

**EB-2015-0029**  
**EB-2015-0049**

**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** applications for approval of 2015-  
2020 demand side management plans by Union Gas Limited and  
Enbridge Gas Distribution Inc.

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**SUBMISSIONS OF ENVIRONMENTAL DEFENCE**

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**KLIPPENSTEINS**

Barristers and Solicitors  
160 John Street, Suite 300  
Toronto, ON M5V 2E5

**Murray Klippenstein, LSUC No. 26950G**

**Kent Elson, LSUC No. 57091I**

Tel.: (416) 598-0288

Fax: (416) 598-9520

**Lawyers for Environmental Defence**

**Submissions of Environmental Defence  
Enbridge Gas Distribution Inc. and Union Gas  
2015-2020 Demand Side Management Plans**

***Contents***

Executive Summary .....	2
Union’s Direct Access Large Volume DSM Program.....	5
The program is extremely cost-effective .....	5
The program results in massive gas and cost savings.....	6
Cancellation is inconsistent with government policy regarding the electricity sector.....	7
Cancellation is not justified or supported by customer survey results.....	10
The program does not cause unfair “cross-subsidization”.....	11
The program does not cause undue rate impacts .....	11
Customers will not undertake sufficient conservation on their own.....	13
The program is necessary even under a carbon cap-and-trade system .....	15
Continuing the program is feasible .....	16
The program is required for compliance with the Minister’s Directive .....	17
On-Bill Financing .....	18
On-bill financing is highly efficient and effective.....	18
Union’s research and customer survey actually support on-bill financing.....	20
On-bill financing must be carefully designed.....	22
Increased Targets and Budgets in 2017 and Onward.....	23
Conservation saves money, combats climate change, and increases jobs and growth.....	23
Conservation can be increased even within a \$2/month residential cost cap .....	24
A \$2/month cost cap is not needed to protect consumers.....	26
The budget caps can be removed .....	27
Increased targets and budgets are needed to achieve all cost-effective conservation.....	28
Financial Incentives to Enable the Achievement of all Cost-Effective DSM .....	29
Conclusion .....	30
Requests .....	31

## Executive Summary

1. Of all the issues in this proceeding, the potential cancellation of the Union Gas (“Union”) large industrial program has by far the largest potential impact in terms of the overall gas savings and cost-effectiveness of the utilities’ conservation plans. Continuing the program in 2016 with a \$4 million budget would *double* the forecast gas savings arising from Union’s plan and result in net benefits of \$156 million.<sup>1</sup> Continuing it with an \$8 million budget would more than *triple* the overall forecast gas savings and result in \$312 million in net benefits.<sup>2</sup> An \$8 million budget would more than *double* the forecast gas savings *from all natural gas conservation programs in all of Ontario*, including all of Union’s and Enbridge’s programs in all sectors.<sup>3</sup> Therefore, Environmental Defence’s primary request in this proceeding is that Union be directed to continue this program with an \$8 million budget.
  
2. Union’s direct access large volume program is slated to be cancelled based on the proposition that large volume users are sufficiently sophisticated and competitively motivated to undertake sufficient conservation on their own. However, numerous studies show that this is not the case. There are many reasons for this. For example, customers have competing priorities for capital needed for conservation, customers typically require unnecessarily short pay-back periods for conservation projects, and customers have decision-making processes that result in sub-optimal outcomes.<sup>4</sup> *All* of the empirical

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<sup>1</sup> EB-2015-0029, Exhibit A, Tab 3, p. 20 (Union’s target gas savings in 2016 are 1,109,631,656 m<sup>3</sup>); Exhibit B.T3.Union.ED.4 (A continued large volume program with a \$4 million budget would provide an estimated 1,337,493,023 m<sup>3</sup> in gas savings, which is the average of the 2013 and 2014 results.); Transcript Vol. 4, p. 19, lns. 2-8 (A continued large volume program with a \$4 million budget would provide an estimated \$156 million in TRC benefits, which is the average of the 2013 and 2014 results.); see also Table 3 below.

<sup>2</sup> EB-2015-0029, Exhibit A, Tab 3, p. 20 (Union’s target gas savings in 2016 are 1,109,631,656 m<sup>3</sup>); Exhibit B.T3.Union.ED.4 (A continued large volume program with an \$8 million budget would provide an estimated 2,674,986,046 m<sup>3</sup> in gas savings, which is the average of the 2013 and 2014 results multiplied by two.); Transcript Vol. 4, p. 21, lns. 10-15 (A continued large volume program with an \$8 million budget would provide an estimated \$312 million in TRC benefits, which is the average of the 2013 and 2014 results multiplied by two.); see also Table 3 below.

<sup>3</sup> EB-2015-0049, Exhibit B, Tab 1, Schedule 2, p. 2 (Enbridge’s target gas savings in 2016 is 1,001,743,852 m<sup>3</sup>); see also Table 3 below.

<sup>4</sup> See paragraphs 32 and 33 below and tab A to these materials.

studies show that large volume customers will not implement all cost-effective conservation on their own.<sup>5</sup>

3. Furthermore, the future introduction of industrial cap-and-trade is not an argument against the continuation of the large volume program. First, cap-and-trade will not be rolled out until 2017 at the earliest. Even when it does, cap-and-trade will simply give large volume users greater financial incentives to conserve. However, customers had equivalently high incentives in past years when gas prices (and the costs avoided through conservation) were far higher and yet they were still not implementing all cost-effective conservation.
4. An \$8 million large volume program would represent less than 1% of these customers' gas costs but would save over \$8 for every \$1 spent.<sup>6</sup> Furthermore, a continued large volume program would actually result in *reduced* rates for residential and commercial customers because a significant portion of the system-wide rate-reducing impacts from this program would accrue to all customer classes.<sup>7</sup> In light of the massive potential savings, and the Minister's directive to implement all cost-effective conservation, Environmental Defence requests that Union be directed to continue its large volume program with an \$8 million budget in 2016 and with a budget sufficient to achieve all cost-effective DSM in future years.
5. Environmental Defence also requests that the Board direct both utilities to develop an on-bill financing program with two key elements: (1) low-cost financing competitively procured from third party financial institutions, and (2) a network of approved and trusted contractors. An on-bill financing program with these elements is not an alternative form of subsidy. Indeed, on-bill financing does not require an interest-rate subsidy and can achieve a low rate through competitive procurement and program design (see paragraphs 45 to 47 below). On-bill financing is an extremely low cost way to eliminate market

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<sup>5</sup> See paragraphs 32 and 33 below and tab A to these materials.

<sup>6</sup> See paragraphs 22 to 24 below.

<sup>7</sup> See paragraph 28 below.

barriers to conservation such as lack of capital, high transaction costs, imperfect information, externalities, and mismatched incentives.<sup>8</sup>

6. Environmental Defence also requests that the Board direct Union and Enbridge to revise their plans, targets, and budgets for 2017 onward to achieve all cost-effective conservation. This would ensure compliance with the Minister's Directive and achieve the goals underlying that directive such as reducing customer gas costs, reducing greenhouse gas emissions, and creating jobs and economic growth. The evidence in this proceeding has established that the current cap on conservation spending is not necessary to maintain reasonable rate impacts or to ensure fairness to those who do not participate in conservation programs. This evidence was not before the Board when it prepared the DSM Framework.<sup>9</sup> This new evidence warrants revisiting and eliminating the budget cap in the DSM Framework before the mid-term review to ensure compliance with the Minister's Directive.
7. Finally, Environmental Defence requests that the DSM framework be updated to give Union and Enbridge a financial incentive to propose conservation plans that will achieve all cost-effective conservation. Under current framework the utilities have a financial incentive to propose *lower* gas savings targets that are easier for them to meet. The DSM Framework cannot enable the achievement of all cost-effective DSM unless the utilities have a financial incentive to put forward plans that are as ambitious as possible.
8. A note regarding terminology: Environmental Defence strives to use non-technical language whenever possible. Therefore, demand side management is referred to in these submissions as "conservation," Net Total Resource Cost ("TRC") values are referred to as "net benefits," and the term "large industrial customers" is sometimes used rather than "large volume customers."

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<sup>8</sup> See below starting at paragraph 45.

<sup>9</sup> EB-2014-0134, Report of the Board Demand Side Management Framework for Natural Gas Distributors (2015-2020), December 22, 2014 (the "DSM Framework")

## Union's Direct Access Large Volume DSM Program

### *The program is extremely cost-effective*

9. Union's program for large industrial customers (the direct access large volume program) is *by far* the most cost-effective natural gas DSM program in the province. As indicated in Table 1, every \$1 invested by Union into a continued direct access large volume program in 2016 would result in \$39 in net benefits, primarily in gas saved by Union's customers. This is **5.5 times** more cost-effective than Union's proposed commercial/industrial program and **64 times** more cost-effective than Union's proposed residential program.<sup>10</sup>
10. Union's large industrial program is also by far the most cost-effective in terms of the cubic meters of gas saved per dollar of DSM spending, as indicated in Table 2 below. By this metric, a continued large volume program would be **45 times** more cost-effective than Union's proposed 2016 residential program.<sup>11</sup>
11. Finally, Union's large volume program is also **45 times** more cost-effective than its residential program in achieving greenhouse gas reductions.<sup>12</sup> By every measure, the large volume program is *by far* the most cost-effective.

*Table 1: Cost-Effectiveness of Union's Proposed DSM Programs by Net Benefits (\$), 2016<sup>13</sup>*

<b>DSM Program Sector</b>	<b>Net TRC per \$ of Union DSM Spending</b>
Residential	\$0.61
Commercial/Industrial	\$7.11
Low Income	\$0.01
Direct Access Large Volume (if continued in 2016 with a \$4M budget)	\$39.00

<sup>10</sup> Transcript Vol. 4, p. 10, lns. 23-28.

