important as the cost of carbon inevitably increases due to the deliberate manner in which the Cap and Trade program has been structured. With

[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.
[2] Ontario Energy Board - Report of The Board: Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities, September 16, 2016, at page 21.

the increasing cost of carbon and the increasing recognition of the value of avoiding GHG emissions, attractiveness of GHG abatement will evolve.

6. Enbridge is committed to providing solutions to help the Company and its customers reduce their emissions and thereby help Ontario reach its GHG emissions targets. Enbridge has developed and is implementing an Abatement Construct through which the Company is developing a number of GHG abatement opportunities. Some of the plans are ready for implementation, while others are still being investigated and formulated. As well, Enbridge's DSM activities will continue to make meaningful contributions to GHG abatement.

7. This evidence sets out the Abatement Construct approach that Enbridge is using to assess and implement these activitiesas well as the Company's related incremental resource requirements. Then the exhibit provides an overview and discussion of the Board's Marginal Abatement Cost Curve for Assessment of Natural Gas Utilities' Cap and Trade Activities (the "MACC") and the Board's Long-Term Carbon Price Forecast Report (the "LTCPF"). Enbridge's planned customer-related abatement activities are described in Exhibit C, Tab 5, Schedule 2. Enbridge's planned facilities-related abatement activities are described in Exhibit C, Tab 5, Schedule 3.

<u>The Abatement Construct</u>

8. As explained in the Compliance Plan Overview (Exhibit C, Tab 1, Schedule 1), Enbridge worked collaboratively with Union Gas Limited to outline an Abatement Construct to guide abatement initiatives which is expected to be subject of continuous improvement.

9. As outlined in Exhibit C, Tab 1, Schedule 1, the Abatement Construct outlines the sustainment model by which low carbon initiatives are sought, vetted, categorized

and advanced with the ultimate goal of broad based implementation. Enbridge believes this construct will better enable abatement through setting common language and consistency in processes around which abatement initiatives can progress. This Abatement Construct in its entirety should increase the generation and implementation of abatement initiatives and therefore ultimately assist the Province in meeting its objective of a lower-carbon economy in a cost-effective, and economically sustainable manner. Enbridge believes the Abatement Construct is consistent with the Guiding Principles in the Framework, and with the stated GHG emissions reductions goals of the Government.

10. The Abatement Construct includes the following elements:

- Abatement program selection and screening criteria
- A four-phased "Initiative Funnel"
- A Low Carbon Initiative Fund ("LCIF")

Abatement Screening Criteria

11. The Framework identifies "Guiding Principles" for the Compliance Plan. It also recognizes, as noted above, that longer term investments should be aligned with broader priorities. Therefore, Enbridge observes that abatement investments require complementary criteria to be applied in the assessment and selection of abatement programs that would be put forward as part of a Compliance Plan. Suggested abatement program selection and screening criteria for the Abatement Construct are outlined below:

- *Funding*: Abatement programs should be able to draw on a variety of funding sources, including Climate Change Action Plan ("CCAP") funding, incremental amounts tracked through the Greenhouse Gas Emissions

Impact Deferral Account ("GGEIDA") and other Government funding (provincial or federal). Where appropriate, an abatement program proposal will be supported by an assessment which may use a range of funding models and appropriate valuations and assumptions. The assessment would use the best available information at the time but it is important that such information would not be reconsidered on a retrospective basis at the time cost recovery is determined.

- *Timely advancement of technology*: There must be recognition of the role natural gas utilities play in advancing the adoption of new technology over extended periods of time.

- *Support government targets*: Abatement programs will contribute towards the achievement of GHG emission reductions and/or meet the goals of related regulations.

- *Efficient and rational development*: Abatement programs should balance customer cost impacts by leveraging existing infrastructures (particularly utility infrastructure, including physical, brand, billing, program delivery) where appropriate and by not duplicating existing frameworks (e.g. DSM).

- *Respect appropriately modified regulatory constructs*: Abatement programs should manage customer cost impacts; adhere to cost causality (no undue cross-subsidization); use applicable valuations and appropriate costing (including marginal cost allocation where appropriate); and align with procurement and compliance guiding principles.

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12. In addition, when considering which initiatives should be pursued (and where the opportunities fit within the Initiative Funnel described more fully below), the following considerations may also be used:

    - Market size – how meaningful can the technology/program be in reducing GHG emissions – both near and long term?
    - Technological maturity – how quickly can the technology be brought to market?
    - Market acceptance – What is the expected market uptake?
    - Cost effectiveness – Do the current and projected costs of the technology/program compare favourably with or operate in conjunction with other options?
    - Local content – Does the technology support or leverage Ontario's technology entrepreneurs?

