

**ONTARIO ENERGY BOARD**

**EB-2020-0066**

**IN THE MATTER OF** the *Ontario Energy Board Act*, 1998, S. O. 1998, c. 15, Schedule B;

**AND IN THE MATTER OF** an application for a voluntary renewable natural gas program.

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**Submissions of Environmental Defence**

**Re Enbridge's Voluntary Renewable Natural Gas Program**

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**July 13, 2020**

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## Introduction

Enbridge is proposing a program whereby its customers can voluntarily purchase renewable natural gas to offset a small portion of their conventional fossil-based gas consumption. Generally speaking, Environmental Defence strongly supports Enbridge making efforts to decarbonize heating in our buildings and strongly supports the Ontario Energy Board encouraging those efforts through appropriate regulation and rate-setting. Decarbonization goes to the core of the Ontario Energy Board's mandate because climate change presents major financial risks to fossil fuel companies and consumers. Decarbonization is not solely a means to avoid catastrophic climate change; it is also an incredibly important financial issue for energy consumers.

However, important directions are required regarding the communication and marketing strategy to ensure that the program does not inadvertently undermine decarbonization efforts. For example, customers should be informed that the program offsets less than 2% of an average household's consumption, that the reductions cost \$338 per tonne of CO<sub>2</sub>e, and that energy efficiency and heat pumps are much more cost-effective and can achieve much deeper emissions reductions (per a report commissioned by the Ontario Energy Board).<sup>1</sup> Customers need to be given sufficient information to make comparative value-for-money decisions. Based on what we have seen thus far, marketing materials will likely be overly optimistic about RNG. This could dampen the impetus to pursue more important decarbonization measures that are more cost-effective and have greater emissions reduction potential such as energy efficiency and heat pumps.

Although RNG has excellent attributes, its potential to decarbonize buildings is constrained by finite feedstocks. The potential for RNG production in Ontario is approximately 2.5% of Ontario's annual gas consumption according to a study commissioned by the Ontario Energy Board.<sup>2</sup> It is essential that all parties keep this fact in mind such that RNG not be used as justification to let up on more important efforts to expand energy efficiency and heat pumps.

## Background: Decarbonization is a critical energy regulation issue

Before addressing the merits of Enbridge's specific proposal, it is important to emphasize that Environmental Defence strongly supports Enbridge making efforts to decarbonize heating in buildings and strongly supports the Ontario Energy Board encouraging those efforts through appropriate regulation and rate-setting. This is needed to mitigate the financial risks to consumers from climate change and is a core part of the OEB's mandate

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<sup>1</sup> See the table on page 5 below for details.

<sup>2</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. 47 [\[link\]](#); This report estimates a potential of 627 million m<sup>3</sup>/yr, which is 2.41% of Ontario's consumption of 26 billion m<sup>3</sup>/yr (per JT1.1 [\[link\]](#)). This potential was considered achievable by 2028 based on a study conducted in 2013. In Exhibit JT1.5 [\[link\]](#), Enbridge estimates the potential as 402 million m<sup>3</sup>/yr by 2025, which is 1.55% of Ontario's gas consumption of 26 billion m<sup>3</sup>/yr.

Conventional fossil-based natural gas combustion creates about 30% of Ontario’s carbon emissions.<sup>3</sup> This figure accounts only for emissions from combustion; the lifecycle emissions are much higher due to fugitive emissions from hydraulic fracturing, leaks during transmission, and other factors.<sup>4</sup> Canada has committed to reduce its carbon emissions by approximately 15 percent by 2030 and is targeting net-zero emissions by 2050.<sup>5</sup> It is not clear how the emissions associated with gas will be reconciled with government commitments and the avoidance of catastrophic climate change.

The Ontario Energy Board is required by statute to “protect the interests of consumers with respect to prices and the reliability and quality of gas service.”<sup>6</sup> The most important issue impacting the interests of gas consumers is surely climate change. Climate change presents opportunities to drive greater efficiency but also poses a major risk to energy consumers if the transition to net zero emissions is not proactively addressed in the most cost-effective and careful way. Appropriately regulating and managing this transition is perhaps the most important thing the Ontario Energy Board can do to fulfill its mandate to protect the interests of energy consumers over the next decade.

