2019 Demand Side Management Annual Report

Enbridge Gas Inc.
March 9, 2021

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Executive Summary

Enbridge Gas Inc. (“Enbridge Gas” or “the Company”) reports 2.1 billion lifetime cubic meters of natural gas saved from its DSM activities in 2019. These savings are a direct result of the Company’s ongoing efforts delivering resource acquisition programs to residential, commercial, and industrial customers. Results attributable to market transformation programs are not included in this total, as results for these programs are not measured by cubic meters of natural gas saved.

A summary of the Company’s 2019 DSM results, budgets, and spend is provided in Table ES1 below.

Table ES1. 2019 DSM Results, Budgets, and Spend Summary

ITEM	EGD RATE ZONE	UNION RATE ZONES
Net Cumulative Natural Gas Savings	988,545,151 m^3	1,087,316,514 m^3
Budget	$66,421,773	$63,268,773
Actual Spend	$72,843,440	$65,604,306
Shareholder Incentive Achievement	$6,717,372	$5,950,363
Lost Distribution Revenue	$30,969	$186,485

1. Introduction

Enbridge Gas has been designing and delivering DSM programs under OEB frameworks for nearly 25 years. Since 1995, Enbridge Gas has saved its customers 30 billion lifetime cubic meters of natural gas and 56.2 million tonnes of greenhouse gas emissions, the equivalent of taking 12.2 million cars of the road for a year.

The 2019 Annual Report provides a summary of Enbridge Gas' DSM activities and results during the 2019 program year, including:

- A summary of the DSM Framework as it relates to the 2019 program year (Section 2);
- OEB data reporting requirements (Sections 3 and 4);
- Program and offering summaries, including offering results, offering changes, lessons learned, and anticipated offering changes for 2020 (Sections 5 and 6);
- Evaluation activities (Section 7); and,
- Results, including scorecard results, shareholder incentive achievement, lost distribution revenue calculations, cost-effectiveness results, budgets and spending (Sections 8 and 9).

At the current time, Ontario and many other jurisdictions around the world are experiencing the effects of the COVID-19 pandemic. While the 2019 program year was not impacted by the pandemic, this report does reference anticipated offering changes in 2020. The future offering changes outlined in this report do not include considerations for the pandemic. Any such considerations will be discussed in the Company's 2020 Annual Report.

2. DSM Framework

On December 22, 2014 the OEB released its Demand Side Management Framework for Natural Gas Distributors (2015-2020) (EB-2014-0134) ("DSM Framework") and Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020) (EB-2014-0134) ("DSM Guidelines"). Given the timing, the OEB instructed that 2015 should be treated as a transition year, and that the natural gas utilities should "roll-forward their 2014 DSM plans, including all programs and parameters (i.e., budget, targets, incentive structure) into 2015".[1] Meanwhile, the natural gas utilities began developing DSM plans with new and expanded offerings in response to the new DSM Framework for 2016-2020.

Throughout 2017 and 2018, the OEB undertook a mid-term review. On November 28, 2018 the OEB released its Mid-Term Review of the Demand Side Management Framework for Natural Gas Distributors (2015-2020) (EB-2017-0127 & EB-2017-0128) ("Mid-Term Report").

On November 27, 2019 Enbridge Gas filed a request for the OEB to issue an extension of the current DSM Framework for one year (to December 31, 2021) along with an application to roll-forward the Company's OEB-approved DSM plans to 2021. The submission was made to reflect the concern that it was no longer reasonable to assume a post-2020 DSM framework followed by a multi-year plan could be completed, reviewed and approved in time for the 2021 DSM program year. On July 16, 2020, the OEB approved the application as filed.[2]

2.1 2015-2020 DSM PLANS

On April 1, 2015, Enbridge Gas Distribution Inc. ("EGD") and Union Gas Limited ("Union") filed respective 2015-2020 DSM Plans (EB-2015-0049 & EB-2015-0029, respectively). On January 20, 2016 the OEB released its Decision and Order on EGD's and Union's 2015-2020 DSM Plans (EB-2015-0049/EB-2015-0029) ("Decision"), and published an update to the Decision on February 24, 2016. As part of its Decision, the OEB approved many of the proposed programs, scorecards, metrics, targets, and budgets but also directed certain revisions to be made.

