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EB-2015-0029

EB-2015-0049

**Union Gas Limited/
Enbridge Gas Distribution Inc.**

2015-2020 Demand Side Management Plan

VECC Compendium

Enbridge Panel #2

August 26, 2015

11. Table 7 below provides a breakdown of Enbridge's Resource Acquisition Program budget from 2016 to 2020.

Table 7: 2016 to 2020 Resource Acquisition Budget

Resource Acquisition Program Costs (\$ millions)	2016	2017	2018	2019	2020
Large C/I Customers	\$7.60	\$7.85	\$8.25	\$8.42	\$8.59
Small C/I Customers	\$7.37	\$8.52	\$9.30	\$9.48	\$9.67
Home Energy Conservation	\$12.15	\$15.18	\$18.00	\$18.36	\$18.73
Adaptable Thermostats	\$0.88	\$1.53	\$2.18	\$2.22	\$2.26
<i>Run it Right*</i>	\$1.51	\$1.77	\$1.75	\$1.79	\$1.83
<i>Comprehensive Energy Management*</i>	\$0.05	\$0.08	\$0.10	\$0.10	\$0.10
TOTAL Program Budget	\$29.56	\$34.92	\$39.57	\$40.37	\$41.18

*RIR and CEM budgets have been allocated between the Resource Acquisition and MTEM budgets

12. Tables 8 through 12 below outline Enbridge's Resource Acquisition scorecards, inclusive of metrics, weighting and targets, for 2016 through 2020. Similar to DSM budgets, Enbridge considers DSM targets for 2019 and 2020 specifically to be preliminary and will be the subject of review in the mid-term review.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

23. Table 14 below provides a breakdown of Enbridge's Low Income Program budget from 2016 to 2020.

Table 14: 2016-2020 Low Income Budget

<u>Low Income Program Costs</u> (\$ Millions)	2016	2017	2018	2019	2020
Single Family (Part 9)	\$5.76	\$6.24	\$6.43	\$5.56	\$6.69
Multi-Family (Part 3)	\$3.28	\$3.42	\$3.81	\$3.89	\$3.97
Low Income New Construction	\$1.12	\$1.20	\$1.40	\$1.43	\$1.46
TOTAL Program Budget	\$10.15	\$10.86	\$11.64	\$11.87	\$12.11

24. Tables 15 through 19 below outline Enbridge's Low Income scorecards, inclusive of metrics, weighting and targets, for 2016 through 2020. Similar to DSM budgets, Enbridge considers DSM targets for 2019 and 2020 specifically to be preliminary and will be reconsidered as part of the mid-term review.

Table 15: 2016 Low Income Scorecard

<u>Component</u>	<u>Metric</u>	<u>Weight</u>	<u>Lower Band</u>	<u>Middle Band</u>	<u>Upper Band</u>
Single Family Ontario Building Code (Part 9)	CCM (millions)	45%	21.7	28.9	43.3
Multi-residential Ontario Building Code (Part 3)	CCM (millions)	45%	44.2	59.0	88.5
Low Income New Construction	# of Project Applications	10%	4	5	8

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

Table 21: 2016 to 2020 MTEM Budget

MTEM Program Costs (\$ millions)	2016	2017	2018	2019	2020
Home Health Record	\$3.91	\$6.91	\$6.91	\$7.06	\$7.21
School Energy Competition	\$0.30	\$0.60	\$0.50	\$0.51	\$0.52
<i>Run it Right*</i>	\$0.30	\$0.35	\$0.35	\$0.36	\$0.36
<i>Comprehensive Energy Management*</i>	\$0.46	\$0.76	\$0.91	\$0.92	\$0.94
Residential SBD	\$3.25	\$3.25	\$3.25	\$3.32	\$3.39
Commercial SBD	\$1.35	\$0.95	\$1.08	\$1.10	\$1.12
New Construction Commissioning	\$0.85	\$0.93	\$1.00	\$1.02	\$1.04
Home Rating	\$1.10	\$1.10	\$1.10	\$1.10	\$1.10
TOTAL Program Budget	\$11.53	\$14.85	\$15.09	\$15.39	\$15.69

*RiR and CEM budgets have been allocated between the Resource Acquisition and MTEM budgets

Witnesses: M. Lister
 F. Oliver-Glasford
 B. Ott

- e) Please see below the anticipated breakdown of Enbridge customers in 2016, segmented by market sector. Identifying quantifying the low income sector is highly challenging and as a result this segment has not been represented below.

2016	
Residential	1,971,943
Commercial	152,307
Industrial	6,096
Total	2,130,346

- f) Please find the market sector / type attributable to each rate class:

Bundled Services:

Rate Class	Type
1	Residential
6	Apartment
	Commercial
	Industrial
9	Container Service
100	Apartment
	Commercial
	Industrial
110	Apartment
	Commercial
	Industrial
115	Commercial
	Industrial
135	Commercial
	Industrial
145	Apartment
	Commercial
	Industrial
170	Commercial
	Industrial
200	Wholesale

Unbundled Services:

Rate Class	Type
125	Power Plant
300	Apartment
	Commercial
	Industrial

Witnesses: M. Lister
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meaningful improvements to residential customers' gas consumption and thereby help customers lower their energy bills.

Target Market: HEC is targeted to Rate 1 residential customers.

Background: The Home Energy Conservation offer, previously known as the Community Energy Retrofit, was introduced in 2012 as Enbridge began exploring more holistic, multi-measure offers geared towards a 'whole-home' approach. The offer's focus was on driving participants towards deep savings by requiring customers to undertake a minimum of two DSM measures and, at the same time, an average savings across all participants of 25%. Customers participating need to implement at least two qualifying measures, these currently include:

- Heating system replacement
- Water Heating system replacement
- Wall insulation
- Basement insulation
- Attic Insulation
- Air Sealing (minimum reduction of at least 10% as measured by a blower door test)
- Exposed floor insulation
- Drain Water Heat Recovery system
- Windows

The offer was originally modelled after Natural Resource Canada's ("NRCan") ecoEnergy program, which existed from 2007 to 2012. On average, homeowners

Witnesses:	S. Bertuzzi	M. Lister
	P. Goldman	E. Lontoc
	S. Hicks	D. Naden
	R. Kennedy	F. Oliver-Glasford
		J. Paris

- Rebates are available for building envelope and ENERGY STAR measures, as shown in Table 1 below. These rebate levels are consistent with 2015.

Table 1
Measure Rebates

Measure	Rebate	Description
Basement Insulation	\$1,000	For adding at least R23 to 100% of basement
	\$500	For adding at least R12 to 100% of basement
	\$800	For adding at least R23 to 100% of crawl space wall
	\$400	For adding at least R10 to 100% of crawl space wall
	\$450	For adding at least R24 to 100% of floor above crawl space
Exterior Wall Insulation	\$1,500	Add at least R9 for 100% of building to achieve a minimum of R12
	\$1,000	Add at least R3.8 for 100% of building to achieve a minimum of R12
Attic Insulation	\$500	For increasing attic insulation from R12 or less to at least R50 from R12 or less
	\$250	For increasing attic insulation from R13 to R25 to at least R50
	\$500	For increasing cathedral/flat roof insulation by at least R14
Air Sealing	\$150	Achieve 10% or more above base target
	\$100	Achieve base target
Furnace/Boiler	\$500	For replacing low or mid-efficiency heating system with 95% AFUE or higher condensing natural gas furnace or 90% AFUE or higher ENERGY STAR® condensing gas boiler
Water Heater	\$200	For replacing water heater with ENERGY STAR natural gas water heater with EF of 0.82 or higher
Window/Door/Skylight	\$40	For each window, door or skylight replaced with ENERGY STAR-qualified model.