<sup>11</sup> Transcript Vol. 4, p. 9, lns. 8-17.

<sup>12</sup> Transcript Vol. 4, p. 1, lns. 1-9.

<sup>13</sup> Union Gas DSM Facts, Exhibit K2.1, tab 1, p. 1, tables 2 & 3; Transcript Vol. 4, p. 6, lns. 11-17 (confirming that the numbers in "Union Gas DSM Facts" are accurate).

Table 2: Cost-Effectiveness of Union's DSM Programs by Gas Savings (m<sup>3</sup>), 2016<sup>14</sup>

DSM Program Sector	Cumulative Natural Gas Savings per \$ of Union DSM Spending
Residential	7.45 m <sup>3</sup>
Commercial/Industrial	54.60 m <sup>3</sup>
Low Income	4.49 m <sup>3</sup>
Direct Access Large Volume (if continued in 2016 with a \$4M budget)	334.37 m <sup>3</sup>

***The program results in massive gas and cost savings***

12. The continuation of Union's large volume program would result in massive gas savings. If Union's large volume program is continued and its budget increased to \$8 million, Union's overall forecast gas savings from its 2016 program would more than *triple* (see Figure 1).<sup>15</sup> This would also more than *double* the gas savings from both of the utilities' 2016 programs *combined* (see Table 3 below). The potential impact of this one program is massive.
13. Furthermore, a large volume program with an \$8 million budget would result in \$312 million in net TRC benefits, primarily consisting of gas saved by Union's customers.<sup>16</sup> This figure (and all references to net benefits in these submissions) are calculated in accordance with the Board's guidelines on the Total Resource Cost ("TRC") test.<sup>17</sup> Therefore, they account for all of the incremental costs of the conservation measures to the consumer and the utility. The amounts have also been reduced to account for free riders that would have undertaken the measure on their own (a 54% reduction in Union's case) and for a discounted value of future cash flows (through a present value

<sup>14</sup> Union Gas DSM Facts, Exhibit K2.1, tab 1, p. 2, tables 3 & 4; Transcript Vol. 4, p. 6, lns. 11-17 (confirming that the numbers in "Union Gas DSM Facts" are accurate).

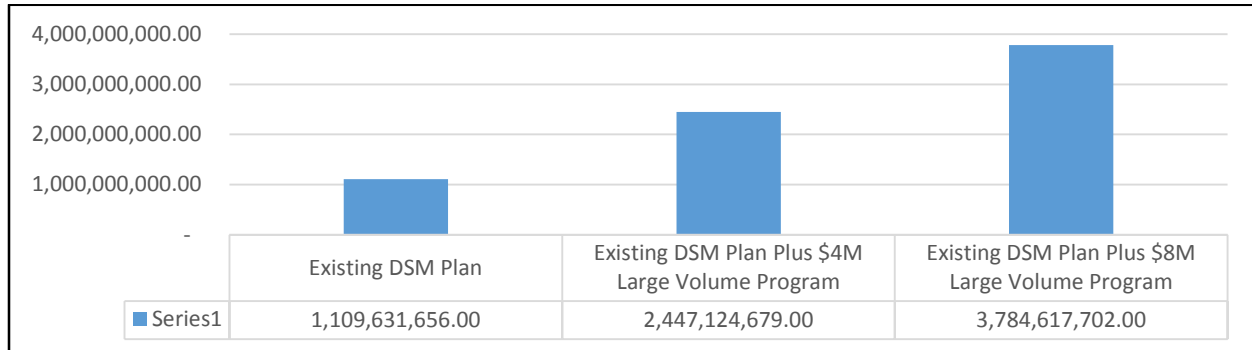
<sup>15</sup> EB-2015-0029, Exhibit A, Tab 3, p. 20 (Union's target gas savings in 2016 are 1,109,631,656 m<sup>3</sup>); Exhibit B.T3.Union.ED.4 (A continued large volume program with an \$8 million budget would provide an estimated 2,674,986,046 m<sup>3</sup> in gas savings, which is the average of the 2013 and 2014 results multiplied by two.).

<sup>16</sup> Transcript Vol. 4, p. 21, lns. 10-15.

<sup>17</sup> EB-2014-0134, Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020), December 22, 2014, pp. 25-34.

calculation). The estimates of the massive benefits from the continuation of this program are Union's own and take into account all the relevant factors.

*Figure 1: Forecast Union Gas Savings With and Without Direct Access Large Volume, 2016<sup>18</sup>*



*Table 3: Gas Savings from a Large Volume Program vs. Proposed 2016 Programs*

Source / Program	Cumulative Natural Gas Savings
Target for Union's Overall 2016 DSM Plan <sup>19</sup>	1,109,631,656 m <sup>3</sup>
Target for Enbridge's Overall 2016 DSM Plan <sup>20</sup>	1,001,743,852 m <sup>3</sup>
Combined Target for Union & Enbridge's 2016 DSM Plan <sup>21</sup>	2,111,375,508 m <sup>3</sup>
Union's Forecast from a \$4 Million Large Volume Budget <sup>22</sup>	1,337,493,023 m <sup>3</sup>
Union's Forecast from a \$8 Million Large Volume Budget <sup>23</sup>	2,674,986,046 m <sup>3</sup>

***Cancellation is inconsistent with government policy regarding the electricity sector***

14. Cancellation of Union's direct access large volume program is irreconcilably inconsistent with government policy regarding electricity conservation for large volume customers. There are a number of reasons why comparisons between electricity and natural gas conservation efforts are important:

- a. Resources should be allocated to natural gas and electricity conservation efforts in a way that is rational and consistent. Gas and electricity conservation programs seek to achieve the same broad goals: lowering energy costs, increasing productivity, and

<sup>18</sup> See Table 3 for sources.

<sup>19</sup> EB-2015-0029, Exhibit A, Tab 3, p. 20 (1,109,631,656 m<sup>3</sup>).

<sup>20</sup> EB-2015-0049, Exhibit B, Tab 1, Schedule 2, p. 2 (1,001,743,852 m<sup>3</sup>).

<sup>21</sup> Calculation: 1,109,631,656 plus 1,001,743,852 equals 2,111,375,508 m<sup>3</sup>, see above for sources.

<sup>22</sup> Exhibit B.T3.Union.ED.4 (1,337,493,023 m<sup>3</sup> is the average of the 2013 and 2014 results).

<sup>23</sup> Exhibit B.T3.Union.ED.4 (2,674,986,046 m<sup>3</sup> is the average of the 2013 and 2014 results multiplied by 2)



- reducing greenhouse gasses. Gas and electricity conservation are part of Ontario's overall long-term energy plans and its greenhouse gas reduction strategy. There should only be substantial differences in the resources allocated to gas and electricity conservation if those differences can be justified on a sound and rational basis that is supported by evidence.
- b. The Ontario Government's decisions regarding electricity conservation shed light on its policies regarding energy conservation generally and the emphasis that it wishes to place on energy conservation. That is because electricity conservation is managed by the Ontario Government and its agencies (whereas gas conservation is regulated by this Board). This Board is required under its enabling statute to follow government policy regarding conservation.<sup>24</sup>
  - c. Ontario's Long-Term Energy Plan, the Board's DSM Framework, and the Minister's Directive all require greater coordination and integration between Ontario's gas and electricity conservation efforts.<sup>25</sup> As the sectors become more integrated it is even more important that resources be rationally allocated to each sector.
15. The IESO currently provides financial incentives to large volume customers to conserve electricity, and plans to continue to do so at least until 2020.<sup>26</sup> In contrast, Union's financial incentives for large industrial customers (i.e. the direct access program) are slated to be cancelled and replaced with a drastically reduced program that merely provides technical assistance. This is clearly inconsistent.
16. Furthermore, the average annual budget for large volume electricity conservation is \$83.3 million.<sup>27</sup> Union's planned 2016 budget for its drastically reduced technical assistance

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<sup>24</sup> *Ontario Energy Board Act*, 1998, S.O. 1998, c. 15, Sched. B, s. 2(5).

<sup>25</sup> DSM Framework at p. 4 ("The LTEP also states that the government is committed to promoting a co-ordinated approach to conservation and will encourage collaboration of conservation efforts among electricity and natural gas utilities. The Conservation Directive further echoes the commitment outlined in the LTEP and requires the Board to establish a DSM policy framework that includes:... more closely aligning natural gas DSM and electricity Conservation and Demand Management ("CDM") efforts"), see also pp. 8, 15, 26, & 33-35

<sup>26</sup> Transcript Vol. 4, p. 14, lns. 11-15; Exhibit K2.1, tab 5, p. 11-12.

<sup>27</sup> \$83.3 million is the average budget over the 2015-2020 period; Transcript Vol. 4, p. 14, ln. 24 to p. 15, ln. 7; Exhibit K2.1, tab 6, p. 14.

program for large volume customers is only \$809,000.<sup>28</sup> Therefore, Ontario’s large volume electricity conservation budget is *over 100 times* higher than the large volume gas conservation budget.<sup>29</sup>

17. There is no rational basis for this massive inconsistency. Indeed, the relevant factors would suggest that the gas conservation budgets should be *higher* than the electricity conservation budgets for large volume customers:
- a. **Cost-effectiveness:** Union’s conservation programs are *three times* more cost-effective than electricity conservation programs in the province and Union’s large volume program is by far the most cost-effective of all of its programs.<sup>30</sup> Although there are differences between the sectors, cost-effectiveness is measured according to the TRC test in both sectors, allowing for valid comparisons.<sup>31</sup>
  - b. **Relative sector size:** Large volume customers represent approximately 10% percent of Ontario’s peak electricity demand whereas large volume customers represent 40% of Union’s business by volume.<sup>32</sup> Overall, Ontario consumes much more energy in the form of natural gas versus electricity (in PJs).<sup>33</sup>
  - c. **Relative Greenhouse Gas (“GHG”) Emissions:** Natural gas conservation is far more important than electricity conservation when it comes to climate change efforts. Due to the phasing out of coal power, natural gas consumption in the province produces almost *5 times* as much GHG emissions as electricity consumption.<sup>34</sup>

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<sup>28</sup> Transcript Vol. 4, p. 15, lns. 8-10.