13. Enbridge recognizes that abatement initiatives will develop, evolve and mature over time, particularly given the reliance on new and emerging technologies. In addition, there may be many concepts or ideas that Enbridge will investigate as abatement opportunities, with only some coming to ultimate fruition.

<u>Abatement Initiative Funnel</u>

14. Enbridge is using an "Initiative Funnel" approach to investigating, planning and implementing abatement activities through its Compliance Plan. The four-stage Intiative Funnel is depicted below and provides the basis under which abatement inititaives are categorized for purposes of discussion within the Company and in compliance planning.

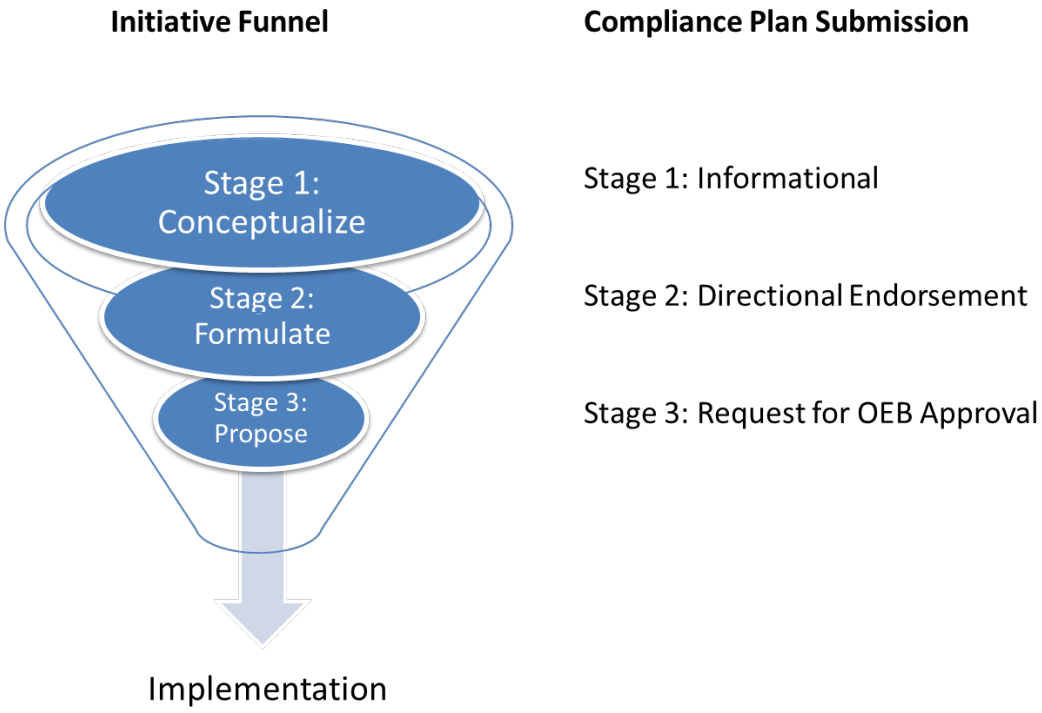

Figure 1: Compliance Plan Initiative Funnel

15. Enbridge's Initiative Funnel is comprised of four stages that initiatives will pass through. These stages are:
    - Stage 1: Conceptualize – In this stage, technology and/or abatement ideas are identified and explored to determine applicability;
    - Stage 2: Formulate – In this stage, technology and/or abatement ideas have received directional endorsement from the Company. Pilot programs or small scale development tests may be completed to prove the technology and its applications;
    - Stage 3: Propose – In this stage, technology or abatement ideas and its applications have been identified along with the GHG reduction potential, and the Company is requesting specific approvals from the Board in the Compliance Plan or through other proceedings.

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- Stage 4: Implementation– This stage is the implementation of abatement initiatives and also captures existing abatement activity being undertaken by Enbridge including the Green Investment Fund ("GIF") program.

16. It is possible that only some abatement initiatives would progress through the funnel to reach the Propose or Implementation stages. Progression of technology through the funnel will depend on a variety of factors such as commercial viability, technical feasibility and consideration of screening criteria listed above.

17. Initiatives that have received approval from the Board in Stage 3 will then proceed into the Implementation phase. Initiatives that have been implemented will be monitored and reported on through the Compliance Plan.

18. Enbridge's Compliance Plans will provide details about the outcomes resulting from this "Initiative Funnel", from concept through to specific proposals that require a decision from the Board in order to proceed. This type of presentation provides the Board with an indication of the state of advancement of each initiative and a reasonable expectation of the implementation timeframe associated with each potential opportunity.