- Rebates will continue to be structured in a prescriptive manner to ensure simplicity for participants. The predictable nature of the rebates enables participants to make fully informed decisions, and assists Service Organizations and channel partners in communicating accurate information.
- Rebate amounts are based on a balancing of the rebate in proportion to the incremental cost and m³ savings potential of the measure. Rebates are highest, for example, for measures that are both expensive and yield strong m³ savings, such as insulation.

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		J. Paris

who participated decreased energy use by 20%. The incentives between federal and provincial funding reached approximately \$10,000 per home. In contrast, Enbridge's offer provides a maximum of \$2000 per home for gas related measures.

Enbridge has typically targeted this offer to neighbourhoods with the following characteristics:

- Higher than average energy consumption;
- Higher than average household income;
- Dwellings built 16 to 30 years ago;
- Above average proportion of single detached dwellings; and,
- Low participation in NRCan's ecoEnergy program.

Barriers: Some of the specific barriers that customers typically have in relation to home energy retrofits include:

- The cost of many energy retrofit measures requires significant investment on the part of the homeowner. There is also a cost associated with identifying potential measures related to energy efficiency;
- Given the complexity of the various retrofit activities, it can be difficult for customers to prioritize which to undertake. It is often important to focus on key energy related measures and, where possible, to co-ordinate energy retrofit work with other renovation and upgrade projects;
- Locating reliable renovation contractors with knowledge and experience in energy retrofits is an additional challenge; and,

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- The return on investment for implementing upgrades to achieve natural gas savings relative to electricity, in addition to the competitiveness of LDC incentives, may impact customer decision making.

Offer Details: The HEC offer is a direct-to-consumer delivered initiative. Enbridge will continue with the offer, requiring installation of two or more eligible measures, striving to achieve at least 15% gas savings.

To be eligible for the offer, customers must meet the following criteria:

- Be a residential homeowner in the EGD franchise area;
- Have a valid Enbridge Gas account in good standing;
- Use an approved Certified Energy Evaluator ("CEE");
- Install at least two measures; and,
- Complete a pre- and post-energy audit.

Incentives will be directed at covering the cost of the energy audit and providing an incentive based on modelled natural gas savings as a result of measures installed.

Beginning in 2016, Enbridge is introducing a tiered incentive structure:

- Up to \$500 for full (pre and post) energy audits, not including HST;
- \$500 for reaching 15%-25% annual gas savings (incremental to the \$500 for energy audit);
- \$1,100 for reaching 26%-49% annual gas savings (incremental to the \$500 for energy audit); and,
- \$1,600 for reaching 50% and above in annual gas savings (incremental to the \$500 for energy audit).

Witnesses:	S. Bertuzzi	M. Lister
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An opportunity exists for further expansion of the HEC offer; this will be explored as the offer continues to evolve. That opportunity lies first with those customers who would not currently be eligible for Enbridge's suite of Low Income offers, to those who are just above the low income cut-off. Low Income customers are defined as those households spending 30% or more of their income towards shelter costs. The current qualifications for participation in Low Income Home Winterproofing includes household incomes less than the Low Income Cut-Off ("LICO") plus 35% or those customers that are enrolled in a specified list of social assistance programs. The following table shows the difference between LICO +35% and LICO + 50%.

Household Size	LICO 135% (Household Income)	LICO 150% (Household Income)
1 person	\$32,212	\$35,792
2 persons	\$40,103	\$44,559
3 persons	\$49,302	\$54,780
4 persons	\$59,859	\$66,510
5 persons	\$67,892	\$75,435
6 persons	\$76,569	\$85,077
7 persons or more	\$85,248	\$94,721

Depending on the size of the home; the dollar value that separates 135% of LICO; the point at which a customer is eligible for the Low Income Program, and 150% of LICO represents approximately \$3,500 for a 1 person household up to \$9,500 for a 7 person household. This increased income is not likely of significant enough value to encourage a customer to perform any form of energy equipment upgrades. As a result, it may be appropriate to offer an increased incentive through HEC to these "lower" income customers which could enhance the appeal of addressing the home's energy efficiency requirements for this subset of customers.

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Another opportunity for the HEC offer is identifying those customers who believe they have addressed all available potential energy efficiency measures in their home. These customers will be difficult to qualify, however are good candidates for increased efficiency education. In addition, a smaller incentive can be offered for incorporating those energy measures on the HEC list of eligible measures that they have not already undertaken.

7. Residential Adaptive Thermostats

Goal: The goal of this offer is to broadly reach the mass market with a straight forward prescriptive offer that can help customers achieve gas savings.

Target Market: The Adaptive Thermostat offer is targeted to Rate 1 residential customers.

Background: Over the past twenty years, the thermostat market has been continually evolving. Traditional manual, non-programmable thermostats have been prevalent in homes for some time, however over the past decade homeowners have been able to choose from a variety of programmable thermostats that have user-driven automated functionality in the form of time specific temperature presets. As smart phones and the internet become increasingly more integrated in how we manage our time and resources, the newest generation of thermostat technologies has arrived. Adaptive thermostats do not passively await input. Rather, they can anticipate needs, patterns, and behaviours, and can be accessible almost anywhere. They can track whether and where customers are in their home, or in their city, and make modifications to ensure they are comfortable when and where needed.

Witnesses:	S. Bertuzzi	M. Lister
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Offer Details: Not all customers are looking to, can afford, or in some cases even need, a complete 'whole-home' energy retrofit. Many of these customers however, could nonetheless benefit from the potential savings that can be generated by installing and using an adaptive thermostat. This offer will address a stand-alone prescriptive opportunity for residential customers. As with past prescriptive offers, the incremental costs for this energy efficient upgrade are intended to be offset by energy savings. Examples of past residential prescriptive technologies are the TAPS, programmable thermostat, and furnace rebate offers.

A rebate will be offered to customers upon qualified / approved installation. Enbridge will also use other offers to create more interest in the Adaptive Thermostat offer (i.e., Home Rating, or Home Energy Conservation). To be eligible, customers will have to meet the following eligibility criteria:

- Residential customer in Enbridge franchise area;
- Valid EGD account number; and,
- Proof of purchase and installation of the unit.

The proposed incentive level is \$75, upon proof of purchase and installation. Enbridge has been engaged in discussions with a few LDCs on collaboration around adaptive thermostats, and will continue to explore design and deployment integration.

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be the subject of discussions between the low income working group of intervenors and stakeholders, and Enbridge; and,

- Social housing and assisted housing buildings as described in the Housing Reform Act of 2011 and 2015-2020 DSM Framework.