<sup>29</sup> Transcript Vol. 4, p. 15, lns. 11-15 (note: Union gas has the lion’s share of Ontario’s large volume customers and Enbridge does not provide a financial incentive program for its large volume customers).

<sup>30</sup> Transcript Vol. 4, p. 10, lns. 23-28 (Union’s large volume program is 5.5 times more cost-effective than its commercial/industrial program and 64 times more cost effective than its residential programs); Transcript Vol. 6, p. 124, lns. 7-18 (Union’s overall conservation programs are three times more cost effective than electricity sector conservation programs in Ontario); see also Exhibit K6.2.

<sup>31</sup> Transcript Vol. 10, p. 128, lns. 18-25 & p. 130, lns. 4-11.

<sup>32</sup> EB-2014-0140, Exhibit H1, tab 2, Schedule 1, p. 3; Transcript Vol. 4, p. 49, lns. 17-22.

<sup>33</sup> Exhibit K2.1, tab 13, p. 39 (In 2012, natural gas constituted 32.2% of Ontario’s energy demand whereas electricity constituted 20.5%).

<sup>34</sup> Exhibit M.GEC.EP.3, p. 1 (50.5 Mt CO<sub>2</sub>e from natural gas in 2014); Exhibit M.GEC.ED.12, attachment 1 p. 17 (10.9 Mt CO<sub>2</sub>e from electricity in 2013); Transcript Vol. 6, p. 123, lns. 3-8 (GHG emissions arising from electricity have likely fallen since 2013 due to the completion of the phasing out of coal power in 2014).

Furthermore, almost all of the GHG emissions in the electrical system are from natural-gas-fired electricity generation.<sup>35</sup>

18. In comparison to electricity, large volume gas conservation is more cost-effective, the sector is larger and more important, and the potential GHG reductions are far higher. It is not rational for there to be a financial incentive program for large volume electricity customers and not large volume gas customers, or for the budget for large volume gas conservation programs to be a mere 1% of the budget for large volume electricity programs.

***Cancellation is not justified or supported by customer survey results***

19. In EB-2012-0337, the Association of Power Producers of Ontario submitted a survey of some of its members regarding their views on Union's conservation programs. This survey cannot be relied on to justify or support a cancellation of the large volume program. Although the survey found dissatisfaction with Union's programs in some ways, it was not methodologically sound.<sup>36</sup> Furthermore, the survey is outdated and relates to a program that has been revised and improved since that time.
20. More generally, the regulatory decisions to continue or discontinue certain programs do not and should not depend on this survey or any other customer survey. For example, residential customers are not asked whether they wish to pay for the utilities' conservation programs or for expansion of the gas distribution network. Customer feedback is critical for finding ways to improve programs. However, if there are concerns about a program, those concerns should be addressed. For example, Mr. Neme has recommended a number of ways to improve the large volume program, such as allowing customers to spend their conservation dollars in multi-year projects. Simply cancelling the program is not the answer.

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<sup>35</sup> Transcript Vol. 4, p. 16, lns. 8-12.

<sup>36</sup> Union's response to undertaking J4.2.

***The program does not cause unfair “cross-subsidization”***

21. One potential concern with large volume conservation programs is that one customer could end up subsidizing the business improvements of another customer. This “cross-subsidization” concern arises because energy efficiency upgrades are funded through the rates that all customers pay but primarily benefit program participants. However, this cross-subsidization concern has been almost completely eliminated in Union’s direct access large volume program because each customer’s contribution to the conservation budget is reserved for its own use.<sup>37</sup> Therefore, customers can retain their contribution simply by undertaking energy efficiency upgrades.<sup>38</sup> Indeed, 95% percent of Union’s large volume customers participated in its program in 2014.<sup>39</sup> Cross-subsidization is no longer a significant concern.

***The program does not cause undue rate impacts***

22. Union’s large volume conservation program does not result in rate impacts that could be considered to be undue, unreasonable, or inappropriate. A \$4 million large volume conservation budget in 2016 would amount to only 0.3% (i.e. 3/10<sup>ths</sup> of 1%) of these customer’s overall gas costs.<sup>40</sup> That is an extremely small percentage. An \$8 million budget would still only represent 0.6% of the overall gas costs.
23. Furthermore, it makes little sense to look only at the conservation costs without accounting for the benefits, especially in the large volume sector. The cost impacts on non-participants are far less relevant in this sector, if at all, given that all customers have the opportunity to participate using the funds reserved for them and 95% actually do participate.<sup>41</sup> For customers that do participate, the costs of conservation measures are far outweighed by the benefits, resulting in large overall reductions in energy bills.

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<sup>37</sup> Transcript Vol. 4, p. 26, ln. 13 to p. 27, ln. 6; Expert Report by Chris Neme (Exhibit L.GEC.1), pp. 5 & 30.

<sup>38</sup> *Ibid.*

<sup>39</sup> Transcript Vol. 4, p. 9, lns. 23-25.

<sup>40</sup> Transcript Vol. 4, p. 18, lns. 18-24.

<sup>41</sup> Transcript Vol. 4, p. 9, lns. 23-25 & p. 26, ln. 13 to p. 27

24. The most recent audited results of Union's large volume program (2013) found a TRC ratio of 8.74.<sup>42</sup> Therefore, every dollar invested in these conservation measures by both Union and the customer resulted in almost \$8.74 in reduced energy costs for the customer. Again, this incredibly good return accounts for all incremental costs incurred by the customer and the utility and is already discounted for free ridership and the reduced value of future cash flows. Overall, conservation greatly lowers these customers' energy costs.
25. However, if the Board is concerned about the rate impacts of reinstating the large volume program, it could order that the costs be added to rate base or otherwise financed. This would more evenly spread out the costs over time and better match those costs to the benefits in time. This has been done in other jurisdictions and therefore it is presumably allowable under U.S. GAAP and is otherwise a sound practice.<sup>43</sup>
26. Adding these costs to rate base would effectively provide Union with an additional incentive through the rate of return it would earn. However, it would be appropriate to reward Union for its extra effort as the large volume budget would be above and beyond the budget set out in the DSM framework. In other jurisdictions, utilities have received an incentive by way of having conservation spending included into rate base.<sup>44</sup> If the Board is concerned about rate impacts, rate basing those expenditures would be one way to address that concern.
27. Furthermore, continuing the large volume program would not contravene the \$2/month residential spending cap set out in the DSM Framework (whether or not the additional budget is rate based). Very simply, the additional spending would not be borne by residential customers.
28. Adding \$8 million to Union's overall budget for a large volume program would actually *decrease* rates for residential customers. According to the expert evidence of Mr.

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<sup>42</sup> Union Gas DSM 2013 Annual Report (EB-2014-0273, Exhibit B, Tab 1), p. 16.

<sup>43</sup> Exhibit JT4.15, attachment 1, p. 9.

<sup>44</sup> Exhibit JT4.15, attachment 1, p. 9.

Chernick and Mr. Neme, conservation results in certain system-wide rate-reducing impacts that accrue to all customer classes.<sup>45</sup> Those rate-reducing impacts would presumably be substantial seeing as Union can triple the gas savings resulting from its programs by adding an \$8 million large volume budget.<sup>46</sup> In other words, the Board can enable comparatively lower gas rates for homes and businesses across the province by mandating the continuation of Union’s large volume program. It is a “win-win” situation.

***Customers will not undertake sufficient conservation on their own***

29. For many years certain intervenors at the Board have argued that the large volume program is not necessary because, they say, these customers are sufficiently sophisticated and competitively motivated to implement sufficient conservation on their own. This “competitive motivation argument” is not supported by the evidence. A more detailed theoretical analysis, plus all of the empirical data, conclusively establish that these customers will not undertake sufficient conservation on their own.
30. The competitive motivation argument oversimplifies reality. A more nuanced theory and understanding of corporate decision-making shows that conservation spending by large volume customers will be far below the optimal amount if they are left to their own devices. Some of the reasons for this are as follows:
  - a. Customers often have limited capital and therefore need an incentive to put their scarce resources toward energy efficiency measures.<sup>47</sup>
  - b. Customers with access to capital are likely to invest it in their core business over conservation measures.<sup>48</sup>
  - c. Customers often do not have perfect or complete information about what energy efficient measures are available and their relative benefits.<sup>49</sup>

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<sup>45</sup> Transcript Vol. 10, p. 147, lns. 7-23

<sup>46</sup> See Figure 1 above.

<sup>47</sup> Transcript Vol. 4, p. 30, lns. 9-16; Transcript Vol. 10, p. 151, lns. 6-13.

<sup>48</sup> Transcript Vol. 12, p. 15, lns. 3-10.

<sup>49</sup> Transcript Vol. 4, p. 30, lns. 17-23; Transcript Vol. 10, p. 151, lns. 14-19.