On January 1, 2019 EGD and Union amalgamated to become Enbridge Gas Inc. ("Enbridge Gas"). Enbridge Gas continues to operate and report on the two DSM portfolios independently (within the EGD rate zone and the Union rate zones) to reflect the manner in which programs, scorecards, metrics, targets, and budgets were approved by the OEB. Where customer-facing alignment is possible to provide consistent province-wide program experiences, Enbridge Gas has made all reasonable efforts to do so. Alignment activities are discussed throughout this report.

The OEB designed the DSM Framework to have "the flexibility to allow gas utilities to adapt and change with the market, the stability to ensure programs remain in place so customers can participate, and provides the continuity to manage DSM programs in a changing environment."[3] With these goals in mind, Enbridge Gas may introduce, change or discontinue activities in response to changing market conditions and customer needs, within the constraints of the DSM Framework and DSM Guidelines. Any changes are discussed throughout this report.

[1] *Report of the Board, DSM Framework for Natural Gas Distributors (2015-2020), EB-2014-0134, Section 15.1, p.37*
[2] *Decision and order, Application for approval of natural gas demand side management plans for 2021, EB-2019-0271*
[3] *Report of the Board, DSM Framework for Natural Gas Distributors (2015-2020), EB-2014-0134, Section 1.2, p.3*

The structure of the 2019 DSM portfolios for the EGD rate zone and the Union rate zones are shown in Table 2.0 and Table 2.1 below, respectively. Each scorecard contains one or more programs, and each program provides one or more offerings to customers. Offerings are bundles of energy efficiency measures, initiatives, and/or services.

Table 2.0 2019 DSM Portfolio (EGD Rate Zone)

DSM SCORECARD	DSM PROGRAM	DSM OFFERING
Resource Acquisition Scorecard	Resource Acquisition Program	Home Efficiency Rebate Offering
		Residential Adaptive Thermostats Offering
		Commercial & Industrial Prescriptive (Fixed) Incentive Offering
		Commercial & Industrial Direct Install Offering
		Custom Commercial Offering
		Custom Industrial Offering
		Energy Leaders Offering
Low-Income Scorecard	Low-Income Program	Home Winterproofing Offering
		Multi-Residential Affordable Housing Offering
		Savings by Design Affordable Housing Offering
Market Transformation & Energy Management Scorecard	Market Transformation & Energy Management Program	Savings by Design Residential Offering
		Savings by Design Commercial Offering
		School Energy Competition Offering
		Run it Right Offering*
		Comprehensive Energy Management Offering*

*Run it Right Offering and Comprehensive Energy Management Offering include savings attributed to the Resource Acquisition Scorecard

Table 2.1 2019 DSM Portfolio (Union Rate Zones)

DSM SCORECARD	DSM PROGRAM	DSM OFFERING
Resource Acquisition Scorecard	Residential Program	Home Efficiency Rebate Offering
		Residential Adaptive Thermostats Offering
	Commercial/Industrial Program	Commercial/Industrial Prescriptive Offering
		Commercial/Industrial Custom Offering
		Commercial/Industrial Direct Install Offering
Performance-Based Scorecard	Performance-Based Program	RunSmart Offering
		Strategic Energy Management Offering
Low-Income Scorecard	Low-Income Program	Home Weatherization Offering
		Multi-Residential Affordable Housing Offering
		Indigenous Offering
		Furnace End-of-Life Upgrade Offering
Large Volume Scorecard	Large Volume Program	Large Volume Direct Access Offering
Market Transformation Scorecard	Market Transformation Program	Optimum Home Offering
		Commercial Savings by Design Offering

2.2 SCORECARD TARGET SETTING

For the 2019 program year, scorecard targets have been set based on the methodologies provided by the OEB in its Mid-Term Report. See Appendix B for the 2019 scorecard target setting methodology, and Sections 8.1 and 9.1 for the calculated 2019 scorecard targets and results for the EGD rate zone and the Union rate zones, respectively.