The financial risks associated with continued investments in fossil fuels are widely acknowledged by financial leaders. For example, Mark Carney recently warned that global warming could render the assets of many financial companies worthless because they have been too slow to cut investment in fossil fuels.<sup>7</sup> The point is this: decarbonization is not solely an environmental issue aimed at saving human lives from catastrophic climate change. It is also a massive financial issue and energy regulation issue worthy of proactive attention and regulation by the Ontario Energy Board.

## **Customer communications need oversight**

Environmental Defence asks that the OEB require Enbridge to submit its customer communication materials regarding this program for approval prior to the conclusion of this proceeding or, alternatively, specifically direct Enbridge to:

1. Inform customers of (i) the percent of an average household’s consumption that would be offset through the program, (ii) the cost of the emissions reductions (\$/tCO<sub>2</sub>e), and (iii) the comparative cost effectiveness and emissions reductions potential of energy efficiency and heat pumps per the OEB-commissioned report;<sup>8</sup>

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<sup>3</sup> EB-2019-0294, Exhibit I.ED.1, Attachment 1 [[link](#)].

<sup>4</sup> Exhibit JT1.7 [[link](#)].

<sup>5</sup> EB-2019-0294, Exhibit I.ED.1 [[link](#)].

<sup>6</sup> *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, Sched. B, s. 2(2).

<sup>7</sup> Financial Post, *Global warming could render the assets of many financial companies worthless, Mark Carney warns*, December 30, 2019, [[link](#)].

<sup>8</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, [[link](#)].

2. Encourage pursuit of energy efficiency and heat pumps in addition to RNG; and
3. Withdraw the proposed social recognition campaign or ensure it accurately reflects the fact that the average household will replace less than 2% of their fossil fuel consumption with a renewable option (and businesses even less).

Enbridge is asking customers to voluntarily incur a cost to reduce the carbon footprint of their homes or businesses. It is essential that they be given adequate information to make informed and effective decisions.

### **Volumes and potential**

Customers should be informed that participation in the program would offset less than 2% of an average household's gas consumption.<sup>9</sup> When specifically asked about this in interrogatories, Enbridge refrained from committing to provide this information to customers.<sup>10</sup> Customers deserve to know what they are paying for. Furthermore, customers should not be given the impression that this program will substantially reduce their carbon emissions, which could cause undue complacency wherein customers decide that additional steps, such as energy efficiency or heat pumps, are unwarranted.

Customers should also be made aware that RNG is very far from a complete solution to decarbonize buildings. A report commissioned by the Ontario Energy Board found that the potential RNG production in Ontario would amount to less than 2.5% of Ontario's gas consumption.<sup>11</sup> Enbridge itself has found an even smaller potential.<sup>12</sup> Although some reports suggest a long term potential in the range of 15%, that is still far from 100%, costs increase significantly as one moves to less-preferred feedstocks, and uncertain technological advancements are required to unlock the long term potential.<sup>13</sup> Customers should not be left with the impression that RNG is a complete answer. It is important that customers know that other efforts will be necessary, such as energy efficiency and heat pumps.

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<sup>9</sup> Exhibit I.ED.4 (b) [\[link\]](#).

<sup>10</sup> Exhibit I.ED.4 (b) [\[link\]](#).

<sup>11</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. 47 [\[link\]](#); This report estimates a potential of 627 million m<sup>3</sup>/yr, which is 2.41% of Ontario's consumption of 26 billion m<sup>3</sup>/yr. This potential was considered achievable by 2028 based on a study conducted in 2013. In Exhibit JT1.5 [\[link\]](#), Enbridge estimates the potential as 402 million m<sup>3</sup>/yr by 2025, which is 1.55% of Ontario's gas consumption of 26 billion m<sup>3</sup>/yr.

<sup>12</sup> *Ibid.* (402 million m<sup>3</sup> as a percent of Ontario's annual consumption of approximately 26 billion m<sup>3</sup>).

<sup>13</sup> ICF, *Marginal Abatement Cost Curve*, EB-2016-0359, July 20, 2017, prepared for the OEB [\[link\]](#); Exhibit JT1.4 [\[link\]](#).