Enbridge proposes the following incentives for the offer:

- Fixed incentives calculated based on a fixed dollar amount for smaller types of equipment. Eligible measures that would result in gas savings may include:
 - Condensing boilers;
 - High efficiency boilers;
 - Energy recovery ventilation systems; and,
 - Heat recovery ventilation systems.
- In-suite direct install measures will be as follows:
 - Free showerheads from Enbridge supplied and installed; and,
 - Free supply and installation of heat reflector panels.
- Custom incentives shall be calculated based on projected first year natural gas savings at a rate of \$0.40/m³ saved, up to 50% of the cost of the retrofit. Eligible measures that would result in gas savings include, but are not limited to:
 - Building envelope;
 - Controls;
 - DHW replacement;
 - Drain water heat recovery;
 - High Efficiency Boilers;

Witnesses:	S. Bertuzzi	M. Lister
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- Make Up Air Units; and,
- Operational improvements (\$0.20/m³).
- Half the cost of an energy audit up to \$5,000 per building or \$0.01/m³ of gas consumed in the past calendar year (whichever is less);
- Free ASHRAE Level 1 Building Assessment;
- Boiler Tune-Up;
- Resident engagement programs; and,
- Free access to a benchmarking program such as the City of Toronto's STEP Program.

10. Home Winterproofing

Goal: The Home Winterproofing offer, previously known as Home Weatherization, aims to reduce energy costs for Part 9 low-income households by increasing the energy efficiency of their homes, while addressing comfort and some health and safety matters within the homes.

Target Market: Social housing and assisted housing, and income qualified customers residing in low-rise buildings (OBC Part 9).

Background: Low income is typically defined as spending 30% or more of a household's income towards shelter costs. In most large Ontario cities, people who live below the poverty line are burdened with housing problems and subsequent high shelter costs. Shelter costs (including utilities) often consume more than half of a household's income. Based on 2012 Statistics Canada data, approx.13.5% of the households in Enbridge's franchise area can be considered low income.

Witnesses:	S. Bertuzzi	M. Lister
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A high proportion of low income residents are seniors, new immigrants, or low wage earners. Social housing is rental accommodation developed with government assistance for a range of low- and moderate-income households, including families with children, couples, singles, and seniors. These buildings can be owned by governments, as in the case of public housing, or by non-profit or co-operative organizations. Most social housing in Ontario was built between the mid-1960s and the mid-1990s through a combination of federal, provincial, - and joint federal – provincial cost-shared programs. The housing stock for social housing is largely made up of smaller townhouses, with some semi-detached and scattered housing (single-family detached), with a significant proportion using electric space heating.

The Home Winterproofing offer reaches out to low-income households that are often on fixed incomes, rely on income assistance programs, and are generally the most vulnerable to volatile changes in energy markets. Enbridge works with community based organizations to deliver and implement the offer, which is also supported by the Board's Low Income Energy Assistance Program ("LEAP"). LEAP provides low income energy consumers with emergency financial assistance, the certainty of special customer rules, and access to utility DSM and electricity Conservation and Demand Management ("CDM") programs. The 2015-2020 DSM Framework has identified the low income customer group as a priority area for DSM programming.

Barriers: While homes of private low income customers are generally larger than social housing units, low income households are difficult to find, primarily because they are unlikely to self-identify as low income. Further, once found, they are hard to

Witnesses:	S. Bertuzzi	M. Lister
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reach due to other barriers such as communication and language challenges. Other barriers to participation in energy efficiency programs among this customer segment include:

- Affordability and access to funds to make equipment upgrades and repairs;
- Awareness or limited understanding of energy and energy use;
- Competing priorities for basic necessities such as food, shelter, health and safety; and,
- Lack of trust – “nothing is free” mentality, or fear of claw backs of government financial assistance.

In addition, for many Part 9 type homes, the offer has encountered physical and structural problems within the units such as the presence of asbestos or excessive hoarding, elevating the safety risk for the offer contractors, residents and housing providers. In these unfortunate instances, the units are rejected for participation until environmental and safety risks are adequately addressed.

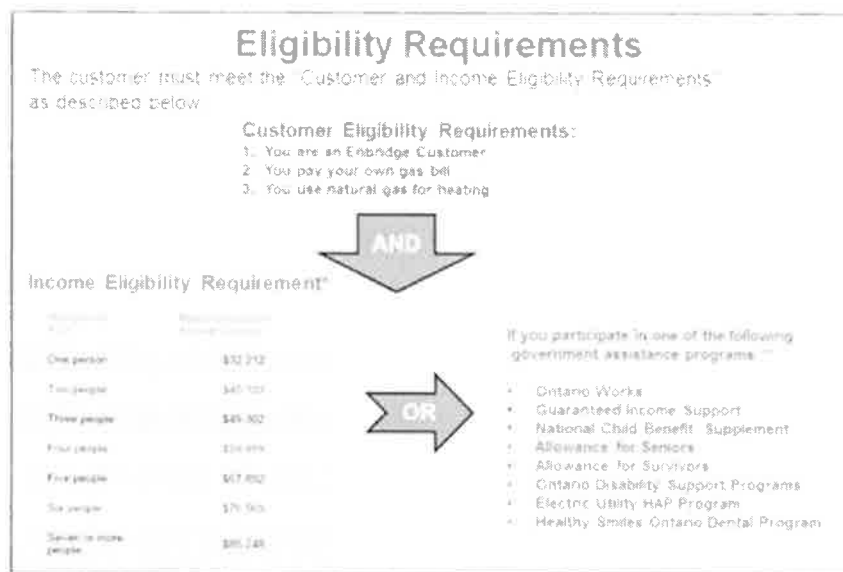
Offer Details: The offer provides a free home assessment and weatherization services (i.e., insulation and air sealing) to qualified Enbridge customers who meet income and customer eligibility criteria. As a direct install offer, there is no financial cost to the participant for the energy assessment or for the weatherization products and services. As a health and safety value-add on, a carbon monoxide monitor is provided where one is not present in the home.

At the time of assessment, the home is also prequalified for water conservation measures (e.g., showerheads and aerators) as well as a programmable thermostat,

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heat reflectors and a drain-water heat recovery unit. Looking forward, Enbridge intends to include a modest furnace replacement component in 2016.

The eligibility requirements for the offer are described in the graphic below:



* The Income Eligibility Requirement is based on Statistics Canada ("StatsCan") Low Income Cut-Off ("LICO") plus 35% based on community size greater than 500,000. The LICO values are updated by StatsCan annually, and adjusted for program purposes accordingly.

** The government assistance programs listed above are income tested programs and may change from time to time.

Customers that qualify for the Board's LEAP initiative automatically meet the income eligibility requirements of the offer.

Witnesses: S. Bertuzzi P. Goldman S. Hicks R. Kennedy	M. Lister E. Lontoc D. Naden F. Oliver-Glasford J. Paris
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Offer Details: The MHHR offer is a no-charge initiative for the customer organized around two concepts. The first is to motivate consumers to change their behaviour by putting their usage in context. The second is to help consumers make energy efficient choices through providing personalized energy efficiency tips, and information on energy efficiency offers that would be relevant to them.

Enbridge's offer is designed with the following characteristics:

1. **Delivery of reports:** Targeted households automatically receive one welcome insert to introduce them to the offer followed by four home energy reports annually. These reports provide periodic updates on the energy usage behaviour of a given household, and offer tips for saving energy. In addition to the physical reports mailed out, reports will also be emailed to those that have provided an email address to Enbridge.
2. **Delivery of web portal:** All participants will have access to a web portal that currently resides on the myEnbridge website. This site will enable participants to create a profile, perform an online audit, access energy savings tips, monitor usage over time, and compare usage to neighbours for benchmarking purposes.
3. **Ability to opt-out:** All participants will have a clear method for opting out of the offer if they no longer want to receive the information.