2.3 EVALUATION GOVERNANCE

As outlined in the DSM Framework, the Board indicated it "is of the view that it is in the best position to coordinate the evaluation process throughout the DSM framework period"[4]. On August 21, 2015, the Board released a letter which provided additional details regarding the new evaluation governance structure[5]. This letter included the following information:

- The OEB would be responsible for coordinating and overseeing the evaluation and audit process, including selecting a third-party Evaluation Contractor ("EC").
- The EC would carry out the evaluation and audit processes and would draft an EM&V Plan for the natural gas utilities' DSM programs.
- An Evaluation Advisory Committee ("EAC") would be formed to provide input and advice to the OEB on the development of the plan and on the evaluation and audit of the DSM results.

Furthermore, the letter noted that the EAC would be comprised of:

- Experts representing non-utility stakeholders, with demonstrated experience and expertise in the evaluation of DSM technologies and programs, natural gas energy efficiency technologies, multi-year impact assessments, net-to-gross ("NTG") studies, free ridership analysis and natural gas energy efficiency persistence analysis;
- Expert(s) retained by the OEB;
- Representatives from the Independent Electricity System Operator ("IESO");
- Representatives from each natural gas utility; and,
- Representatives from the Ministry of Energy and the Environmental Commissioner of Ontario, who will participate as observers.

In 2019, the OEB-appointed non-utility stakeholder members of the EAC were:

- Chris Neme, Energy Futures Group
- Jay Shepherd, Shepherd Rubenstein Professional Corporation

In 2019, the independent expert members of the EAC were:

- Ted Kesik, Knowledge Mapping Inc.
- Robert Wirtshafter, Wirtshafter Associates Inc.

[4] DSM Framework, p. 30
[5] OEB letter, 2015-2020 DSM Evaluation Process of Program Results (EB-2015-0245), August 21, 2015

Non-utility stakeholders and independent experts are expected to provide input and advice based on their experience and technical expertise and not to advocate for the position of parties they have represented before the OEB in various proceedings.

2.4 COST-EFFECTIVENESS SCREENING

Cost-effectiveness screening for the 2015-2020 DSM Framework uses an enhanced Total Resource Cost test, called the "TRC-Plus" test, which includes a 15% adder to account for the non-energy benefits of DSM, such as improvements to the environment, economy and society.

For programs measured by cumulative natural gas savings, excluding low-income programs, the program is considered cost-effective if the ratio of the present value of the TRC-Plus benefits to the TRC costs exceeds 1.0. To recognize that low-income programs may result in additional benefits not captured by the TRC-Plus test, low-income programs are screened using a TRC-Plus threshold of 0.7. Market transformation programs are assessed based on the objectives of the program and are not tested against a TRC-Plus ratio threshold. A secondary reference tool is the Program Administrator Cost ("PAC") est. For more information on the TRC-Plus test and the PAC test, please refer to Section 9 of the DSM Guidelines.

The cost-effectiveness tests are used to screen for cost-effectiveness at the program and portfolio level. See Section 2.1 for the 2019 DSM portfolio structures, and Sections 8.3 and 9.3 for the 2019 TRC-Plus test and PAC test results for EGD rate zone and Union rate zones, respectively.

2.5 AVOIDED COST ASSUMPTIONS

Avoided cost assumptions reflect "the benefit of not having to provide an extra unit of supply of natural gas, or other resources … through the delivery of DSM programs"[6]. For more information on avoided cost assumptions, please refer to Section 10 of the DSM Guidelines.