## Cost effectiveness

Customers should be given information on the cost effectiveness of reducing carbon emissions through this program, namely the price per tonne of avoided CO<sub>2</sub>e.<sup>14</sup> When specifically asked, Enbridge declined to agree to advise customers of this price.<sup>15</sup> This figure would help customers assess value-for-money.

## Comparative cost effectiveness

Customers should also be given information regarding comparative cost effectiveness. In particular, customers should be advised that heat pumps cost much less per tonne of avoided CO<sub>2</sub>e and can achieve deeper emissions reductions.<sup>16</sup> A report commissioned by the Ontario Energy Board compared the potential and cost-effectiveness of these measures. The results are summarized in the below table. It would be a disservice to customers to market RNG to them through an OEB-sanctioned program without disclosing this kind of information to them.

<b>Comparison of Decarbonization Measures</b>		
	<b>Cost-effectiveness (\$/tCO<sub>2</sub>e, combustion only)</b>	<b>Decarbonization potential as % of annual Ontario gas demand</b>
<b>RNG</b>	\$338/tCO <sub>2</sub> e <sup>17</sup>	2.5% <sup>18</sup>
<b>Cost-effective energy efficiency</b>	\$0 to -\$140/tCO <sub>2</sub> e (i.e. savings) <sup>19</sup>	25% <sup>20</sup>
<b>Heat pumps</b>	\$130 to \$200/tCO <sub>2</sub> e <sup>21</sup>	Near 100% <sup>22</sup>

<sup>14</sup> Exhibit I.SEC.15 [\[link\]](#). (Note: Enbridge did not include the cost per tonne of avoided CO<sub>2</sub>e in its application. This information had to be secured through interrogatories.)

<sup>15</sup> Exhibit I.ED.4 (c) [\[link\]](#).

<sup>16</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. 14, A-4 & A-5 [\[link\]](#); Exhibit I.SEC.15 [\[link\]](#).

<sup>17</sup> Exhibit I.SEC.15 [\[link\]](#); Per Exhibit JT1.7 [\[link\]](#), if upstream emissions are accounted for, the cost is \$262/tCO<sub>2</sub>e.

<sup>18</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. 47 [\[link\]](#); This report estimates a potential of 627 million m<sup>3</sup>/yr, which is 2.41% of Ontario's consumption of 26 billion m<sup>3</sup>/yr. This potential was considered achievable by 2028 based on a study conducted in 2013. In Exhibit JT1.5 [\[link\]](#), Enbridge estimates the potential as 402 million m<sup>3</sup>/yr by 2025, which is 1.55% of Ontario's gas consumption of 26 billion m<sup>3</sup>/yr.

<sup>19</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. 14 [\[link\]](#); Per Exhibit JT1.7 [\[link\]](#), if upstream emissions are accounted for, the cost is \$0 to -\$108/tCO<sub>2</sub>e.

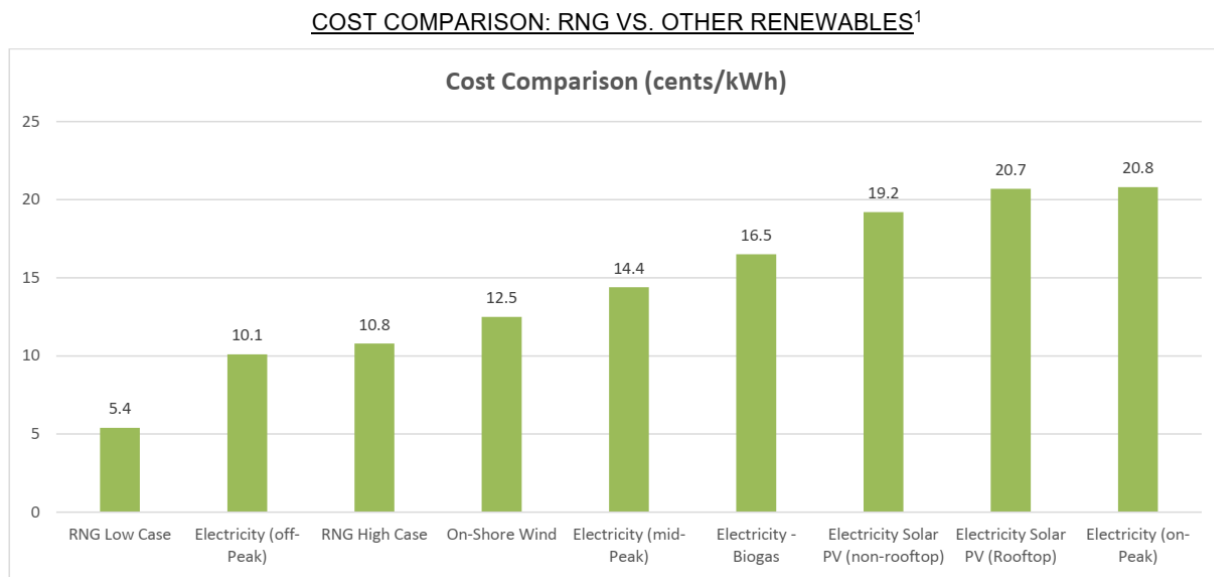
<sup>20</sup> Navigant, *2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study*, prepared for the IESO and OEB, December 18, 2019, p. ix [\[link\]](#);