Once enrolled in the offer, customers will receive individually targeted savings tips based on their energy usage patterns, housing characteristics, and demographics.

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1.0.7 Program Budget

The budget presented in Table 2 below does not include inflation.

Table 2
Residential Program Budget (\$000)

Program Cost	2016	2017	2018	2019	2020
Development and Start-up	\$1,850	\$0	\$0	\$0	\$0
Incentives/Promotion					
<i>Home Reno Rebate</i>	\$7,233	\$9,880	\$12,226	\$12,226	\$12,226
<i>Behavioural</i>	\$1,124	\$3,303	\$3,303	\$3,303	\$3,303
<i>ESK</i>	\$389	\$387	\$386	\$386	\$386
Total	\$8,745	\$13,569	\$15,916	\$15,916	\$15,916
Evaluation	\$559	\$709	\$859	\$859	\$859
Administrative Costs	\$991	\$1,071	\$1,071	\$1,071	\$1,071
Total	\$12,145	\$15,349	\$17,845	\$17,845	\$17,845

1.0.8 Program Participation and Simple Payback

Program Participation

As requested by the Board in the Framework, Table 3 below is a summary of forecasted participants in Union's Residential program per offering. The forecast was developed at the offering level and a customer may choose to participate in multiple offerings.

Table 3
Residential Program Participation

Offering	2016	2017	2018	2019	2020
Home Reno Rebate	3,000	4,000	5,000	5,000	5,000
Behavioural	300,000	300,000	300,000	300,000	300,000
ESK	15,000	15,000	15,000	15,000	15,000

Simple Payback

Simple payback is calculated using the incremental costs of the offering and dividing by the annual gas, electricity and water savings benefits to the customer. The simple payback after a DSM incentive would reduce the incremental cost and therefore, reduce the payback period for the customer. Table 4 provides the simple payback analysis by participant.

1 Home Reno Rebate is strongly aligned with the Board's guiding principles and key priorities,
2 and Union's focus on the offering will correspondingly continue to grow, with increased planned
3 participation over the term of the Plan.

4
5 As well, Union envisions the Home Reno Rebate offering, in tandem with the Behavioural
6 offering, as a critical vehicle for increasing energy literacy amongst Residential customers.
7 Completing an energy assessment is not only a precursor to installing measures that result in
8 long-lived energy savings, but also a source of energy information that can help consumers make
9 informed energy choices on a daily basis.

10 11 **Description**

- 12
- 13 • Participants of the Home Reno Rebate offering work with a partner Service Organization
- 14 to complete an initial energy assessment (known as the "D Assessment") to establish the
- 15 home's current energy use and identify energy saving opportunities in the home. A
- 16 critical component of the D Assessment is a blower door test that measures air tightness.
- 17 • The Service Organization provides a report to the participant outlining energy saving
- 18 opportunities, along with the home's EnerGuide rating and energy saving tips and
- 19 information.
- 20 • Rebates are available for completing energy assessments and implementing opportunities
- 21 recommended from the D Assessment:
 - 22 ○ Building envelope: air sealing and insulation (basement, attic, and exterior wall)
 - 23 ○ Products: furnace, boiler, water heater, window, door or skylight
- 24 • After the upgrades are made, participants complete a second energy assessment (known
- 25 as the "E Assessment") to determine energy savings.
- 26

27 **Target Market**

- 28
- 29 • Home Reno Rebate offering targets residential customers in detached, semi-detached,
- 30 townhouses and individually metered row townhouses. Participants must have a natural
- 31 gas furnace/boiler.
- 32 • Home Reno Rebate participants typically exhibit higher than average natural gas
- 33 consumption and live in homes built prior to 1977.
- 34 • Union intends to target customers across the Union's franchise area. In the 2012-2014
- 35 period, the offering was gradually expanded throughout central and southern Ontario.
- 36

37 **Incentive Level**

- 38
- 39 • Assessment rebates:
 - 40 ○ Union provides a rebate for the D and E Assessments (\$500), provided all of the
 - 41 eligibility criteria and program rules have been met.
- 42 • Measure rebates:

Table 1

Residential Program Budget, 2016 to 2020 (000s)				
Category	Home Reno Rebate	Behavioural	ESK	Total
Direct Budget	\$53,791	\$14,336	\$1,935	\$70,062
Development and Start-up, Evaluation	\$3,600	\$1,925	\$168	\$5,693
Administration				\$5,275
Total Program	\$57,391	\$16,261	\$2,103	\$81,030
Share of portfolio costs	\$7,957	\$2,339	\$313	\$10,609
Shareholder Incentive	\$4,810	\$40	\$116	\$4,966
Total Cost of Savings	\$70,158	\$18,640	\$2,532	\$96,605
Forecast CCM (in3 000)				
	\$71,637	21,268	60,379	653,284
Cost per CCM (cents)	12.3	87.6	4.2	14.8

between the Board's guiding principles, and serve as a complement to the other offerings in Union's Residential Program.

- b) Union processed approximately 690,000 ESKs from 2000 to 2014, and approximately 84,500 Low Income single family homes received basic measure treatment. Union estimates there is a total of approximately 977,000 single family residential customers with natural gas water heating. Therefore, the ESK saturation rate is 79%. Union does not have this information at the individual measure level.
- c) Union would consider allocating the budget towards the Residential Behavioural offering and the Commercial/Industrial custom offering (general service and contract customers).
- d) Union believes that it is appropriate to continue offering a programmable thermostat rebate which is also eligible for adaptive and web-enabled models. These thermostat technologies have important differences from programmable thermostats that may result in uptake within a different set of residential customers in Union's franchise area. Generally speaking, the Union Gas customer tends to lag behind general trends with respect to technology and online behaviours. Union's research indicates that 43% of customers have a low level of comfort using computers¹, have privacy/trust issues related to the internet and generally have a low level of online activity.
- e) Union will consider the introduction of a separate offer for adaptive thermostats over the term of the Plan, and views this as a potential CDM collaboration opportunity. Union is currently engaged with Hydro One in a collaborative Bring Your Own Thermostat ("BYOT") pilot project that is designed to understand the gas and electric savings associated with various adaptive thermostat technologies over a 12 month period.

BOARD STAFF INTERROGATORY #21

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / pp. 27-29

Questions:

- a) For the Residential Adaptive Thermostats offer, please indicate how many LDCs Enbridge has engaged in discussion regarding collaboration to date.
- b) If available, please indicate the typical incentive provided by LDCs for an adaptive thermostat.
- c) Please provide the market penetration rate and the payback period (before and after the financial incentive is applied) in Enbridge's franchise area for the adaptable thermostats.