19. Even where abatement program and implementation costs will not be incurred during the term of a specific Compliance Plan, providing information about prospective abatement activities in a Compliance Plan filing will offer the Board and stakeholders an opportunity to consider the direction of the Company's future plans and to provide comments. This will provide Enbridge with input as plans evolve and greater certainty as to the acceptability of moving forward with the various abatement options. The scope and details of the initiatives that will fill the Initiative

Funnel, and move through its various stages will ultimately be informed by, among other inputs, market signals, Government and Board policy, the MACC, the LTCPF, customer acceptance and technology development status.

20. Enbridge has included information at varying levels of detail for a number of potential abatement opportunities and activities that the Company currently has under consideration in Exhibit C, Tab 5, Schedule 2 (customer-related abatement) and Exhibit C, Tab 5, Schedule 3 (facility-related abatement). The degree of detail provided for each of these opportunities reflects the extent to which each one of these potential abatement activities has been examined by the Company at this time, consistent with the Compliance Plan Initiative Funnel approach.

<u>The Low Carbon Initiative Fund and Abatement Resourcing Requirements</u>

21. Each stage of Initiative Funnel activity will have associated resourcing requirements. The Company's budgets presented and approved in the Customized Incentive Regulation application did not contemplate Cap and Trade and carbon abatement activities. Therefore, in order to support and advance projects through the various stages of the Inititiative Funnel, Enbridge will require incremental funding and dedicated resources.

22. For projects in the first three stages of the Initiative Funnel, the resourcing requirements shall be included as an administrative cost in the GGEIDA. For initiatives that have progressed out of Stage 3 and into the Implementation phase, costs would be identified and incorporated into the approved abatement activity.

23. The Low Carbon Initiative Fund ("LCIF") is proposed to enable the identification and development of GHG reducing technologies to progress into future abatement

opportunities. The LCIF will provide Enbridge with access to up to $2 million in available funds per year, starting in 2018, with only the actual costs being tracked in the GGEIDA.

24. The Company believes it must be able to anticipate a steady flow of funding in order to pursue innovative carbon abatement opportunities as well as to ensure the continued flow of ideas through the Initiative Funnel described above. The aim is that a consistent flow of funds should create a similarly consistent flow of new ideas and technologies into the Initiative Funnel thereby increasing the possibility of new viable abatement programs for implementation. This funding will allow Enbridge to advance pilot projects/demos and research to support a more comprehensive assessment of promising technologies and opportunites that could be evaluated in the Propose stage for full scale implementation. The LCIF may be used to support jurisdictional reviews, concept testing, pilot programs/demos and related measurement, analysis and validation. The LCIF is essential to pursue initiatives that may provide carbon abatement opportunities that help the Company reduce its carbon obligation, and aid the Government in meeting its provincial reduction goals.

25. Additionally, in some cases the Company will seek or has already endeavoured to supplement carbon abatement initiative costs with government funding. The LCIF will initially provide funding for Enbridge to better define each opportunity in order to successfully qualify for government grants. At the same time, pursuing pilot projects supported by a reliable funding source such as the LCIF will allow the Company to gain experience with integrating these products into the business and identify next steps necessary to enable a robust market solution.

26. Ontario's new 2017 Long-Term Energy Plan ("LTEP") acknowledges "Natural gas will continue to play a critical role in space and water heating, but we must use it as

efficiently as possible and supplement it with the next generation of clean energy technologies, [such as ground-source and air-source heat pumps]"[3]. The LCIF will provide the means to accelerate innovative technologies necessary for the Province to meet its renewable energy and emissions reduction targets.

27. Enbridge will require two additional full time equivalent ("FTE") employees to support the Company's efforts to identify, formulate and begin to implement on new or expanded abatement activities within the Initiative Funnel. These two resources would be responsible for:

    - An annual technology scan and related intelligence on new and emerging technologies for achieving GHG reductions;
    - Making recommendations based on various abatement assessment criteria;
    - Identifying and supporting the development of pilot projects;
    - Managing and/or overseeing pilot projects administration and progress; and,
    - Summarizing outcomes and making recommendation from pilot projects results.

    These two resources are key to identifying and developing new abatement technologies and pilots to assist the Company in undertaking GHG abatement measures.

28. Enbridge estimates the 2018 cost associated with the two additional FTEs will be approximately $350,000. These costs associated with these new FTEs have been included in in Enbridge's evidence on Administrative Costs, found at Exhibit D, Tab 1, Schedule 1.