<sup>21</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. A-4 to A-5 14 [\[link\]](#) (heat pumps are \$130/tCO<sub>2</sub>e for new homes and \$200/tCO<sub>2</sub>e for existing homes according to this study, but prices are declining significantly as cold climate heat pumps become more commonplace); Per Exhibit JT1.7 [\[link\]](#), if upstream emissions are accounted for, the cost is \$101 to \$155/tCO<sub>2</sub>e.

<sup>22</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. 25 [\[link\]](#).

Unfortunately, Enbridge has put forward cost comparison information in its application which could mislead customers and cause them to forgo or underemphasize these more-cost-effective measures to reduce carbon emissions. Enbridge's documentation seems to suggest that RNG is more cost-effective than alternatives, when that is far from the truth. Many parties have raised concerns with this documentation. Despite these concerns, Enbridge has said it may include this information in marketing materials.<sup>23</sup>

Enbridge's cost comparison chart reads as follows:<sup>24</sup>



Many customers would take that chart to mean that RNG is the most (or one of the most) cost-effective ways to reduce the carbon emissions associated with their houses or businesses. But that is not true.

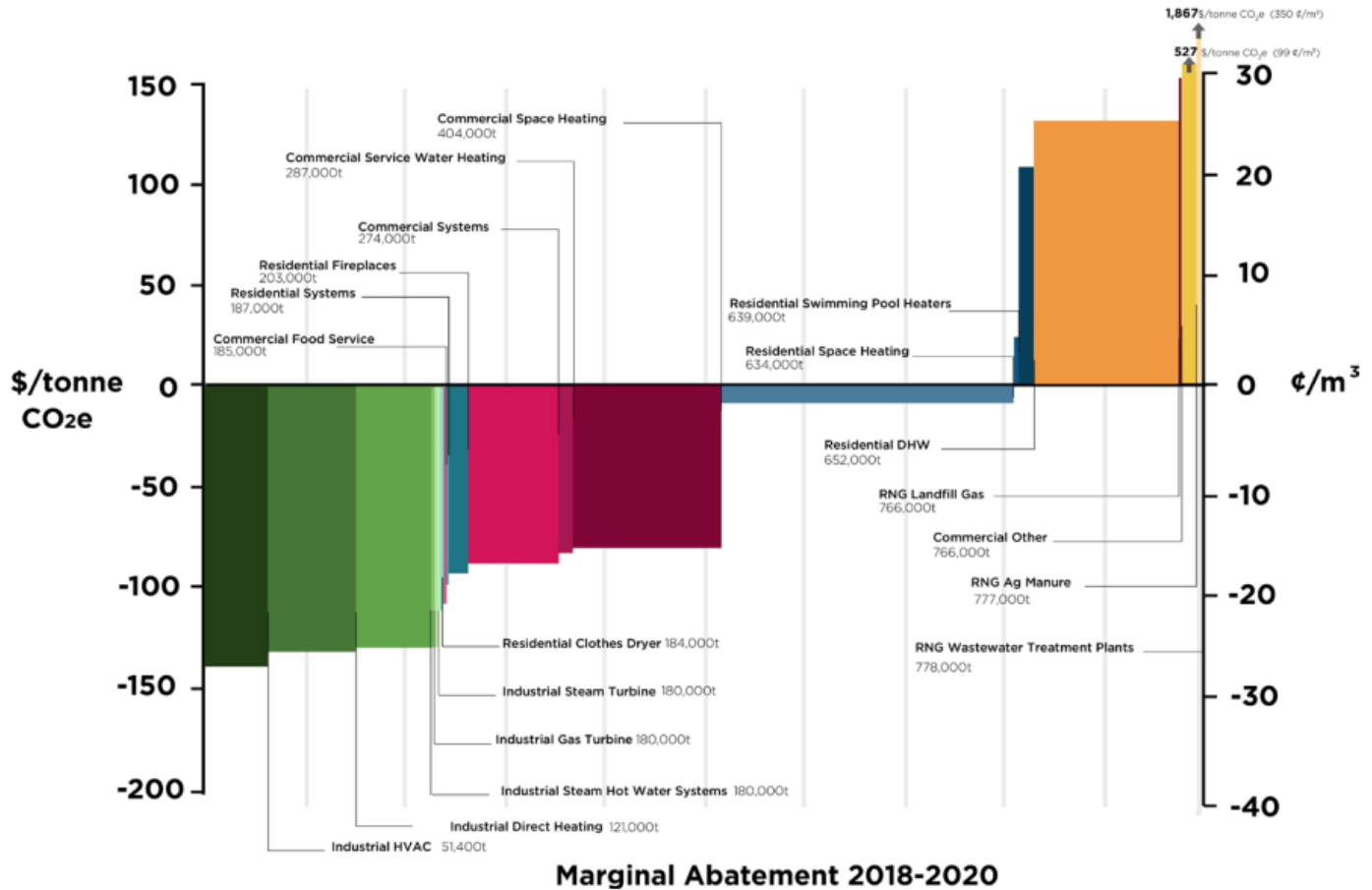
First, and most importantly, the table omits gas energy efficiency, which actually reduces emissions while also saving money. Whereas RNG *costs* \$338 per tonne, energy efficiency *saves* money, often over \$100 per tonne. If a customer is looking to reduce their carbon emissions, their