The 2019 avoided cost assumptions for the EGD rate zone and the Union rate zones can be found in Appendix A. As per the direction provided in the OEB's Mid-Term Report[7], Enbridge Gas includes the avoided cost of carbon within its avoided cost assumptions (in addition to the avoided costs of natural gas, electricity, and water).

2.6 TECHNICAL RESOURCE MANUAL

The Technical Resource Manual ("TRM") provides prescribed assumptions (including energy savings and measure lives) for several energy efficient technologies. Enbridge Gas uses the TRM as the basis for prescriptive and quasi-prescriptive measures it offers to customers. For more information on the TRM, please refer to summary provided at the outset of the TRM[8].

The TRM is reviewed annually by the Evaluation Contractor to make appropriate updates or revisions to existing measures, add new measures, or retire measures which are no longer relevant.

For the purpose of determining 2019 shareholder incentives for prescriptive and quasi-prescriptive measures, TRM Version 3.0 has been used (released on November 30, 2018). This version was updated by the Evaluation Contractor with input from Enbridge Gas and the rest of the EAC, and reflect the following changes:

[6] *DSM Guidelines, p. 34*
[7] *Mid-Term Report, p. 28*
[8] https://www.oeb.ca/industry/policy-initiatives-and-consultations/natural-gas-demand-side-management-dsm

- Expanding the Commercial Demand Control Ventilation measure to include new market types while also updating the existing Office/Retail measure for consistency in assumptions;
- Revising the Commercial High Volume Low Speed ("HVLS") Destratification Fan measure;
- Revising the Residential and Multi-Residential Low-Flow Showerhead measures for changes to building code in new construction applications; and,
- An update to the Common Assumptions input variables for heating hours per year and heating days per year (Commercial Air Curtains, Commercial Energy Recovery Ventilators (ERVs), Commercial Heat Recovery Ventilators (HRVs), and Residential Pipe Wrap measures were all revised accordingly).

For the purpose of determining 2019 lost distribution revenue for prescriptive and quasi-prescriptive measures, TRM Version 4.0 has been used (released on January 10, 2020).

All version of the TRM can be accessed on the OEB website: https://www.oeb.ca/industry/policy-initiatives-and-consultations/natural-gas-demand-side-management-dsm

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3. OEB Data Reporting Requirements (EGD Rate Zone)

Section 3 provides the OEB's reporting requirements for the EGD rate zone, as per Section 14.2 of the DSM Guidelines.

Table 3.0 Annual and Long-Term DSM Budgets ($ million) (EGD Rate Zone)

PROGRAM	2015	2016	2017	2018	2019	2020	TOTAL (6YEARS)
Resource Acquisition	$19.175	$34.337	$39.489	$43.162	$42.056	$42.909	$221.128
Low-Income	$7.382	$11.945	$12.527	$13.309	$13.577	$13.850	$72.591
Market Transformation & Energy Management	$6.245	$6.579	$6.718	$6.882	$7.030	$7.181	$40.635
Portfolio Level	$4.920	$3.500	$4.200	$4.200	$3.758	$3.818	$24.397
Total	**$37.722**	**$56.361**	**$62.934**	**$67.554**	**$66.422**	**$67.757**	**$358.750**

Table 3.1 Actual Annual Total DSM Costs* ($ million) (EGD Rate Zone)