- d. Corporate managers often have limited time and other priorities to deal with other than conservation.<sup>50</sup>
  - e. Corporate managers have incentives to focus on initiatives with a shorter payback periods.<sup>51</sup>
  - f. Corporate decision-making structures and institutional barriers impede the adoption of conservation measures (e.g. a plant manager in Ontario requiring approval from an out-of-country CFO, separate operating and capital budgets with differing rules and approval processes, etc.).<sup>52</sup>
  - g. Companies are reasonably skeptical about promised results from conservation technologies and contractors without the stamp of approval from a utility.<sup>53</sup>
31. The competitive motivation argument is also inconsistent with the free rider rates for large industrial programs that have been approved by this Board in many past hearings and by other regulators in other jurisdictions. Mr. Neme described the reasons for this as follows: “if these customers are sophisticated enough, motivated enough, knowledgeable enough that they would do all cost effective efficiency on their own, then by definition any program that you would offer to them would have 100 percent free riders.”<sup>54</sup> Of course, the Board has approved free rider rates far below 100% in many past proceedings.
32. Furthermore, *all* of the empirical evidence supports the contention that large volume customers will invest far below the optimal amount in conservation. Mr. Woolf and Mr. Neme made reference to nine reports in support of that fact. Key excerpts from those reports are attached as Schedule A to these materials (see tab A). Environmental Defence put these excerpts to Mr. Woolf and Mr. Neme on cross-examination, who agreed with those conclusions.<sup>55</sup> For example, Mr. Woolf agreed with the conclusions of one study

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<sup>50</sup> Transcript Vol. 4, p. 30, lns. 24-28; Transcript Vol. 10, p. 151, lns. 20-28.

<sup>51</sup> Transcript Vol. 4, p. 31, lns. 1-4; Transcript Vol. 10, p. 152, lns. 1-9.

<sup>52</sup> Transcript Vol. 10, p. 152, ln. 10 to p. 153, ln. 7.

<sup>53</sup> Transcript Vol. 10, p. 153, ln. 8 to p. 154, ln. 1.

<sup>54</sup> Transcript Vol. 10, p. 150, lns. 10-19.

<sup>55</sup> Transcript Vol. 12, p. 101, ln. 16 to p. 105, ln. 14; Transcript Vol. 12, p. 13, ln. 1 to p. 15, ln. 25; Transcript Vol. 10, p. 154, ln. 8 to p. 157, ln. 13.

finding that industrial sector participants require a short payback period of between one and three years, which decreases to a required payback of less than 18 months in difficult economic conditions.<sup>56</sup>

33. In contrast, *no* empirical evidence was submitted in this proceeding to show that large volume customers would implement all cost-effective conservation on their own. Indeed, Mr. Woolf testified that he is “not aware of empirical evidence showing that large volume customers would implement all cost-effective DSM on their own.”<sup>57</sup>

***The program is necessary even under a carbon cap-and-trade system***

34. The future introduction of industrial cap-and-trade is not an argument against the continuation of the large volume program. First, cap-and-trade will not be rolled out until 2017 at the earliest and therefore has no bearing on the suitability of a large volume program in 2016.
35. Furthermore, there is no evidence that a large volume program will become redundant after cap-and-trade is put into place. Cap-and-trade does not *require* that companies implement conservation measures. Instead, companies can either implement conservation themselves or buy carbon credits. In this way, the impact of cap-and-trade is that it will simply give large volume users a greater *financial incentive* to conserve.
36. However, customers have had equivalently high financial incentives to conserve in past years when gas prices were far higher. Gas prices have reached levels that are two or three times the current levels in the past. In those years the avoided gas costs arising from conservation would have been worth two or three times as much, greatly increasing financial incentives to conserve. However, large volume users were still not implementing all cost-effective conservation in those past years when they had a much

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<sup>56</sup> Transcript Vol. 12, p. 102, lns. 10-19.

<sup>57</sup> Transcript Vol. 12, p. 101, lns. 22-28.



higher incentive to do so.<sup>58</sup> This would presumably also be the case under a cap-and-trade program.

37. Furthermore, cap-and-trade will not eliminate the significant barriers to conservation discussed above, such as the short payback periods required by large industrial customers for conservation measures (see paragraph 30 above). Although cap-and-trade will shorten the payback period for some measures, there is no evidence to suggest that there will not continue to be other measures that are still cost-effective but have a payback period beyond corporate decision-making thresholds. In other words, a conservation program will still have an important role to play in encouraging large volume customers to invest in cost-effective conservation measures that they would not undertake on their own.

***Continuing the program is feasible***

38. The continuation of Union's large volume program is completely feasible. This could be done with a budget of \$4 million or even with an increase to \$8 million.<sup>59</sup> However, Union has indicated that the sooner it knows that this program would be continued the better it would be able to take the appropriate steps.<sup>60</sup> Furthermore, if the program were to be cancelled and then restarted, this would cause problems such as customer confusion and staffing issues.<sup>61</sup>
39. It is clear from Union's argument-in-chief that its direct access large volume program was cancelled in response to the DSM Framework.<sup>62</sup> It is very telling that Union *did not* argue against the continuation of this program in its submissions.<sup>63</sup> Instead, it simply notes that certain factors would need to be considered and notes that the Board should not

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<sup>58</sup> See excerpts attached at tab A to these submission. Those past reports, which confirm the need for large volume conservation programs, cover periods of much higher gas prices. For the discussion of those reports by Mr. Neme and Mr. Woolf, see Transcript Vol. 12, p. 101, ln. 16 to p. 105, ln. 14; Transcript Vol. 12, p. 13, ln. 1 to p. 15, ln. 25; Transcript Vol. 10, p. 154, ln. 8 to p. 157, ln. 13.

<sup>59</sup> Exhibit B. T3.Union.ED.4.

<sup>60</sup> Transcript Vol. 4, p. 20, lns. 6-15.

<sup>61</sup> Transcript Vol. 4, p. 29, lns. 13-28.

<sup>62</sup> Transcript Vol. 14, p. 22, lns. 23-28.

<sup>63</sup> Transcript Vol. 14, p. 23, ln. 9 to p. 24, ln. 6.

approve an opt-out option if the program is continued.<sup>64</sup> There is no impediment, from Union or otherwise, to the continuation and expansion of the large volume program.

***The program is required for compliance with the Minister's Directive***

40. Under the Minister's Directive, the Board is required to establish a DSM framework that "shall enable the achievement of all cost-effective DSM."<sup>65</sup> Environmental Defence submits that compliance with this directive *requires* that Union be directed to continue its direct access large volume program with a budget in the range of \$8 million. This one single decision would *double* the gas savings from all gas conservation programs in the entire province.<sup>66</sup> According to Union's estimates, an \$8 million budget would be well within the available conservation potential.<sup>67</sup> How could it be said that the Board has enabled the achievement of all cost-effective DSM if this enormous potential opportunity is left on the table? Similarly, how could it be said that the Board has enabled the achievement of all cost-effective DSM if customers accounting for 40% of Union Gas's sales are excluded?<sup>68</sup>
41. An expansion from the current spending levels to an \$8 million budget is warranted simply because the potential gains are so massive. Again, an \$8 million budget would achieve approximately twice the gas savings and energy-bill-reduction benefits.<sup>69</sup>
42. Finally, Environmental Defence's position is supported by the expert opinion evidence of Mr. Neme and Mr. Woolf:

MR. ELSON: Mr. Neme, it seems to me that it would be impossible to say that the current DSM framework is enabling all cost-effective DSM that is reasonable and appropriate if the opportunity to achieve the incredible results arising from an \$8 million large-volume program is not capitalized on; would you agree with that statement?

MR. NEME: Yes, I would.<sup>70</sup>

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<sup>64</sup> *Ibid.*

<sup>65</sup> Directive of the Minister of Energy to the Ontario Energy Board dated March 31, 2014, p. 2.

<sup>66</sup> See paragraph 12 and Figure 1 above and the sources cited therein.

<sup>67</sup> Exhibit B. T3.Union.ED.4.

<sup>68</sup> Transcript Vol. 4, p. 49, lns. 17-22.

<sup>69</sup> Exhibit B.T3.Union.ED.4; Transcript Vol. 4, p. 21, lns. 10-15.

<sup>70</sup> Transcript Vol. 10, p. 1-8.

MR. ELSON: ... [W]ould you agree that Union cannot achieve all cost-effective DSM in its franchise area if its large volume program is cancelled?

MR. WOOLF: Yes, I think that's a fair statement.<sup>71</sup>

43. Environmental Defence submits that the evidence is clear. A continued large volume program is needed to ensure compliance with the Minister's Directive, would result in massive cost savings for Union's customers, and would benefit all of Ontario.

### **On-Bill Financing**

44. Environmental Defence requests that the Board direct Enbridge and Union to develop an on-bill financing program with two key elements: (1) low-cost financing competitively procured from third party financial institutions, and (2) a network of approved trusted contractors. A program with these elements can be a highly cost-effective way achieve more and deeper conservation.

#### ***On-bill financing is highly efficient and effective***

45. On-bill financing can be extremely cost-effective because it can address market failures and market barriers that would otherwise result in suboptimal amounts of conservation, including transaction costs, externalities, and imperfect information. On-bill financing should not be thought of merely as a financial incentive provided through subsidized interest rates. Instead, it is the very structure of on-bill financing that allows for the achievement of more and deeper conservation, not a subsidized interest rate. Because the benefits of on-bill financing stem from how it is structured, it can provide results at an extremely low cost, as discussed below.
46. A list of the benefits of on-bill financing is attached at tab B to these submissions.<sup>72</sup> This list was discussed in detail with Mr. Woolf and Mr. Takahashi during the hearing.<sup>73</sup> Both expert witnesses agreed with the benefits as outlined in the attached document.<sup>74</sup> Those

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<sup>71</sup> Transcript Vol. 12, p. 105, lns. 24-27.

<sup>72</sup> Exhibit K12.2.

<sup>73</sup> Transcript Vol. 12, p. 84, ln. 3 to p. 93, ln. 14.