money will go farthest by participating in energy efficiency programs first. This is well-illustrated by the below figure from a 2017 report commissioned by the OEB to compare the relative cost-effectiveness of various carbon reduction measures.<sup>25</sup> The left side of the figure shows that gas energy efficiency results in up to \$140 in *savings* per tonne of CO<sub>2</sub>e avoided. The

<sup>23</sup> Exhibit I.ED.8 (b) [[link](#)].

<sup>24</sup> Exhibit C, Tab 1, Schedule 1.

<sup>25</sup> Exhibit I.SEC.15; EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. 14 [[link](#)].

right side shows that RNG results in significant *costs* per tonne of CO<sub>2</sub>e. The horizontal axis shows that energy efficiency has the potential to achieve 5 times greater emissions reductions.<sup>26</sup>



Second, Enbridge's cost comparison chart excludes heat pumps.<sup>27</sup> Heat pumps can fully avoid a customer's fossil fuel consumption and are between 40% and 60% less expensive per tonne of avoided CO<sub>2</sub>e in comparison to RNG.<sup>28</sup>

Third, Enbridge's table compares costs based on \$/kWh. This is misleading because heat pumps produce significantly more than 1 kWh of heat with 1 kWh of electricity (i.e. they achieve efficiencies significantly higher than 100%). Cold climate heat pumps can achieve more than 100% efficiency even at temperatures in the -20 °C range.<sup>29</sup> Efficiencies vary based on the outdoor temperature of the air (for air-source heat pumps) or ground (for geothermal).

<sup>26</sup> Calculation 652,000/126,000.

<sup>27</sup> Exhibit C, Tab 1, Schedule 1.