RATE CLASS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate 1	$11.894	$12.546	$14.795	$12.468	$14.215	$17.935	$13.882	$23.507	$26.856	$42.391	$44.206	$50.048	$54.977
Rate 6	$2.848	$7.519	$7.487	$10.713	$15.103	$17.127	$15.173	$13.901	$15.646	$17.001	$17.463	$17.616	$21.564
Rate 9	-	-	-	-	-	$0.001	$0.001	$0.002	$0.002	$0.002	$0.002	$0.003	$0.003
Rate 100	$8.950	$3.202	$2.667	$0.086	$0.018	-	-	-	-	-	-	-	$0.370
Rate 110	$3.658	$1.042	$1.944	$1.471	$1.048	$0.784	$0.937	$1.190	$1.900	$1.251	$1.462	$0.918	$0.937
Rate 115	$0.643	$1.717	$1.314	$0.545	$0.602	$1.329	$1.420	$0.567	$0.658	$0.532	$0.588	$0.274	$0.930
Rate 125	-	-	-	-	-	$0.053	$0.053	$0.064	$0.069	$0.076	$0.086	$0.110	$0.099
Rate 135	$0.002	$0.080	$0.012	$0.059	$0.122	$0.441	$0.320	$0.124	$0.059	$0.086	$0.384	$0.407	$0.301
Rate 145	$0.855	$0.902	$0.677	$0.730	$0.655	$0.496	$0.369	$0.254	$0.152	$0.084	$0.090	$0.551	$0.084
Rate 170	$0.295	$1.861	$1.844	$2.041	$2.195	$0.536	$0.149	$0.458	$0.403	$0.574	$0.176	$0.176	$0.285
Rate 200	-	-	-	-	-	$0.019	$0.018	$0.022	$0.024	$0.026	$0.030	$0.038	$0.034
Rate 300	-	-	-	-	-	$0.004	$0.004	$0.004	$0.005	$0.005	$0.006	$0.007	$0.007
Total	**$29.146**	**$28.867**	**$30.739**	**$28.113**	**$33.958**	**$38.726**	**$32.328**	**$40.093**	**$45.773**	**$62.029**	**$64.492**	**$70.148**	**$79.592**

**Figures include all DSM spend, shareholder incentive, and lost distribution revenue*

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Table 3.2 Historic Annual Total DSM Spending ($ million) (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total DSM Spending	$21.20	$23.03	$25.42	$24.00	$27.24	$30.61	$27.84	$32.51	$35.78	$55.65	$62.91	$66.15	$72.84

Table 3.3 DSM Spending as a Percent of Distribution Revenue (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1,2]
Total DSM Spending ($ million)	$21.2	$23.0	$25.4	$24.0	$27.2	$30.6	$27.8	$32.5	$35.8	$55.6	$62.9	$66.2	$138.4
Total Distribution Revenue ($ million)	$980.9	$995.9	$1,012.1	$960.4	$978.8	$972.0	$1,055.0	$1,044.0	$1,055.4	$1,115.6	$1,128.3	$1,231.6	$2,366.2
DSM Spending as a % of Distribution Revenue	2.2%	2.3%	2.5%	2.5%	2.8%	3.1%	2.6%	3.1%	3.4%	5.0%	5.6%	5.4%	5.9%

[1]Total DSM spending of Enbridge Gas Inc. (both EGD rate zone and Union rate zones); to allow for proper comparison to Distribution Revenue, which is now being presented as a combined figure.
[2]Consistent with EB-2020-0134 (Disposition of Deferral & Variance Accounts and Earnings Sharing), this is now presented as combined figures for Enbridge Gas Inc. The methodology in deriving the values differs from historical practice due to amalgamation and alignment.

Table 3.4 Historic Annual DSM Shareholder Incentive Amounts Available and Earned ($ million) (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
DSM Shareholder Incentive Earned	$8.25	$5.80	$5.36	$4.16	$6.77	$8.16	$4.54	$7.65	$10.08	$6.37	$2.12	$3.98	$6.72
DSM Shareholder Incentive Available	$9.00	$9.22	$9.24	$9.40	$10.16	$10.45	$10.66	$10.87	$11.09	$10.45	$10.45	$10.45	$10.45