<sup>74</sup> *Ibid.*

benefits will be discussed only briefly below as they compare to other options for financing conservation measures. See tab B and the discussion with Mr. Woolf and Mr. Takahashi for a more detailed description of the benefits.<sup>75</sup>

47. Although on-bill financing is not the only way to finance conservation measures, it is by far the most effective and efficient. For example, some customers could access financing privately through a home mortgage line of credit or a specialty loan for conservation improvements. There are numerous benefits to on-bill financing over this option. Many of these benefits flow from the fact that the financing charges would be attached to the utility bill and/or the property, unlike in the case of separate private financing. Some of the benefits of on-bill financing over private financing are as follows:
- a. **Lower transaction costs:** It is far easier to obtain on-bill financing than it is to make a completely separate loan application.<sup>76</sup>
  - b. **Reduce cash-flow concerns:** Paying finance charges on the gas bill can avoid concerns regarding cash flow problems because the benefits (reduced gas costs) and the costs (financing charges) are incurred at the same time on the same bill.
  - c. **Convenience:** It is more convenient to pay the financing charges on the gas bill, eliminating the need to make and monitor separate loan repayments.
  - d. **Reduce uncertainty relating to relocations:** Some consumers may be reluctant to invest in conservation out of a concern that they may move houses/locations and may not be able to recapture the cost of conservation measures. This risk can be eliminated by allowing for the on-bill financing to be attached to the gas bill, not the property owner.
  - e. **Broader access to low cost loans:** Many customers will not be able to qualify for a low-interest mortgage-based loan or a specialty conservation loan. On-bill financing

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<sup>75</sup> *Ibid.*

<sup>76</sup> For details regarding the ways in which transaction costs are reduced see: Exhibit K12.2 (attached at tab B), para. 4; Transcript Vol. 12, p. 92, lns. 21-28.

can have broader reach because attaching the loan to the utility bill and/or the property reduces the loan risk and the corresponding interest rate (see tab B, para. 1 for more details).<sup>77</sup>

- f. **Allow for adoption of conservation by renters:** Some commercial or residential renters may pay the gas bill but be reluctant to invest in conservation measures as they are not owners. The landlords, in turn, may have insufficient incentives to invest in conservation as they do not pay the gas bill. On-bill financing may help overcome this mismatch by allowing for measures to be implemented at no cost to the owner.
48. Another potential alternative to on-bill financing is financing through HVAC companies that are allowed charge through to gas bills. However, this option is greatly inferior as it does not allow for low interest rates.<sup>78</sup> For example, a major HVAC company in Ontario, Enercare (formerly Direct Energy), advertises its interest rates as *starting* at 7.95%.<sup>79</sup> On-bill financing can provide a significantly lower rate. Furthermore, this option limits customers only to those HVAC companies that provide financing, reducing competition and price.

***Union's research and customer survey actually support on-bill financing***

49. Although Enbridge is moving forward with on-bill financing, Union has decided not to do so. This decision was based on a flawed interpretation of a survey commissioned by Union. Those survey results in fact strongly *support* the potential benefits of on-bill financing. Union's survey found that access to financing at a 5.5% interest rate would make 32% of its residential customers and 47% of its commercial and industrial customers more likely to invest in energy efficiency.<sup>80</sup> This amounts to 416,000 residential customers and 80,400 commercial/industrial customers.<sup>81</sup> This is a particularly

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<sup>77</sup> For details regarding the ways in which the risk profile of loans can be reduced see: Exhibit K12.2 (attached at tab B), para. 1; Transcript Vol. 12, p. 84, ln. 28 to p. 85, ln. 16.

<sup>78</sup> Transcript Vol. 12, p. 94, lns. 1-14.

<sup>79</sup> Exhibit K2.1, tab 20, p. 85.

<sup>80</sup> Transcript Vol. 2, p. 6, ln. 27 to p. 7, ln. 11; Transcript Vol. 2, p. 15, lns. 3-10

<sup>81</sup> Transcript Vol. 2, p. 7, lns. 12-20 (Union has 1.3 million residential customers); Transcript Vol. 2, p. 16, lns. 15-17 (Union has 120,000 commercial-industrial customers).

strong result seeing as a 5.5% interest is not particularly low in current market conditions and the surveyed respondents had not received a marketing pitch regarding the benefits of conservation and on-bill financing (e.g. re opportunities to reduce their gas bills at no up-front cost). They results likely significantly understate the potential benefits of an on-bill financing program.

50. Union somehow interprets those survey results as finding that additional financing options are not needed.<sup>82</sup> In light of the survey findings discussed above, that is not a reasonable interpretation. Indeed. Mr. Takahashi, as an independent third party expert, reviewed the survey and concluded that it “clearly indicates there is a potential; there is a use for financing.”<sup>83</sup>
51. Union’s also decided against on-bill financing in part because its customers prefer incentives to financing.<sup>84</sup> However, that is not an argument against on-bill financing. Again, on-bill financing is not simply an alternative way to incentivize conservation through a subsidized interest rate. Instead, it is a highly cost-effective way to eliminate market barriers to conservation and to lower the risk profile of conservation financing (see paragraphs 45 to 48 above). On-bill financing and financial incentives are not an either-or proposition.
52. Finally, Union decided that other forms of private financing are sufficient and that Union would simply promote those other financing options to its customers.<sup>85</sup> However, as discussed above, other forms of financing from 3<sup>rd</sup> party financial institutions or HVAC companies cannot provide the many benefits of on-bill financing as discussed in paragraphs 47 and 48 above.

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<sup>82</sup> Transcript Vol. 2, p. 4, lns. 8-21.

<sup>83</sup> Transcript Vol. 12, p. 25, lns. 26-28.

<sup>84</sup> Transcript Vol. 2, p. 4, lns. 17-12.

<sup>85</sup> Transcript Vol. 2, p. 4, ln. 27 to p. 5, ln. 8.

***On-bill financing must be carefully designed***

53. As Mr. Woolf and Mr. Takahashi repeatedly stressed, many of the benefits of on-bill financing are dependent on good program design. Environmental Defence recommends the following program design features:
54. **Competitively procured third party financing:** The best way to achieve the lowest possible interest rate is to obtain third party financing through competitive procurement. On-bill loans have extremely low default rates, which can allow financial institutions to provide low interest rates.<sup>86</sup> Financial institutions specialize in the provision of financing, making them more suited to play this role than the utilities themselves. Furthermore, a procurement process can harness the power of competition to drive the price down. This option is also simpler from a regulatory perspective in that it will not significantly impact the risk profile of the utility and would not require the board to assess whether the details of a utility-financed proposal are fair and reasonable.
55. **Allied network of trusted contractors:** An allied network of trusted contractors are an essential component of an on-bill financing program. Providing customers with a list of approved contractors greatly reduces the transaction costs involved in undertaking conservation measures. Contractors can also play a big role in promoting a program and completing the financing paperwork. Contractors can provide a “one-stop-shop” for all of the information, assistance, and actual work needed for conservation projects.
56. There may be some opposition to on-bill financing from HVAC companies or the major banks who may see it as competition for their financing offerings. This opposition is no reason to shelve an on-bill financing program and can be addressed through good program design. For example, the procurement process for financing should also include non-bank financial institutions as they will see this as an opportunity rather than competition. Work should be done to convince HVAC companies that this program can bring good business.

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<sup>86</sup> Transcript Vol. 12, p. 86, lns. 15-20.

57. At their current rate of progress, the utilities will not have on-bill financing offerings in place before the mid-term review; it is possible that on-bill financing will not be in place until a few years after the mid-term review. This is not consistent with the DSM Framework, which calls for innovative programs such as on-bill financing to be put into place. It is not sufficient for on-bill financing to only be put in place for 1 or 2 years of the 6-year period covered by the DSM Framework (if even).<sup>87</sup> The utilities need to step up their efforts so that proposal can be in place for review by the Board prior to the mid-term review.

### **Increased Targets and Budgets in 2017 and Onward**

58. Environmental Defence requests that the Board direct the utilities to expand their plans for 2017 onward so as to achieve all cost-effective conservation. This would ensure compliance with the Minister's Directive and also benefit all Ontarians through lower gas costs and significant economic benefits. New evidence has established that the current cap on conservation spending is not necessary. This warrants revisiting and eliminating the budget cap to enable the achievement of all cost-effective conservation.

### ***Conservation saves money, combats climate change, and increases jobs and growth***

59. The Minister's Directive requires that the Board's DSM Framework enable the achievement of all cost-effective DSM. This can only occur if the budget cap is lifted and the utilities are directed to expand their plans for 2017 onward so as to achieve all cost-effective conservation. However, this would do much more than secure compliance with the Minister's Directive. It would bring enormous benefits to all Ontarians.
60. **Massive savings:** Natural gas conservation saves energy consumers massive amounts of money. Since 1995, natural gas conservation programs have saved energy consumers a staggering \$5 billion net of the costs of those programs.<sup>88</sup> In other words, the energy

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<sup>87</sup> DSM Framework, s. 6.2.

<sup>88</sup> Exhibit B.T13.Union.GEC.1, Attachment 1 (Union's net TRC benefits since 1997 are \$2,678,528); Transcript Vol. 6, p. 121, lns. 8-22 (Enbridge's net TRC benefits since 1995 are approximately \$2.5 billion).



savings have outweighed the costs of the conservation projects by approximately \$5 billion. This figure is the cumulative net TRC value and therefore has been rigorously audited and accounts for the cost of the conservation measures, free ridership, and the diminishing value of future cash flows.<sup>89</sup>

61. **No-cost GHG emission reductions:** Natural gas conservation is likely the least expensive source of GHG emission reductions. The cost of natural gas conservation is typically a number of times lower than the resulting energy bill savings. Therefore, the resulting GHG emission reductions are free.
62. **Jobs:** Natural gas conservation directly creates jobs for people such as energy efficiency contractors and trades people.<sup>90</sup> It also indirectly creates jobs by increasing Ontario's productivity and competitiveness.
63. **Economic Benefits:** Natural gas conservation improves corporate productivity and competitiveness by allowing Ontario companies reduce their costs. This in turn has a positive impact on GDP and government revenues. All of Ontario benefits from more natural gas conservation.