[3] Ontario's Long-Term Energy Plan 2017: Delivering fairness and choice, p. 109

29. In order to have confidence that the costs associated with implementing and advancing the Abatement Construct are recoverable, Enbridge is requesting the approval (or a finding of reasonableness) of: (i) adding two new staffing resources related to the and low/no carbon technology assessment and deployment; and (ii) available funding of up to $2 million for 2018 through the LCIF to pursue abatement initiatives. The costs for these activities would be recorded in the GGEIDA, such that Enbridge would only recover amounts actually spent. The Company anticipates that the LCIF amount would be funded annually, requested for future years through Compliance Plan submissions.

30. Resource requirements specific to the abatement initiatives identified for 2018 are further articulated in Exhibit C, Tab 5, Schedule 2 (customer-related abatement) and Exhibit C, Tab 5, Schedule 3 (facility-related abatement), and in the Company's evidence about Administrative Costs, found at Exhibit D, Tab 1, Schedule 1.

THE ROLE OF THE LONG TERM CARBON PRICE FORECAST AND THE MARGINAL ABATEMENT COST CURVE

31. In the Framework, the Board identified that a "long-term forecast of carbon prices is needed to effectively assess the reasonableness of [long term] investments", and that the "OEB will use this forecast to evaluate the cost-effectiveness of multi-year abatement programs and any longer-term investments that Utilities propose as part of a Compliance Plan".[4]

32. The Board retained ICF International ("ICF") to develop a LTCPF. On May 31, 2017 the Board released its first LTCPF, which provided a carbon price forecast for a 10 year period from 2018 to 2028.

[4] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities (EB-2015-0363), page 19.

33. The LTCPF is broad demand/supply analysis out to 2018 which does not necessarily illustrate intra-year market fluctuations. As stated in the LTCPF, it is "intended to inform the utilities during the development of their compliance plans and to assist the OEB in its evaluation of the cost-effectiveness of utilities' strategies for complying with the cap and trade program". The Company sees the LTCPF as a useful guide that can be used to inform longer-term carbon abatement investment planning and recognizes it will be updated annually.

34. In the Framework, the Board identified a MACC study as "an essential input that the OEB expects all Utilities to use in developing their Compliance Plans".[5] The Board subsequently retained ICF, and convened a technical advisory group to develop a generic MACC to help inform natural gas utility Compliance Plans.

35. On June 21, 2017, Enbridge was provided with a draft version of the MACC study and the final report, "Marginal Abatement Cost Curve for Assessment of Natural Gas Utilities' Cap and Trade Activities," was delivered on July 20, 2017. The study is for the 2018-2020 period, and incorporates the Board's LTCPF.

36. The MACC is intended to provide guidance on the most appropriate customer abatement opportunities. The goal of a MACC is to provide a prioritized visualization of carbon abatement options considering potential and costs of marginal abatement activities. The MACC developed by the Board provides one important input for the Utilities in assessing various tools to meet their compliance strategy. The opportunities outlined in the MACC include: energy efficiency and related low carbon technologies including heat pump technologies and RNG.

[5] Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities (EB-2015-0363), pg. 20.

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37. Enbridge appreciates the work of ICF, stakeholders and the Board developing this first LTCPF and MACC study under condensed timelines. The Company has, time permitting, considered the LTCPF and the MACC in its Compliance Planning. Enbridge notes that the Board convened a group of stakeholders, called the Technical Advisory Group (the "TAG"), for review and input towards the development of the first LTCPF and MACC. Informed in part through TAG discussion,ICF suggested a series of recommendations for future iterations of the MACC. Enbridge feels it is necessary to raise three key items of consideration for the next MACC study.

    - The first consideration is that MACCs are best suited to short-term planning because of changing inputs (such as changing technology costs, changing market place incentives on various technologies, and evolving policy).
    - The second consideration is that the breadth of activities and technologies considered should be broader moving forward. And, where possible, consideration of the cost/benefit impacts of fuel switching should be integrated.
    - The third consideration is that the visual representation of the MACC should clearly illustrate marginal activity. This ensures that the work done already is captured in the analysis, making the tool more readily useable by the utilities.

38. Enbridge considered the results of the LTCPF and MACC as one input to the degree that time permitted in developing its 2018 Compliance Plan filing. Enbridge made specific use of the Board's MACC study in the following ways:

- Enbridge considered the guidance and information provided in the MACC study about energy efficiency programs to assess whether it should be expanding DSM programs. As described in Exhibit C, Tab 5, Schedule 2, Enbridge concluded that additional DSM programs would not be cost-effective; in some cases the marginal costs of new programs may be higher than the cost of compliance instruments.
- Enbridge used the information about RNG found in the MACC to consider and develop its proposal for RNG procurement. That proposal is discussed in Exhibit C, Tab 5, Schedule 2.

Witnesses: S. McGill
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