[1]2019 Shareholder Incentive subject to OEB approval

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Table 3.5 DSM Shareholder Incentive Earned as a Percent of DSM Spending (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
DSM Shareholder Incentive Earned ($ million)	$8.25	$5.80	$5.36	$4.16	$6.77	$8.16	$4.54	$7.65	$10.08	$6.37	$2.12	$3.98	$6.72
Total DSM Spending ($ million)	$21.20	$23.03	$25.42	$24.00	$27.24	$30.61	$27.84	$32.51	$35.78	$55.65	$62.91	$66.15	$72.84
Shareholder Incentive Earned as a % of DSM Spending	39%	25%	21%	17%	25%	27%	16%	24%	28%	11%	3%	6%	9%

[1] *2019 Shareholder Incentive subject to OEB approval*

Table 3.6 Annual and Long-Term Natural Gas Savings Targets (million m^3) (EGD Rate Zone)

SCORECARD	2015	2016	2017	2018	2019	2020
Resource Acquisition	1,011.9	631.1	806.5	805.5	734.3	*Targets subject to OEB approval of 2019 performance*
Low-Income	92.8	96.7	167.1	126.1	123.2	

Table 3.7 Total Annual and Cumulative Natural Gas Savings for 2019 (Gross and Net) (million m^3) (EGD Rate Zone)

SCORECARD	ANNUAL NATURAL GAS SAVINGS		CUMULATIVE NATURAL GAS SAVINGS	
	GROSS	NET	GROSS	NET
Resource Acquisition	70.81	46.46	1,303.81	871.97
Low-Income	5.80	5.80	116.58	116.58
Total	**76.61**	**52.26**	**1,420.39**	**988.55**

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Table 3.8 Total Historic Annual Natural Gas Savings (Gross and Net) (million m^3) (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
Total Net Annual Natural Gas Savings	85.07	77.25	69.86	64.58	76.40	60.14	47.74	43.54	48.97	50.52	44.02	42.23	52.26
Total Gross Annual Natural Gas Savings	85.99	121.98	117.62	98.82	114.14	92.53	66.06	60.62	67.09	90.03	71.28	61.60	76.61

[1]2019 DSM results subject to OEB approval

Table 3.9 Total Historic Cumulative Natural Gas Savings (Gross and Net) (million m^3) (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
Total Net Cumulative Natural Gas Savings	1,214.10	1,118.98	1,039.18	951.40	1,253.82	1,068.98	826.91	719.84	826.17	837.11	781.17	807.48	988.55
Total Gross Cumulative Natural Gas Savings	1,233.54	1,809.65	1,801.77	1,455.74	1,811.35	1,593.05	1,148.12	993.62	1,114.13	1,479.09	1,215.44	1,141.22	1,420.39

[1]2019 DSM results subject to OEB approval

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Table 3.10 Total Annual Natural Gas Savings as a Percent of Total Annual Natural Gas Sales (Gross and Net) (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
Net Annual Natural Gas Savings (million m^3)	85.1	77.3	69.9	64.6	76.4	60.1	47.7	43.5	49.0	50.5	44.0	42.2	52.3
Net Annual Natural Gas Savings as a % of Natural Gas Sales	0.7%	0.7%	0.6%	0.6%	0.7%	0.6%	0.4%	0.4%	0.4%	0.5%	0.4%	0.3%	0.4%
Gross Annual Natural Gas Savings (million m^3)	86.0	122.0	117.6	98.8	114.1	92.5	66.1	60.6	67.1	90.0	71.3	61.6	76.6
Gross Annual Natural Gas Savings as a % of Natural Gas Sales	0.7%	1.0%	1.1%	0.9%	1.0%	0.9%	0.6%	0.5%	0.6%	0.8%	0.6%	0.5%	0.6%
Total Natural Gas Sales (million m^3)[2]	11,862.9	11,686.5	11,114.9	10,742.3	11,303.2	10,304.4	11,338.3	12,434.3	11,728.3	10,736.2	11,172.6	12,361.6	12,370.8

[1] *2019 DSM results subject to OEB approval*
[2] *Total Natural Gas Sales only includes rate classes that are eligible for DSM and subject to DSM costs*