***Conservation can be increased even within a \$2/month residential cost cap***

64. By way of background, the extent of gas savings from conservation is currently constrained by the budget cap set by the DSM Framework (\$75 million for Enbridge and \$60 million for Union).<sup>91</sup> The overall budget cap is based on a conservation spending limit of \$2/month for a typical residential customer that does not participate in a conservation program. The \$2/month residential cap translates into an overall budget cap by calculating the maximum residential conservation budget and proportionally grossing-up the budgets for the other sectors based on the historic program mix of the utilities.<sup>92</sup>

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<sup>89</sup> *Ibid.*

<sup>90</sup> Transcript Vol. 10, p. 130, lns. 4-11;

<sup>91</sup> DSM Framework, p. 18.

<sup>92</sup> Transcript Vol. 10, p. 90, ln. 10-27.

65. However, the overall conservation budgets and the related gas savings can be greatly increased within the existing \$2/month residential cap. That is because the derivation of the overall budget cap from the \$2/month cap only accounted for spending on conservation, *not* the impacts of conservation on *lowering* rates for non-participants. For example, because conservation saves gas, it allows utilities to avoid some investments in transmission and distribution infrastructure. These kinds of savings accrue to all customers, including non-participants. These kinds of savings were *not* accounted for in calculating the overall budget cap.
66. According to the expert evidence of Mr. Chernick and Mr. Neme, every \$1 of conservation spending will result in savings for non-participant customers amounting to \$1.58 for Enbridge or \$1.95 for Union.<sup>93</sup> In other words, conservation spending actually *lowers* the gas bills even of those customers that do not participate in a conservation program. Therefore, the overall budget cap can be completely removed without causing rate impacts of more than \$2 per residential customer.
67. Even if conservation was funded through financing to better match the timing of the costs and the benefits, conservation spending would still lower non-participant gas bills. Regardless of whether the spending was financed at a 4% rate typical of Canadian utility bonds, or at the utilities weighted average cost of capital (7.75% for Enbridge and 8.43% for Union), the rate-reducing impacts on non-participants would still outweigh the costs.<sup>94</sup>
68. The utilities have agreed with some of Mr. Chernick's evidence regarding the rate-reducing impacts of conservation on non-participants but there is still a divergence between this expert and the utilities regarding the appropriate figures. However, the derivation of the overall budget cap did not even account for the non-participant avoided

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<sup>93</sup> Transcript Vol. 10, p. 93, ln. 27 to p. 94, ln. 3; Expert Report of Chris Neme, Exhibit L.GEC.1, p. 18, Table 3; Even if avoided carbon costs are removed from the equation, every \$1 of conservation spending would still result in downward pressure on rates for non-participants amounting to 57 cents for Union customers and 66 cents for Enbridge customers. See Transcript Vol. 10, p. 93, lns. 13-26.

<sup>94</sup> Exhibit J10.5, p. 4.

costs that the utilities acknowledge.<sup>95</sup> In other words, the calculations did not include any party's estimates of the rate-reducing impacts of conservation.

69. The submissions of the Green Energy Coalition will likely address this issue in much greater detail. Suffice it to say that, regardless of the precise figure, natural gas conservation budgets can be greatly increased without raising a non-participant residential customer's bill by more than \$2.

***A \$2/month cost cap is not needed to protect consumers***

70. The budget cap was put into place out of concerns for fairness to customers who would not participate in a conservation program. This potential unfairness arises when a customer is *ineligible* to participate in a program over a relatively long period of time.<sup>96</sup> This kind of customer would be required to pay into the conservation budget through their gas rates but would not be able to receive any of the financial incentives, which go to participants in the conservation program.
71. However, the "vast majority" of commercial and industrial customers would be eligible to participate in a utility-funded conservation program over a reasonable time period.<sup>97</sup> Therefore, there are only relatively minor non-participant unfairness concerns in this sector.<sup>98</sup> Furthermore, any concerns would be better addressed by improving the program to increase the eligibility rates.<sup>99</sup> Therefore, non-participant fairness concerns cannot justify a cap on the commercial or industrial conservation budgets.
72. The eligibility rates in the residential sector are substantially lower than the commercial and industrial sectors. However, fairness can be addressed in the residential sector by broadening the offerings to maximize the percentage of customers that are eligible. In Mr. Neme's opinion, this would be possible and would be a preferable method of

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<sup>95</sup> Transcript Vol. 10, p. 95, lns. 1-20.

<sup>96</sup> Transcript Vol. 10, p. 131, lns. 8-26.

<sup>97</sup> Transcript Vol. 10, p. 133, lns. 4-19.

<sup>98</sup> Transcript Vol. 10, p. 133, ln. 20 to p. 134, ln. 28.

<sup>99</sup> *Ibid.*

ensuring fairness to non-participant residential customers.<sup>100</sup> Mr. Woolf is also an advocate for this approach.<sup>101</sup>

73. The \$2/month cap is not necessary. Instead, potential unfairness can be much better dealt with by directing the utilities to increase the range of program offerings, which would also further the Board's mandate to enable all cost-effective conservation.

***The budget caps can be removed***

74. There are numerous other reasons why the budget caps can and should be removed so as to enable the attainment of a greater proportion of the cost-effective conservation potential:
- a. **Benchmarking:** Union's and Enbridge's proposed 2016-2020 spending per residential customer is roughly half of the 2013 spending in comparable U.S. jurisdictions. Budgets could be doubled while still being in line with other jurisdictions.<sup>102</sup>
  - b. **Low gas prices:** Gas prices are currently very low. A larger conservation budget spending impact can be justified in this context as it is easier for consumers to absorb the costs.<sup>103</sup>
  - c. **Low relative impact:** The impact of conservation spending is much lower than the impact of fluctuations in natural gas prices.<sup>104</sup>
  - d. **Inconsistency with electricity sector:** Natural gas conservation budgets are roughly *a quarter* of electricity conservation budgets even though natural gas accounts for *over four times* the greenhouse gas emissions, natural gas conservation programs are roughly *two or three times* more cost-effective, and there are more economic spin-off

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<sup>100</sup> Transcript Vol. 10, p. 134, ln. 11 to p. 136, ln. 13.

<sup>101</sup> Transcript Vol. 10, p. 8, ln. 28 to p. 9, ln. 12.

<sup>102</sup> Transcript Vol. 10, p. 123, ln. 11-18.

<sup>103</sup> Transcript Vol. 10, p. 123, ln. 19 to p. 124, ln. 10; Transcript Vol. 6, p. 128, lns. 8-10.

<sup>104</sup> Transcript Vol. 6, p. 128, lns. 18-25.

benefits for Ontario from avoiding the purchase of \$100 of out-of-province gas versus \$100 of made-in-Ontario electricity.<sup>105</sup>

***Increased targets and budgets are needed to achieve all cost-effective conservation***

75. Increased targets and budgets are needed if the utilities are to fulfill the all cost-effective conservation mandate established by the Minister's Directive. The utilities' current plans and targets are far from what is needed to achieve all of the cost-effective conservation potential. According to Mr. Neme's analysis, Union and Enbridge will achieve a little more than *half* of what other leading jurisdictions achieved in 2014 in terms of gas savings per customer.<sup>106</sup> Based on this, Union and Enbridge could achieve *at least* twice as much conservation.<sup>107</sup>
76. Union and Enbridge can likely achieve even more than twice the conservation as planned. First, Mr. Neme's benchmarking was based on *past* results from other jurisdictions. In the 2015-2020 period, those jurisdictions could achieve savings that are in the range of 10% to 25% higher.<sup>108</sup> Second, Union and Enbridge are both significantly larger than the utilities in the other jurisdictions, which correlates with a higher conservation potential through economies of scale.<sup>109</sup> Third, Union should be able to achieve even higher results because its customers are disproportionately in the industrial sector, which generally has a higher conservation potential.<sup>110</sup> Fourth, we cannot rule out the possibility that Union and Enbridge, which have extremely good track records in conservation, could beat other leading jurisdictions and achieve even higher amounts of gas savings per customer.
77. During cross-examination, Mr. Neme discussed five distinct areas of evidence that conclusively establish that Enbridge and Union are far from achieving all cost effective DSM.<sup>111</sup> In light of this evidence, Mr. Neme stated that he was "absolutely certain, a

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<sup>105</sup> Transcript Vol. 6, p. 124, ln. 19-26; Electricity and Gas Conservation Compared, Exhibit K6.2; Transcript Vol. 10, p. 130, lns. 4-11;

<sup>106</sup> Transcript Vol. 10, p. 75, lns. 18-26.

<sup>107</sup> Transcript Vol. 10, P. 77, lns. 3-6.

<sup>108</sup> Transcript Vol. 10, p. 78, ln. 25 to p. 79, ln. 11.

<sup>109</sup> Exhibit J10.3.

<sup>110</sup> Transcript Vol. 10, p. 75, lns. 9-17.

<sup>111</sup> Transcript Vol. 10, lns. 10-22.

hundred percent certain” that Enbridge and Union will *not* attain all of their achievable cost-effective conservation based on their current plans. An increase in the utilities targets and budgets from 2017 onward is mandated by the Minister’s Directive, is in customers’ best interests, and would benefit all of Ontario.