<sup>28</sup> Exhibit I.SEC.15 (RNG is \$338/tCO<sub>2</sub>e for this program); EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, p. A-4 to A-5 14 [\[link\]](#) (heat pumps are \$130/tCO<sub>2</sub>e for new homes and \$200/tCO<sub>2</sub>e for existing homes according to this study, but prices are declining significantly as cold climate heat pumps become more commonplace).

<sup>29</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, A-1 [\[link\]](#).

In contrast, high efficiency gas furnaces achieve 98% efficiency. Comparing the price per kWh is very misleading if 1 kWh of gas creates 0.98 kWh of heat whereas 1 kWh of electricity can create 3 kWh of heat with a heat pump. The cost per kWh of heat for all the electrical options listed in Enbridge’s cost comparison chart would need to be reduced approximately three-fold to adjust for this reality.

Fourth, Enbridge’s table omits the two most cost-effective energy resources on the electricity side – energy efficiency and water power. Both are significantly less expensive than RNG even based on \$/kWh. Electricity energy efficiency also saves money. But even if the savings are ignored, the costs are a mere 2.3 cents per kWh – much less than RNG.<sup>30</sup> Water power costs 4.3 cents per kWh from Ontario Power Generation.<sup>31</sup> Coincidentally, Hydro Quebec also exports water power at the same price – 4.3 cents per kWh.<sup>32</sup> The RNG from this program will cost 78 cents per m<sup>3</sup>, which is 7.6 cents per kWh.<sup>33</sup> These sources are all less expensive than RNG when expressed as \$/kWh, and even more so if the additional efficiency of heat pumps is considered

To be clear, this is *not* to say that RNG should be disregarded. It may have an important role to play. However, customers should be provided with accurate information and encouraged to also pursue decarbonization measures such as energy efficiency and heat pumps. If Enbridge provides information akin to its cost comparison chart to customers, as it has said it may do, this could cause customers to come to inaccurate conclusions and to disregard or de-emphasize energy efficiency and heat pumps, even though those options are cheaper and offer deeper emissions reductions.

### **Social recognition**

Enbridge has said that it will provide “social recognition” to its customers as part of its communications strategy.<sup>34</sup> This would include “lawn signs and window decals demonstrating their commitment to the environment.”<sup>35</sup> Enbridge should not pursue this or at least be required to provide further details to ensure that this does not constitute counterproductive “greenwashing.” Through this program, the average household will replace less than a mere 2% of their fossil fuel consumption with a renewable option.<sup>36</sup> Any social recognition program should reflect that reality.

An inappropriate social recognition program would be highly problematic because it would:

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<sup>30</sup> EB-2019-0002, Exhibit C-1-1, Attachment 1 (The cost was 2.3 cents per kWh in 2019 and 2.1 cents per kWh in 2018).

<sup>31</sup> Exhibit JT1.8 [\[link\]](#).

<sup>32</sup> Hydro Quebec, *Annual Report 2019*, p. 97 [\[link\]](#) (Calculation: export revenue divided by export volumes.).

<sup>33</sup> Exhibit I.STAFF.5; Exhibit JT1.9 [\[link\]](#).

<sup>34</sup> Exhibit B, Tab 2, Schedule 3, p. 1.

<sup>35</sup> Exhibit I.VECC.1 [\[link\]](#).

<sup>36</sup> Exhibit I.ED.4 (b) [\[link\]](#).



- Diminish pressure and incentives to take more meaningful steps to decarbonize heating in buildings;
- Undercut other programs driven by social recognition by providing undue recognition that debases and undermines other social recognition campaigns; and
- Create unfairness to competitive market participants, such as Bullfrog Power, which offsets 100% of its customers fossil fuel, by providing roughly equivalent recognition (e.g. an eco-sticker or sign) for a program that achieves 50 times fewer reductions (i.e. 2% versus 100%).