Table 3.11 Total Cumulative Natural Gas Savings as a Percent of Total Annual Natural Gas Sales (Gross and Net) (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
Net Cumulative Natural Gas Savings (million m^3)	1,214.1	1,119.0	1,039.2	951.4	1,253.8	1,069.0	826.9	719.8	826.2	837.1	781.2	807.5	988.5
Net Cumulative Natural Gas Savings as a % of Natural Gas Sales	10.2%	9.6%	9.3%	8.9%	11.1%	10.4%	7.3%	5.8%	7.0%	7.8%	7.0%	6.5%	8.0%
Gross Cumulative Natural Gas Savings (million m^3)	1,233.5	1,809.7	1,801.8	1,455.7	1,811.3	1,593.0	1,148.1	993.6	1,114.1	1,479.1	1,215.4	1,141.2	1,420.4
Gross Cumulative Natural Gas Savings as a % of Natural Gas Sales	10.4%	15.5%	16.2%	13.6%	16.0%	15.5%	10.1%	8.0%	9.5%	13.8%	10.9%	9.2%	11.5%
Total Natural Gas Sales (million m^3)[2]	11,862.9	11,686.5	11,114.9	10,742.3	11,303.2	10,304.4	11,338.3	12,434.3	11,728.3	10,736.2	11,172.6	12,361.6	12,370.8

[1] *2019 DSM results subject to OEB approval*
[2] *Total Natural Gas Sales only includes rate classes that are eligible for DSM and subject to DSM costs*

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Table 3.12 Actual Annual Gas Operating Revenue ($ million) (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1,2]
Gas Sales and Distribution Revenue	$3,095.0	$3,233.8	$2,952.3	$2,394.1	$2,393.6	$2,240.9	$2,613.4	$2,861.3	$2,892.1	$2,588.7	$2,788.1	$2,863.5	$4,631.5
Less Total Cost of Gas ($ millions)	$2,113.0	$2,236.1	$1,938.6	$1,432.3	$1,413.3	$1,267.6	$1,556.8	$1,815.5	$1,834.8	$1,466.7	$1,640.8	$1,612.7	$2,265.3
Total Distribution Revenue	**$982.0**	**$997.7**	**$1,013.7**	**$961.8**	**$980.3**	**$973.3**	**$1,056.6**	**$1,045.8**	**$1,057.3**	**$1,122.0**	**$1,147.3**	**$1,250.8**	**$2,366.2**

[1]*As of 2019, Distribution Revenue is the gas sales and distribution revenue (excluding transportation, storage, and other operating revenue) less the cost of gas.*
[2]*Consistent with EB-2020-0134 (Disposition of Deferral & Variance Accounts and Earnings Sharing), this is now presented as combined figures for Enbridge Gas Inc. The methodology in deriving the values differs from historical practice due to amalgamation and alignment.*

Table 3.13 Total Natural Gas Sales Volumes (million m^3) (EGD Rate Zone)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Natural Gas Sales[1]	11,862.90	11,686.50	11,114.90	10,742.30	11,303.20	10,304.40	11,338.30	12,434.30	11,728.30	10,736.20	11,172.60	12,361.60	12,370.82

[1]*Only includes rate classes eligible for DSM and subject to DSM costs.*

Table 3.14 Number of Customers by Customer Type (EGD Rate Zone)

CUSTOMER TYPE	2015	2016	2017	2018	2019
Residential[1]	1,930,657	1,959,569	1,990,032	2,017,128	2,040,710
Commercial	157,758	158,812	160,721	162,157	162,682
Industrial	6,266	6,308	5,916	5,881	5,813
Total	**2,094,681**	**2,124,689**	**2,156,669**	**2,185,166**	**2,209,205**

[1]*Residential customers include Low-Income*

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Table 3.15 Number of Customers by Rate Class (EGD Rate Zone)