### **Financial Incentives to Enable the Achievement of all Cost-Effective DSM**

78. Finally, Environmental Defence requests that the DSM Framework be updated to give Union and Enbridge a financial incentive to propose plans that will achieve all cost-effective conservation. We believe that this is essential if the DSM Framework is to enable the achievement of all cost-effective conservation as required by the Minister’s Directive.
79. The utilities have an incentive to meet and exceed the targets as set out in their approved conservation plans. However, when the utilities are drafting and proposing those plans, they do not have a financial incentive to propose plans that will achieve as much of the cost-effective conservation that is reasonable and appropriate. Instead, they have the *opposite* incentive. The utilities will benefit by proposing *lower* gas targets that are easier to meet and exceed.
80. Under the DSM Framework, each utility is eligible for a maximum incentive payment that is equal to \$10.45 million. This maximum amount is capped and static. It does not increase if the budget or the proposed gas savings are increased. This can result in perverse consequences. Union or Enbridge could have proposed a plan with twice the gas savings – or half the gas savings – and still been eligible for exactly the same maximum incentive. Indeed, Union’s proposed 2016 plan cost much more but produces far fewer gas savings. Despite this, it is still eligible for the maximum shareholder incentive.
81. One option is to peg the maximum incentive to the overall conservation budget or the proposed gas savings (while continuing to make the incentive payouts contingent on meeting or achieving the targets). That way, the utilities would have an incentive to seek to achieve a greater proportion of the cost-effective conservation potential. Another option would be to set aside a portion of the incentives to be awarded based on how well

a utility's plan compares to those in other jurisdictions. Regardless of the exact mechanism, the utilities require a financial incentive if we are to expect them to aim for the achievement of all cost-effective DSM.

## **Conclusion**

82. Some parties may argue that Environmental Defence is proposing an about-face or reversal of certain decisions made by the Board in the DSM Framework. This would be unfair and incorrect. The DSM Framework is a guideline. It was prepared in a consultation process, not in a Board hearing with the associated procedures and evidence. A full hearing has certain key elements that contribute to sound and evidence-based decision making, such as access to detailed evidence from the applicants, an interrogatory process, technical conferences, cross-examinations, the opportunity to submit detailed intervenor evidence, and so on. A full hearing is a far more robust process.
83. It would be fair, reasonable, and appropriate to diverge from the DSM Framework where that is justified by new evidence that becomes available through a full hearing process. To suggest otherwise is to suggest that the Board should slavishly follow a guideline even when that would be contrary to the evidence, contrary to the Minister's Directive, and contrary to the interests of Ontario's gas consumers.
84. Since the DSM Framework was developed, new and compelling evidence has been provided to the Board. By directing Union to continue the large volume program with an \$8 million budget, the Board would simply be making a good regulatory decision based on all the available evidence. The same would be true for a decision in this proceeding to mandate increased targets and budgets in 2017 and onward and the achievement of all cost-effective conservation.
85. Although Environmental Defence believes that its requested directions from the Board are necessary for compliance with the Minister's Directive, it also believes that these directions would benefit all gas customers and Ontario as a whole. Conservation has a cost, but this cost is far outweighed by the energy-cost-reduction benefits, especially for the large volume sector. These benefits will only increase as Ontario ramps up its carbon

reduction efforts; conservation is far more cost-effective than all other available GHG reduction measures. Increased conservation is an excellent opportunity that would save energy costs, reduce GHG emissions, and create jobs and economic growth. Everyone stands to benefit.

## Requests

86. For the reasons set out above, Environmental Defence requests:
- a. That the Board direct Union to continue its large volume program in 2016 with an annual \$8 million budget;
  - b. That the Board direct Union and Enbridge to develop an on-bill financing program with two key elements: (1) low-cost financing competitively procured from third party financial institutions and (2) a network of approved and a network of trusted contractors;
  - c. That the Board direct Union and Enbridge to revise their plans, targets, and budgets for 2017 onward to achieve all cost-effective conservation; and
  - d. That the Board update the DSM framework to give Union and Enbridge a financial incentive to propose conservation plans that will achieve all cost-effective conservation.

All of which is respectfully submitted this 2<sup>nd</sup> day of October, 2016.



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Kent Elson

**KLIPPENSTEINS**  
Barristers and Solicitors

**Lawyers for Environmental Defence**



EB-2015-0029/0049

**Summary of Reports Re: Necessity of Large Volume DSM Programs**

#	Report	Conclusions
1.	Brannan, Debbie et al. (Navigant), "Custom Free Ridership and Participant Spillover Jurisdictional Review", prepared for Sub-Committee of the Ontario Technical Evaluation Committee, May 29, 2013. <sup>1</sup>	<ul style="list-style-type: none"> <li>• A recent jurisdictional scan conducted by Navigant Consulting for the Ontario gas Technical Evaluation Committee.</li> <li>• Found that the average free rider rate from evaluations of twenty-four different gas utility Custom C&amp;I programs – which are typically targeted to the largest customers – was between 30% and 40% (meaning 60% to 70% of savings would not have occurred without the utility programs)</li> </ul>
2.	Navigant Consulting and EMI Consulting, "Evaluation Report for Utah's Self-Direction Credit Program (PY 2012 through 2013), prepared for Rocky Mountain Power (a division of PacifiCorp), March 18, 2015. <sup>2</sup>	<ul style="list-style-type: none"> <li>• An evaluation of free ridership and net-to-gross (NTG) ratio for Utah's large customer self-direct program. It concluded that free ridership was only 1% and that spillover effects were 5%, leading to an NTG of 1.04.<sup>71</sup></li> </ul>
3.	Chittum, Anna, "Follow the Leaders: Improving Large Customer Self-Direct Programs", ACEEE Report Number IE112, October 2011. <sup>3</sup>	<ul style="list-style-type: none"> <li>• ACEEE report regarding self-direct programs for large industrial customers:</li> <li>• The report states as follows: "Another assumption frequently made during the development of opt-out and self-direct programs is that industrial customers will always do all cost-effective energy efficiency because doing so makes good business sense...While industrial firms in the U.S. have continued to become more energy efficient per unit of product output, they have not necessarily captured all cost-effective energy efficiency. Again, opt-out and self-direct programs have proven this to be true. In Utah, Wyoming and Oregon, customers can opt out of all or part of their CRM (cost-recovery mechanism) fees if they can prove that they have in fact done all cost-effective energy efficiency. In the case of Utah and</li> </ul>

<sup>1</sup> EB-2015-0029/0049 Exhibit M.GEC.APPrO.1 Attachment 1.<sup>2</sup> EB-2015-0029/0049 Exhibit M.GEC.ED.4 Attachment 1<sup>3</sup> EB-2012-0037 at Exhibit D6.1

		<p>Wyoming, “cost-effective” means that a project has a simple payback of eight years or less; in Oregon it is ten years. To date, no company has taken advantage of these exemptions in any of these states, because there are always some cost-effective projects that could be identified during an energy audit (Helmert 2011, Stipe 2011).” (p. 17)</p>
4.	<p>Russell, Christopher and Rachel Young, “Understanding Industrial Investment Decision-Making”, published by the American Council for an Energy Efficient Economy, Report Number IE124, October 2012<sup>4</sup></p>	<ul style="list-style-type: none"> <li>• “Recently, an unprecedented volume of public and utility ratepayer funds have been poured into energy incentive and assistance programs for the manufacturing sector (Chittum and Nowak 2012). While assistance programs frequently reveal improvement opportunities of all kinds and magnitudes, many facilities tend to favor solutions that involve low- and no-cost improvements to existing assets. Meanwhile, a sluggish economic recovery combined with uncertain future tax and regulatory consequences have discouraged many companies from making strategic capital investment in energy-intensive systems. In sum, <b>great potential remains for industrial energy improvement.</b>” (p. 2, emphasis added)</li> </ul>
5.	<p>Shipley, Anna and R. Neal Elliott, “Ripe for the Picking: Have We Exhausted the Low-Hanging Fruit in the Industrial Sector?”, published by the American Council for an Energy Efficient Economy, Report Number IE061, April 2006<sup>5</sup></p>	<ul style="list-style-type: none"> <li>• “Numerous analytic studies have found that abundant, low cost efficiency opportunities exist in all parts for the industrial sector. These savings projections have been corroborated by actual evaluated program results in regions that have implemented robust programs and also at individual companies.” (p. iii)</li> <li>• “It is frequently argued that the opportunities to improve efficiency in industry have been exhausted, and that the free market dictates that efficiency improvements will be made when they are cost-effective...(but) industrial market data...indicate that there still is significant potential for improving energy efficiency... <b>Does low-hanging fruit still exist in the industrial sector? We believe that the answer is yes.</b>” (p. viii, emphasis added)</li> </ul>

<sup>4</sup> <http://aceee.org/sites/default/files/publications/researchreports/ie124.pdf>

<sup>5</sup> <http://aceee.org/research-report/ie061>

6.	<p>U.S. Department of Energy. 2015. Barriers to Industrial Energy Efficiency: Report to Congress.<sup>6</sup></p>	<ul style="list-style-type: none"> <li>• “Manufacturers have limited capital for investments in new equipment, process upgrades, and plant improvements, and energy efficiency projects need to compete for this capital. In a 2010 survey, respondents from a number of industry sectors (e.g., health care, manufacturing, finance, consulting, retail, and government) in the United States and Canada cited capital availability as their top barrier to investing in energy efficiency. This survey indicated that decision-makers in the industrial sector typically expect capital investments to have short payback periods of 1 to 3 years. In interviews, 44 percent of energy managers indicated that they need a payback of less than 3 years for energy efficiency projects, and other evidence suggests that under difficult economic conditions companies may look for a payback period of 18 months or less. Short payback periods were also identified in a 2013 report by the Alliance to Save Energy. In this report, payback and return on investment expectations were evaluated for three different types of investors. If the capital was being provided by an internal capital equipment budget, the payback period was in the range of 1–3 years (see Table 8) as opposed to longer payback periods for other types of investors (up to 30 years for funding from government sources). Even when end-use energy efficiency projects do meet corporate investment thresholds, manufacturers may still not go ahead with such projects if they do not have a direct connection with the company’s core business. For example, the ability to increase production is often viewed more favorably than being able to produce a product/good with less energy, even if the economic impacts are equal for both alternatives.” (p. 39-40, Study Appendix)</li> </ul>
7.	<p>State &amp; Local Energy Efficiency Action Network. 2014. Industrial Energy Efficiency: Designing Effective</p>	<ul style="list-style-type: none"> <li>• “[E]nergy efficiency often cannot compete with other capital demands, even with similar or better paybacks. Moreover, industrial staff members often report that it is difficult to effectively navigate</li> </ul>