RESPONSE

- a) Enbridge has met with several LDC's regarding our residential programs. Specifically, Enbridge has discussed adaptive thermostats with three utilities.
- b) To Enbridge's knowledge, Cambridge and North Dumfries Hydro is providing a \$200 rebate for the Nest adaptive thermostat. Many LDC's are also offering Wi-Fi or programmable thermostats, which are not comparable to adaptive thermostats.
- c) Enbridge currently has a substantiation document before the Technical Evaluation Committee for finalization within the Technical Resource Manual ("TRM") to determine the saving amounts to be associated with adaptive thermostats. As a result, a pay payback period cannot be provided at this time. Though the Company does not have data for current market penetration levels, the market for adaptive thermostats is still relatively new and a highly competitive market from a technology perspective.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford

RESOURCE ACQUISITION: RESIDENTIAL

			Enbridge	Union
Offer	Home Energy Conservation (HEC)	Home Reno Rebate		
2016 Budget	\$12.15M (incl. fixed costs)	\$7,23M (incentives/promotion only)		
2016 Target	7,508 participants & 102,622,499 CCM	3,000 participants & 77,950,500 CCM		
Eligibility / Target Market	Residential customer. Must undertake 2 deep measures and save 15% aggregate across all participants	Residential customer, must have natural gas furnace / boiler		
Incentive Structure	\$500 for pre and post energy audits plus: - \$500 for 15-25% savings - \$1,100 for 26-49% savings - \$1,600 for 50%+ savings	\$500 for pre and post energy audits plus: - Rebates for individual measures ranging from \$40 for windows to \$1,500 for exterior insulation - Bonus \$250 for each measure installed beyond first 2 - Maximum incentive amount of \$5,000		
Offer	Adaptive Thermostats	Energy Saving Kit (ESK)		
2016 Budget	\$0.88M (incl. fixed costs)	\$0.39M (incentives/promotion only)		
2016 Target	23,864,839 CCM	11,990,584 CCM		
Eligibility / Target Market	Residential customers	Residential customers that have not received a kit to date and live in detached, semi-detached, townhouses or row houses with natural gas space and water heating		
Incentive Structure	\$75 upon proof of purchase and installation	ESKs are provided at no cost. ESKs include: - showerhead, aerator, pipe wrap, teflon tape, \$25 coupon for purchase of programmable thermostat		

Witnesses: K. Mark
 S. Moffat
 F. Oliver-Glasford
 B. Ott

LOW INCOME

Enbridge		Union
Offer	Home Winterproofing	Home Weatherization
2016 Budget	\$5.76M	\$6.29M (incentives / promotion only)
2016 Target	28,892,118 CCM	32,772,265 CCM
Eligibility / Target Market	Social and assisted housing, and income-qualified customers in low-rise / Part 9 OBC buildings	Social and assisted housing, and income-qualified customers in low-rise / Part 9 OBC buildings
Incentive Structure	<ul style="list-style-type: none"> - No Charge home assessment and weatherization - Direct install of "basic measures" - Health and safety measures as warranted 	<ul style="list-style-type: none"> - A free home energy audit ("Initial Audit") is provided - All qualifying building envelope upgrades are installed for free including: attic insulation, wall insulation, basement insulation and draft-proofing measures - Free installation of up to two energy efficient showerheads, two metres of pipe wrap and a programmable thermostat. Kitchen carbon monoxide detector, and bathroom aerators are left behind for self-installation - Health and safety measures as warranted

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

LOW INCOME (continued)

Enbridge		Union
Offer	Multi-Residential Affordable Housing	Multi-Family
2016 Budget	\$3.28M	\$2.65M (incentives / promotion only)
2016 Target	58,969,452 CCM	17,141,672 CCM
Eligibility / Target Market	Social and assisted housing providers who own and operate Part 3 buildings and private multi-residential building owners that provide housing to low income households. In addition, shelters and supportive housing will be targeted.	Social and Assisted Housing and Low Income Market Rate Multi-Family (LI MR MF) Buildings
Incentive Structure	<ul style="list-style-type: none"> - Half cost of energy audit up to \$5k or \$0.01/m3 of annual consumption - Custom incentive of \$0.40/m3 saved up to 50% of project cost - Variety of prescriptive incentives by technology - In-suite direct install measures at no cost - Free access to benchmarking 	<ul style="list-style-type: none"> - Energy audit costs of up to \$5k per building or \$25k per housing provider - Custom incentives of \$0.10/CCM or up to 50% of project, except windows which are \$1k per unit - In-suite hot water conservation measures provided at no cost to customer
Offer	Low Income New Construction	N/A
Synopsis	Comprehensive new construction offer for low income and affordable housing providers which incorporates some elements of Savings by Design (such as the IDP process)	
Offer	N/A	Aboriginal Offering
Synopsis		Weatherization, Furnace End-of-Life, and ESK offer targeted toward 13 reserves served by Union Gas
Offer	N/A	Furnace End-of-Life Upgrade
Synopsis		Incentive for private market including aboriginal reserves is the full incremental cost of upgrading to a 95% or greater efficiency furnace, when existing furnace reaches end of life. Incentive for social and assisted housing providers is half of the incremental cost.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENERGY MANAGEMENT / PERFORMANCE-BASED CONSERVATION

Enbridge		Union
Offer	Run it Right (RiR)	RunSmart
2016 Budget	\$1.81M (including Energy Compass)	\$82,000 (promotion / incentives only)
2016 Target	75 Participants	25 Participants
Eligibility / Target Market	Wide variety of Commercial rates and customer types	General service Commercial customers with annual consumption greater than 50,000m3. Must not have recently implemented energy conservation measures at their site (i.e. not a DSM participant)
Incentive Structure	Incentives per building are determined through a cross-reference of consumption and complexity, where the smallest and simplest building would receive \$2,500 and a large, complex building could receive \$10,000	<ul style="list-style-type: none"> - No charge for site assessment - No incentive below 5% savings - \$0.20/m3 for savings between 5-10% - Incremental \$0.05/m3 for savings from 10-15% - Incremental \$.10/m3 for savings >15% - Not eligible for custom project incentives
Offer	My Home Health Record	Behavioural Based Programming
2016 Budget	\$3.91M	\$2.67M (\$1.55M start-up; \$1.12M in promotion)
2016 Target	19,500,000 CCM	N/A
Eligibility / Target Market	Residential Customers	Residential Customers
Incentive Structure	Utility pays for home energy reports on behalf of customers.	Utility pays for home energy reports on behalf of customers.
Other Comments	Enbridge intends to launch in 2015 working with Opower with savings targets/claims beginning in 2016. Working with Opower Enbridge can substantiate an approach to determine the persistence/measure life of savings.	Union to conduct procurement in 2015 to determine vendor, with a launch in 2016 and savings targets/claims beginning in 2017. Union has presumed a 1 year standard measure life for behavioural home energy reports.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #13

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 37 Low Income Multi-Residential – Affordable Housing

Preamble: Enbridge indicates that the social and assisted housing segment represents approximately 12% of the total multi-residential housing sector, and 8% of the total multi-residential housing sector is represented by commercial private sector multi-residential buildings.

a) Please quantify the number of existing multi-residential buildings in Enbridge's service territory.

RESPONSE

The total number of existing multi-residential buildings in Enbridge's service area is 9,802.

Witnesses: M. Lister
E. Lontoc

SEC INTERROGATORY #2

INTERROGATORY

Topic 3 - Budgets

No reference

Please provide a side by side comparison of the programs proposed by Enbridge in 2016-2020, and the programs proposed by Union Gas in EB-2015-0029 for the same period, and identify any differences between the programs. Where there are differences,

- a. Please explain the reasons, if any, why Enbridge believes it has proposed a better approach.
- b. Please describe any collaboration or integration activities between Enbridge and Union that have caused dissimilar programs to become more similar.