### **OEB oversight appropriate**

Enbridge may argue that oversight over its communication materials would amount to undue micromanagement over its operations. However, there are exceptional circumstances that warrant oversight from the OEB in this matter:

- The Government of Ontario's *Made-in-Ontario Environment Plan* calls for a major expansion in energy efficiency and also the encouragement of heat pumps;<sup>37</sup>
- Enbridge has declined to commit to include important information regarding cost and offset volumes while stating it may include the problematic cost comparison information discussed above;<sup>38</sup>
- Enbridge has a strong financial interest in prioritizing measures that require continued supply-side capital expenditures on which it earns its profits (e.g. RNG and hydrogen) over those that can decrease demand for pipelines (e.g. heat pumps or energy efficiency);
- Enbridge's organizational inertia tends to favour options that easily fit with the conventional pipeline business models (e.g. RNG and hydrogen) over those that would involve new models (e.g. geothermal, air-source heat pumps, expanded efficiency, etc.);
- Enbridge has filed RNG and hydrogen applications but has proposed no increases in energy efficiency through to the end of 2021 and has no proposals regarding fuel switching or heat pumps; and
- Participation in this program is voluntary, meaning customers must be given accurate information such that they can make informed decisions.

Guidance from the Board is warranted.

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<sup>37</sup> Ontario, *Made-in-Ontario Environment Plan*, November 29, 2018, pp. 23-24, 33 [\[link\]](#).

<sup>38</sup> Exhibit I.ED.4 (a) & (c); Exhibit I.ED.8 (b) [\[link\]](#).

## Program design improvements

Environmental Defence recommends that Enbridge make a number of improvements to the design of its program as detailed below.

First, Enbridge has said that it will not use long-term contracts. This will greatly diminish the degree to which this program will spur the market for RNG and bring additional producers online. A potential producer is much more likely to invest in the necessary infrastructure if it is able to secure a long-term contract. Without that, the most Enbridge can hope to do is somewhat raise the market price for RNG through its purchases and spur investment that way. However, the RNG market spans all of North America, and therefore Enbridge's program will have little impact if long-term contracts are ruled out.

Second, customers should be offered the option of offsetting more than 2% of their gas use. In comparison, Bullfrog Power offsets 100% of a customer's conventional fossil-based gas. Enbridge's survey suggests a willingness and desire to pay for a larger offset.

Third, we recommend that Enbridge explore partnerships with third party providers. There is no reason why Enbridge must actually execute this program itself, rather than contract with other entities. Working with others may achieve positive benefits. For example, it may be possible for such a partnership to allow for the use of long-term contracts that would spur the market.

## Conclusion and requests

In sum, Environmental Defence respectfully requests that the OEB:

1. Require Enbridge to submit its customer communication materials regarding this program for approval prior to the conclusion of this proceeding or specifically direct Enbridge to:
  - a. Inform customers of (i) the percent of an average household's consumption that would be offset through the program, (ii) the cost of the emissions reductions (\$/tCO<sub>2</sub>e), and (iii) the comparative cost effectiveness and emissions reductions potential of energy efficiency and heat pumps per the OEB-commissioned report;<sup>39</sup>
  - b. Encourage pursuit of energy efficiency and heat pumps in addition to RNG; and
  - c. Withdraw the proposed social recognition campaign or ensure it accurately reflects the fact that the average household will replace less than 2% of their fossil fuel consumption with a renewable option (and businesses even less).

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<sup>39</sup> EB-2016-0359, ICF, *Marginal Abatement Cost Curve*, July 20, 2017, prepared for the OEB, [[link](#)].

2. Ask Enbridge to pursue program design improvements such as long-term contracts, offering other price points, and considering the involvement of third-party providers;

Although RNG has excellent attributes, the pursuit of RNG should not distract from or be used as a reason to lesson efforts to pursue energy efficiency and heat pumps. However, in the past, Enbridge has prioritized RNG at the expense of better carbon reduction measures such as energy efficiency and has used RNG as justification for not pursuing greater energy efficiency.<sup>40</sup> This is concerning.

For this particular application, we believe it is critical that Enbridge's marketing materials be adjusted as outlined above. Customers in an OEB-sanctioned program deserve to know what they are being offered and to be informed about other ways to decarbonize their buildings, especially when the other means are more cost effective, can achieve much deeper emissions reductions, and feature prominently in the Ontario Government's *Made-in-Ontario Environment Plan*.

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<sup>40</sup> For example, see the 2017 and 2018 cap-and-trade plan proceedings (EB-2016-0296/0300/0330 & EB-2017-0224/0255/0275).