<sup>6</sup> [http://www.energy.gov/sites/prod/files/2015/06/f23/EXEC-2014-005846\\_6%20Report\\_signed\\_v2.pdf](http://www.energy.gov/sites/prod/files/2015/06/f23/EXEC-2014-005846_6%20Report_signed_v2.pdf) and [http://www.energy.gov/sites/prod/files/2015/06/f23/EXEC-2014-005846\\_5%20Study\\_\\_0.pdf](http://www.energy.gov/sites/prod/files/2015/06/f23/EXEC-2014-005846_5%20Study__0.pdf)

	<p>State Programs for the Industrial Sector.<sup>7</sup></p>	<p>corporate project decision-making systems to get management endorsement for even quick payback energy efficiency projects. In addition, small- or medium-sized energy savings projects often do not compete well with other projects in garnering management attention and enthusiasm. Finally, limitations on staff resources and knowhow can further hinder implementation of cost-effective energy efficiency measures.</p> <p>In states where ratepayer-funded energy efficiency programs are in place, industrial programs can make a significant difference...” (p. ES-1,2)</p> <ul style="list-style-type: none"> <li>• “There is a range of reasons why internal decision-making processes may not result in implementation of highly cost-effective energy efficiency opportunities, including: <ul style="list-style-type: none"> <li>• Energy efficiency projects may compete with core business investments that dominate attention, as well as investments for safety, environmental, and other regulatory requirements</li> <li>• Decision-making is often split across business units</li> <li>• The skills required to identify and pursue energy efficiency opportunities are not always present.”(p. 24)</li> </ul> </li> </ul>
<p>8.</p>	<p>Synapse Energy Economics. Commercial &amp; Industrial Customer Perspectives on Massachusetts Energy Efficiency Programs. Prepared for the Massachusetts Energy Efficiency Advisory Council. April 3, 2012.<sup>8</sup></p>	<ul style="list-style-type: none"> <li>• “Another theme we heard from most of our interviews was that payback period was the main criteria for evaluating energy efficiency investments and that energy efficiency investment payback periods compete with the payback periods for other capital investment projects.” (p. 3)</li> <li>• “[C]apital constraints are a key barrier to moving forward with energy efficiency projects. Many customers have access to capital, but energy efficiency projects have to compete with other projects for that capital.” (p. 3)</li> </ul>

<sup>7</sup> [http://www.iipnetwork.org/IEE\\_Effective\\_State\\_Programs.pdf2](http://www.iipnetwork.org/IEE_Effective_State_Programs.pdf2)

<sup>8</sup> Exhibit M.Staff.GEC.12, Attachment 1.

		<ul style="list-style-type: none"> <li>• “Energy efficiency investments are frequently categorized as discretionary expenditures.” (p. 3)</li> <li>• “[S]ometimes corporate practices place very tight payback periods constraints on all investments, limiting the energy efficiency measures that can obtain corporate approval.” (p. 6)</li> </ul>
9.	<p>Mowat Centre, Ontario Made: Rethinking Manufacturing in the 21<sup>st</sup> Century, February 2014</p>	<ul style="list-style-type: none"> <li>• “Figure 29 displays energy efficiency—in terms of electricity and natural gas consumption only—in total manufacturing for Ontario relative to U.S. and German peers. ... Out of these 19 jurisdictions, Ontario ranks 17th, or third last, in terms of energy efficiency.” (p. 29)</li> <li>• “To get a more detailed picture, it is therefore important to disaggregate the manufacturing sector and compare sub-industries. When this is done for Ontario and its international peers in the U.S. and in Germany, our main result still holds—that Ontario lags most international peers in energy efficiency.” (p. 29)</li> </ul>

EB-2015-0049 &amp; EB-2015-0029

## Benefits of On-Bill Financing

### **A. The potential benefits of an on-bill financing program include the following:**

1. **Facilitate low interest financing by lowering risk profile:** (a) On-bill financing can allow for lower financing costs for energy efficiency improvements by charging the loan repayments directly to the utility bill. This lowers the risk profile of the loan because the borrower will be incentivized to repay the loan to maintain gas service. (b) Financing costs can be further lowered by attaching the loan to the property so that it will persist beyond the current owner. This further lowers the risk of loan default as new owners of a property will be required to pay the overdue gas bills. (c) Financing costs can also be lowered by partnering with financial institutions through a competitive procurement processes.
2. **Further lower interest rates through subsidy where appropriate:** On-bill financing can allow for even lower interest rates through a subsidy in appropriate situations.
3. **Enable capital-starved consumers to adopt conservation measures:** On-bill financing can give residential and commercial consumers without access to low-cost financing a means to undertake cost-effective conservation measures.
4. **Reduce consumer efforts needed to adopt conservation measures:** On-bill financing can greatly reduce the efforts needed by consumers to research and undertake conservation measures. For example, (a) the utilities or allied contractors can provide a “one-stop-shop” for information regarding conservation measures, financing assistance, and installation, (b) utilities or allied contractors can assist with the necessary paperwork, (c) consumers can trust and rely on information from the utility, and (d) the loan application paperwork would be more straightforward as compared to mortgage-related loans.
5. **Increase consumer convenience:** On-bill financing can increase convenience by eliminating the need to make and monitor separate loan repayments.
6. **Reduce cash-flow concerns:** On-bill financing can avoid consumer concerns about future cash flow problems by ensuring that the benefits (reduced gas costs) and the costs (financing charges) are incurred at the same time on the same bill.
7. **Reduce uncertainty relating to relocations:** Some consumers may be reluctant to invest in conservation out of a concern that they may move houses/locations and may not be able to recapture the cost of conservation measures. This risk can be eliminated by allowing for the on-bill financing to be attached to the gas bill, not the property owner.
8. **Allow for adoption of conservation by renters:** Some commercial or residential renters may pay the gas bill but be reluctant to invest in conservation measures as they are not

owners. The landlords, in turn, may have insufficient incentives to invest in conservation as they do not pay the gas bill. On-bill financing may help overcome this mismatch by allowing for measures to be implemented at no cost to the owner.

9. **Improved promotional opportunities:** On-bill financing can allow for improved promotional opportunities for conservation. For example, (a) on-bill financing can allow utilities to promote “no money down” conservation upgrades, (b) on-bill financing can allow utilities to offer consumers a way to decrease their monthly gas costs with no upfront costs, and (c) utility communications to consumers can be leveraged to promote on-bill financing.
10. **Highly cost-effective:** On-bill financing can be highly cost-effective. For example, on-bill financing can improve uptake of conservation measures at a very low cost by (a) lowering the risk profile of energy efficiency loans and thus interest rates (see paragraph 1 above) and (b) by correcting certain market failures (see below).
11. **Correct market failures and facilitate market for conservation measures:** On-bill financing is highly cost-effective in part because it corrects a number of market failures that would otherwise result in the adoption of a sub-optimal amount of conservation measures. For example, on-bill financing can (a) greatly reduce transaction costs,<sup>1</sup> (b) address incomplete information,<sup>2</sup> (c) address the disincentive to invest by owners who may wish to move (an externality),<sup>3</sup> (d) address the disincentive to invest by renters (an externality),<sup>4</sup> (e) reduce the risk profile of energy efficiency loans,<sup>5</sup> and (f) allow consumers to adopt conservation measures that result in benefits not currently included in the TRC test, such as improved comfort from better heating or a desire to reduce one’s own greenhouse gas emissions.
12. **Increase uptake of existing conservation programs by consumers:** On-bill financing can be used to increase the uptake of existing conservation programs by providing the benefits listed above (e.g. access to capital, improved consumer convenience, etc.).
13. **Enable the adoption of conservation measures *not* covered by existing programs:** On-bill financing can enable the adoption of conservation measures not covered by existing programs by providing the benefits listed above.

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<sup>1</sup> Transaction costs that can act as a barrier to the adoption of financed conservation measures include the following: (a) time needed to research the wide range of conservation and financing options that are available, (b) complicated loan application procedures, (c) calculating the overall bill impact of the conservation measures and financing costs, (d) researching the trustworthiness of contractors, and (e) other paperwork and research. On-bill financing can greatly decrease these transaction costs (see, for example, paragraph 4 above).

<sup>2</sup> Many consumers are not aware of financing and conservation measures available to them. On-bill financing can address this.

<sup>3</sup> See paragraph 7 above.

<sup>4</sup> See paragraph 8 above.

<sup>5</sup> See paragraph 1 above.

## **B. On-bill Financing vs. Promotion of Existing Bank-Offered Energy Efficiency Loans**

One potential alternative to on-bill financing is for a utility to promote the existing energy efficiency loans offered by other financial institutions. However, this “cross-promotion” alternative would not result in a large number of the benefits listed above. In particular, it would not result in the benefits listed in paragraphs 1, 2, 4, 5, 6, 7, 8, 9, 11, 12, and 13.