RESPONSE

A side by side comparison of the programs proposed by Enbridge in 2016 to 2020 by those proposed by Union Gas for the same period is provided in Energy Probe Interrogatory #36, filed at I.T13.EGDI.EP.36.

- a. Enbridge and Union have proposed plans on the basis of their respective research, customers and market understanding. Enbridge proposed an approach which it feels is customer centric, responsive to the Board's direction and addresses the guiding principles and key priorities of the 2015 to 2020 DSM Framework.
- b. Enbridge and Union Gas held a program discovery session on August 13, 2014, as well as several joint Low Income Consultation sessions, wherein programs were discussed and where appropriate adapted. Examples of areas in which there has been some alignment include the following:

Witnesses: P. Goldman
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott

- Enbridge shared its preliminary plans for a Comprehensive, or Strategic, Energy Management offer at the August 13 session;
- In the Industrial market, Enbridge and Union standardized the incentive structure to 10 cents per m³ to a maximum incentive of \$100,000; and,
- In the Low Income market there has been alignment in several areas including around the consistency in offering a CO monitor as part of the health and safety for its weatherization offer.

Witnesses: P. Goldman
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott

Annual Net Gas Savings					
Multi-Year Results	2016	2017	2018	2019	2020
Portfolio	66,861,090	72,320,260	76,626,192	77,840,992	78,993,810
Resource Acquisition	59,701,844	64,502,060	68,657,066	69,872,280	71,169,559
Low Income	5,857,438	6,151,533	6,667,808	6,768,355	6,871,705
Market Transformation	6,509,038	8,333,333	6,506,591	6,001,785	4,762,731
Resource Acquisition	2016	2017	2018	2019	2020
Large C&I Customers Total	40,279,684	40,058,600	40,943,260	41,047,949	41,206,955
Small C&I Customers Total	10,911,505	11,063,600	10,402,236	10,610,277	10,822,487
Adaptive Thermostats	1,590,989	3,177,000	4,765,500	4,989,858	5,135,099
Home Energy Conservation	6,841,500	9,112,000	11,249,383	11,798,048	12,281,470
Total Forecast	59,701,844	64,502,060	68,657,066	69,872,280	71,169,559
Low Income	2016	2017	2018	2019	2020
Multi-Family Homes - Part 3	3,931,297	4,130,200	4,646,475	4,766,646	4,889,430
Single Family Homes - Part 9	1,926,141	2,021,333	2,021,333	2,001,709	1,982,275
Total Forecast	5,857,438	6,151,533	6,667,808	6,768,355	6,871,705
MTEM	2016	2017	2018	2019	2020
O-Power	6,509,038	8,333,333	6,506,591	6,001,785	4,762,731
Total Forecast	6,509,038	8,333,333	6,506,591	6,001,785	4,762,731

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

- b) Below please find a chart that provides annual CCM natural gas savings targets by offer / initiative during the 2016 to 2020 period.

Cumulative Cubic Metres (CCM)					
Resource Acquisition	2016	2017	2018	2019	2020
Large C&I Customers Total	604,195,262	600,879,000	614,148,900	615,719,228	618,104,330
<i>Large Custom</i>	541,170,423	538,200,087	550,085,776	551,492,300	553,628,608
<i>Large Prescriptive</i>	63,024,839	62,678,913	64,063,124	64,226,928	64,475,723
<i>Large DI</i>	0	0	0	0	0
Small C&I Customers Total	163,672,568	165,954,000	156,033,535	159,154,161	162,337,299
<i>Small Custom</i>	32,895,470	33,354,000	31,360,151	31,987,345	32,627,103
<i>Small Prescriptive</i>	70,418,437	71,400,000	67,131,822	68,474,439	69,843,952
<i>Small DI</i>	60,358,661	61,200,000	57,541,562	58,692,377	59,866,244
Small Commercial New Construction	0	14,620,000	17,960,200	19,548,431	23,236,432
Adaptive Thermostats	23,864,839	47,655,000	71,482,500	74,847,871	77,026,478
Home Energy Conservation	102,622,499	136,680,000	168,740,741	176,970,719	184,222,043
Run It Right	303,005	421,124	592,254	768,306	907,297
Industrial CEM	869,485	1,321,771	897,856	1,075,479	1,709,498
Total CCM Forecast	895,527,658	967,530,895	1,029,855,985	1,048,084,195	1,067,543,378
Low Income	2016	2017	2018	2019	2020
Multi-Family Homes - Part 3	58,969,452	61,953,000	69,697,121	71,499,695	73,341,453
Single Family Homes - Part 9	28,892,118	30,320,000	30,320,000	30,025,631	29,734,120
Total CCM Forecast	87,861,570	92,273,000	100,017,121	101,525,326	103,075,573
MTEM	2016	2017	2018	2019	2020
O-Power	19,527,114	25,000,000	19,519,774	18,005,354	14,288,193
Total CCM Forecast	19,527,114	25,000,000	19,519,774	18,005,354	14,288,193

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

Target Scenarios						
Resource Acquisition Targets	Metric	2016	2017	2018	2019 (2% Escalator)	2020 (2% Escalator)
Large C&I Customers	CCM	604,195,262	600,879,000	614,148,900	615,719,228	618,104,330
Large Custom	CCM	541,170,423	538,200,087	550,085,776	551,492,300	553,628,608
Large Prescriptive	CCM	63,024,839	62,678,913	64,063,124	64,226,928	64,475,723
Large DI	CCM	0	0	0	0	0
Small C&I Customers	CCM	163,672,568	165,954,000	156,033,535	159,154,161	162,337,299
Small Custom	CCM	32,895,470	33,354,000	31,360,151	31,987,345	32,627,103
Small Prescriptive	CCM	70,418,437	71,400,000	67,131,822	68,474,439	69,843,952
Small DI	CCM	60,358,661	61,200,000	57,541,562	58,692,377	59,866,244
Small Commercial New Construction	CCM	0	14,620,000	17,960,200	19,548,431	23,236,432
Energy Leaders Fund	CCM					
Residential Thermostats	CCM	23,864,839	47,655,000	71,482,500	74,847,871	77,026,478
Residential Home Energy Conservation (HEC)	Participants	7,508	10,000	12,346	12,948	13,478
	CCM	102,622,499	136,680,000	168,740,741	176,970,719	184,222,043
Total CCM Forecast		894,355,168	965,788,000	1,028,365,875	1,046,240,410	1,064,926,582

- c) No, Enbridge has not proposed any changes to address how savings from new furnaces are estimated.
- d) Please see chart from answer b).
- e) No, Enbridge is not proposing any changes to the current list of measures that would count towards the minimum requirement of two major measures.

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

Target Scenarios						
Resource Acquisition Targets	Metric	2016	2017	2018	2019	2020
Large C&I Customers	CCM	604,195,262	600,879,000	614,148,900	615,719,228	618,104,330
Large Custom	CCM	541,170,423	538,200,087	550,085,776	551,492,300	553,628,608
Large Prescriptive	CCM	63,024,839	62,678,913	64,063,124	64,226,928	64,475,723
Large DI	CCM	0	0	0	0	0
Small C&I Customers	CCM	163,672,568	165,954,000	156,033,535	159,154,161	162,337,299
Small Custom	CCM	32,895,470	33,354,000	31,360,151	31,987,345	32,627,103
Small Prescriptive	CCM	70,418,437	71,400,000	67,131,822	68,474,439	69,843,952
Small DI	CCM	60,358,661	61,200,000	57,541,562	58,692,377	59,866,244
Small Commercial New Construction	CCM	0	14,620,000	17,960,200	19,548,431	23,236,432
Energy Leaders Fund	CCM	0	0	0	0	0
Residential Thermostats	CCM	23,864,839	47,655,000	71,482,500	74,847,871	77,026,478
Residential Home Energy Conservation (HEC)	Participants	7,508	10,000	12,346	12,948	13,478
	CCM	102,622,499	136,680,000	168,740,741	176,970,719	184,222,043
Total CCM Forecast		894,355,168	965,788,000	1,028,365,875	1,046,240,410	1,064,926,582

- v. No, Enbridge is not proposing any changes to the way that new furnace savings are estimated.
- c) i – iii Please see the response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16.
- iv Enbridge is not proposing to change the current list of measures that would count towards the minimum requirement of two major measures.

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

Resource Acquisition	Cost Effectiveness				
	2016 \$/CCM or \$/Participant	2017 \$/CCM or \$/Participant	2018 \$/CCM or \$/Participant	2019 \$/CCM or \$/Participant	2020 \$/CCM or \$/Participant
Large C&I Customers (Sum)	\$0.0123	\$0.0126	\$0.0128	\$0.0130	\$0.0132
<i>Large Custom</i>	\$0.0114	\$0.0117	\$0.0119	\$0.0121	\$0.0123
<i>Large Prescriptive</i>	\$0.0195	\$0.0200	\$0.0203	\$0.0207	\$0.0210
Small C&I Customers (Sum)	\$0.0414	\$0.0417	\$0.0417	\$0.0417	\$0.0417
<i>Small Custom</i>	\$0.0257	\$0.0259	\$0.0259	\$0.0259	\$0.0259
<i>Small Prescriptive</i>	\$0.0138	\$0.0139	\$0.0139	\$0.0139	\$0.0139
<i>Small DI</i>	\$0.0821	\$0.0827	\$0.0827	\$0.0827	\$0.0827
Small Commercial New Construc.	N/A	\$0.0893	\$0.1335	\$0.1251	\$0.1073
Residential Thermostats	\$0.0367	\$0.0320	\$0.0304	\$0.0296	\$0.0294
Residential HEC (CCM)	\$0.1184	\$0.1111	\$0.1067	\$0.1037	\$0.1017
TOTAL	\$0.0330	\$0.0362	\$0.0385	\$0.0386	\$0.0387

f) Please see response to Energy Probe Interrogatory #37 found at Exhibit I.T13.EGDI.EP.37.

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

ii) Below please find below forecasted budgets for marketing for all 22 offers for the years 2016 to 2020:

Offer Description	Marketing Costs *					5 Year Total
	2016	2017	2018	2019	2020	
Custom Industrial	N/A	N/A	N/A	N/A	N/A	N/A
Custom Commercial	N/A	N/A	N/A	N/A	N/A	N/A
C/I Custom	\$1,616,064	\$1,647,914	\$1,673,690	\$1,707,163	\$1,741,307	\$8,386,138
C/I Direct Install	\$1,307,771	\$1,335,600	\$1,255,761	\$1,280,876	\$1,306,494	\$6,486,502
C/I Prescriptive	\$742,420	\$757,087	\$767,240	\$782,584	\$798,236	\$3,847,567
Energy Leaders	\$100,000	\$150,000	\$200,000	\$204,000	\$208,080	\$862,080
Residential Home Energy Conservation	\$3,003,292	\$3,000,000	\$2,538,787	\$2,265,268	\$2,310,574	\$13,117,921
Residential Adaptive Thermostats	\$200,313	\$175,000	\$150,000	\$98,164	\$80,817	\$704,294
Small Commercial New Construction	\$396,933	\$883,657	\$1,547,082	\$1,467,340	\$1,331,835	\$5,626,847
Multi-Family Homes - Part 3	\$852,547	\$888,711	\$991,457	\$1,011,286	\$1,031,512	\$4,775,514
Home Winterproofing - Part 9	\$929,604	\$1,007,760	\$1,037,993	\$1,058,753	\$1,079,928	\$5,114,038
New Construction	\$217,142	\$163,823	\$142,060	\$194,949	\$453,228	\$1,171,201
SBD -Residential	\$500,130	\$500,000	\$500,000	\$510,837	\$521,892	\$2,532,859
SBD - Commercial	\$498,478	\$500,000	\$500,000	\$457,625	\$423,422	\$2,379,525
New Construction Commissioning	\$600,000	\$600,000	\$600,000	\$556,364	\$520,200	\$2,876,564
Opower	\$150,209	\$200,000	\$200,203	\$167,492	\$171,116	\$889,019
Home Rating	\$990,000	\$990,000	\$990,000	\$990,000	\$990,000	\$4,950,000
Energy Compass	\$302,197	\$400,000	\$200,000	\$204,000	\$208,080	\$1,314,277
School Energy Competition	\$271,977	\$540,000	\$450,000	\$459,000	\$468,180	\$2,189,157
Run It Right	\$1,243,540	\$1,415,560	\$1,563,700	\$1,597,593	\$1,632,164	\$7,452,558
Small Commercial and Industrial Behavioural	N/A	N/A	N/A	N/A	N/A	\$0
Comprehensive Energy Management	\$39,648	\$44,200	\$65,989	\$51,926	\$45,972	\$247,735
Energy Literacy	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$13,962,267	\$15,199,312	\$15,373,960	\$15,065,221	\$15,323,034	\$74,923,794

Witnesses: S. Bertuzzi
 P. Goldman
 R. Kennedy
 M. Lister
 E. Lontoc

S. Moffat
 F. Oliver-Glasford
 B. Ott
 J. Paris
 R. Sigurdson

GEC INTERROGATORY #23

INTERROGATORY

Reference: Exh. B/T2/S1 pp. 22-29:

Regarding the Company's proposed HEC program:

- a. The Company has identified several features of homes that it has considered to be the target market for the program for the program in the past (p. 24).
 - i. Does the Company still consider this to be the target market? If not, what has changed?
 - ii. How many still unserved homes does Enbridge estimate are in this target market?
 - iii. Are these the only homes that could potentially benefit from program services? Or do homes with other characteristics (e.g. dwellings built more than 30 years ago) have potential to participate as well? If no homes with different characteristics are likely to be good candidates for the program, please explain why.
- b. What is the basis for the statement that past federal and provincial incentives reached approximately \$10,000 per home (p. 24)?
- c. The Company is proposing a three-tiered incentive structure: 1) for savings between 15 and 25%; (2) for savings between 26% and 49%; and (3) for savings of 50% or more. Historically, what portion of the Company's program participants fell into each of these three categories?
- d. What is the actual average annual consumption of the programs 2014 participants prior to their participation?

RESPONSE

- a)
 - i. No, Enbridge is not only considering the target market it approached in the past. Our modified new target market has been broadened to include all homes in the Enbridge franchise area that can save 15%+ in annual gas savings.
 - ii. In 2016, Enbridge will open the program up franchise wide where we have approximately 1.9 million residential customers. As per EB-2015-0049, at Exhibit C, Tab1, Schedule 1, page 32 and 33 of 160, "Enbridge does not track the housing type associated with its accounts." Therefore, we assume that 5% of

Witnesses: S. Bertuzzi
M. Lister
K. Mark
F. Oliver-Glasford

the 1.9 million residential customers are individually metered condos/apartments which would not qualify for the program leaving approximately 1.8 million residential customers minus program participants to date leaving approximately 1.79 million participants unserved.

Please note, there are unserved participants that will be unable to qualify for the program as they will not be able to achieve the savings required.

Examples of those would be:

- ecoENERGY program participants (approx. 200,000)
- Energy Star built home customers (approx.. 30,000)
- Homes built to code in the last 10 years (approx. 200,000)

Using these examples would reduce the total potential to serving approximately 1.36 million residential customers

iii. Please see above answer in a) i

- b) The basis for this statement is that the provincial and federal governments had larger incentive amounts associated with their program to entice consumers to retrofit their homes. Enbridge's program offers up to a maximum of \$2100 for gas savings only.
- c) In 2014, Enbridge did not have a tier for 15 to 25% however since the overall customer portfolio average was required to be 25%. The Company did note some customers falling within the 15-25% range and below. The results are:

Gas Saving %	Participant
9% - 14%	5
15% - 25%	1007
26% - 49%	4095
50% +	106
Total	5213

Witnesses: S. Bertuzzi
M. Lister
K. Mark
F. Oliver-Glasford

BOARD STAFF INTERROGATORY #21

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / pp. 27-29

Questions:

- a) For the Residential Adaptive Thermostats offer, please indicate how many LDCs Enbridge has engaged in discussion regarding collaboration to date.
- b) If available, please indicate the typical incentive provided by LDCs for an adaptive thermostat.
- c) Please provide the market penetration rate and the payback period (before and after the financial incentive is applied) in Enbridge's franchise area for the adaptable thermostats.

RESPONSE

- a) Enbridge has met with several LDC's regarding our residential programs. Specifically, Enbridge has discussed adaptive thermostats with three utilities.
- b) To Enbridge's knowledge, Cambridge and North Dumfries Hydro is providing a \$200 rebate for the Nest adaptive thermostat. Many LDC's are also offering Wi-Fi or programmable thermostats, which are not comparable to adaptive thermostats.
- c) Enbridge currently has a substantiation document before the Technical Evaluation Committee for finalization within the Technical Resource Manual ("TRM") to determine the saving amounts to be associated with adaptive thermostats. As a result, a pay payback period cannot be provided at this time. Though the Company does not have data for current market penetration levels, the market for adaptive thermostats is still relatively new and a highly competitive market from a technology perspective.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford

Small C&I Customers (CCM)	163,672,568	54,347,034	The 2016 Target was proposed using multiple factors; - The Direct Install target is largely a new customers that would not install the high efficient technology without the Direct Install Offer from Enbridge - Assumption is that the increased incentive will drive more results - The separate bucket for small Commercial will encourage a focus on small volume customers that typically yield little savings compared to large customers	The budget was based on looking at the cost to run the offer today and factoring in the increase in expected results, the increase in the prescriptive incentives and the cost to run the Direct Install Offer Higher incentives for this sector is necessary to improve ROI which plays a crucial role to this customer base.
Small Custom	32,895,470	22,745,000		
Small Prescriptive	70,418,437	31,602,034		
Small DI	60,358,661	0		
Home Energy Conservation	7,508	2,357	The launch of the program in 2012 had a target of 160 and in 2014 Enbridge reached preliminary results of 5213. Enbridge looked at the market potential, understanding participation in previous NRCan program, results to date and opening the program franchise wide for 2016. Therefore Enbridge came up with a target of 7508 for 2016 with increasing targets year over year. The target is also tied to budget with keeping the overall RA portfolio whole in spending.	Enbridge determined the budget by looking at all of Resource Acquisition to determine targets for Residential, Commercial and Industrial. Being the Home Energy Conservation program has been in the market since 2012, Enbridge has a participant cost of \$1650/participant and leveraged similar cost/participant values in developing for 2016 and beyond.
Adaptive Thermostats	9,000	n/a	Adaptive thermostats is new to the portfolio in 2016. Enbridge reviewed a report done by Navigant to determine an appropriate growth rate of 0.5% in 2016; 1% in 2017, 1.5% in 2018; 2% for 2019 and 2020. The proposed growth rate is a 2.3% increase over Navigant study.	The budget for Adaptive thermostats was determined by the cost of the thermostat and an appropriate incentive amount to entice customers to adopt this technology while ensuring CCM is provided to the RA portfolio. Enbridge looked at the previous programmable thermostat offer and applied the same logic to this new program.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott

P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

VECC Cross Enbridge Panel 2
EB-2015-0049/EB-2015-0029

<u>DSM Program Comparison</u>	2016	2017	2018	2019	2020	2016-2020
Enbridge Home Energy Conservation						<u>Reference</u>
Direct Budget \$ (excludes O/H)	12,150,000	15,180,000	18,000,000	18,360,000	18,730,000	82,420,000 B.1.4 P9
Participants	7,508	10,000	12,346	12,948	13,478	56,280 I.T2.EGDI.EP.19
\$/Participant	1,618	1,518	1,458	1,418	1,390	1,464
CCM	102,622,499	136,680,000	168,740,741	176,970,719	184,222,043	769,236,002 I.T2.EGDI.Staff.7
 \$/CCM	 \$0.1184	 \$0.1111	 \$0.1067	 \$0.1037	 \$0.1017	 \$0.1083 I.T3.EGDI.EP.14
Union Home Reno Rebate						
Direct Budget \$	7,233,000	9,880,000	12,226,000	12,226,000	12,226,000	53,791,000 Union A.3.Appendix A P14
Participants	3,000	4,000	5,000	5,000	5,000	22,000 Union A.3.Appendix A P14
\$/Participant	2,411	2,470	2,445	2,445	2,445	2,445
Cost Comparison						166.96%
 Enbridge My Home Health Record						
Direct Budget \$ (excludes O/H)	3,910,000	6,910,000	6,910,000	7,060,000	7,210,000	32,000,000 B.1.4 P27
Participants	500,000	1,000,000	1,000,000	1,350,000	1,350,000	5,200,000 I.T2.EGDI.GEC.16
\$/Participant	7.82	6.91	6.91	5.23	5.34	6.15
CCM	19,527,114	25,000,000	19,519,774	18,005,354	14,288,193	96,340,435 I.T2.EGDI.Staff.7
 \$/CCM						\$0.332 VECC Calculation
 Union Behavioural Offering						
Direct Budget \$	1,124,000	3,303,000	3,303,000	3,303,000	3,303,000	14,336,000 Union A.3.Appendix A P14
Participants	300,000	300,000	300,000	300,000	300,000	1,500,000 Union A.3.Appendix A P14
\$/Participant	3.75	11.01	11.01	11.01	11.01	9.56
Cost Comparison						155.31%