RATE CLASS	2015	2016	2017	2018	2019
Rate 1	1,930,657	1,959,569	1,990,032	2,017,128	2,040,710
Rate 6	163,634	164,698	166,224	167,626	168,093
Rate 9	6	6	3	2	0
Rate 100	2	2	3	3	4
Rate 110	227	270	263	273	280
Rate 115	25	27	27	25	22
Rate 125	5	5	5	4	4
Rate 135	43	45	45	43	41
Rate 145	52	38	37	32	25
Rate 170	26	25	26	27	23
Rate 200	1	1	1	1	1
Rate 300	2	2	2	1	1
Rate 315	1	1	1	1	1
Total	**2,094,681**	**2,124,689**	**2,156,669**	**2,185,166**	**2,209,205**

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4. OEB Data Reporting Requirements (Union Rate Zones)

Section 4 provides the OEB's reporting requirements for the Union rate zones, as per Section 14.2 of the DSM Guidelines.

Table 4.0 Annual and Long-Term DSM Budgets ($ million) (Union Rate Zones)

PROGRAM	2015	2016	2017	2018	2019[1]	2020[1]	TOTAL (6YEARS)
Residential	$3.163	$8.612	$11.369	$13.908	$13.908	$13.908	$64.867
Commercial/Industrial	$10.859	$19.316	$22.035	$22.726	$22.403	$22.403	$119.743
Low-Income	$6.839	$11.407	$12.343	$13.571	$14.145	$15.005	$73.310
Large Volume	$4.534	$4.000	$4.000	$4.000	$4.000	$4.000	$24.534
Market Transformation	$1.379	$1.703	$2.338	$2.338	$2.338	$2.338	$12.434
Performance-Based	-	$0.548	$0.843	$1.088	$0.833	$1.053	$4.365
Portfolio Level	$4.717	$11.235	$5.642	$5.642	$5.642	$5.642	$38.520
Inflation	$2.497						$2.497
Total[1]	**$33.988**	**$56.821**	**$58.570**	**$63.272**	**$63.269**	**$64.350**	**$340.270**

[1]The total budget shown for 2019 and 2020 does not include $1.5 million for the Residential Adaptive Thermostat offering approved through the Mid-Term Review. Expenditures for this offering will be tracked in the DSMVA.

Table 4.1 Actual Annual Total DSM Costs* ($ million) (Union Rate Zones)

RATE CLASS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016[1]	2017[2]	2018[2]	2019
M1	N/A	$12.107	$12.743	$11.348	$11.498	$13.502	$13.657	$15.415	$16.752	$24.595	$37.204	$41.948	$37.849
M2	$11.619	$2.486	$2.023	$2.117	$4.097	$4.968	$5.818	$6.728	$4.958	$6.847	$8.166	$7.851	$8.297
M4	$1.488	$1.353	$0.828	$1.098	$1.817	$3.319	$3.244	$3.296	$3.645	$4.012	$5.892	$6.776	$5.595
M5	$0.294	$1.044	$1.226	$1.086	$3.150	$2.660	$3.484	$2.394	$1.421	$2.580	$1.459	$0.657	$0.563
M7	$0.886	$0.116	$0.256	$1.474	$1.304	$0.538	$0.571	$2.143	$3.370	$3.963	$1.258	$2.714	$4.181
T1	$3.147	$3.988	$5.596	$3.965	$7.749	$6.111	$2.265	$1.078	$0.889	$1.486	$2.578	$1.962	$0.834
T2	N/A	N/A	N/A	N/A	N/A	N/A	$3.365	$2.875	$2.673	$3.980	$3.006	$3.375	$4.005
Rate 01	$2.229	$2.162	$2.093	$1.869	$3.050	$3.532	$3.560	$4.161	$3.555	$4.689	$6.209	$7.403	$6.696
Rate 10	$1.612	$1.371	$2.292	$0.510	$1.109	$1.939	$1.637	$1.613	$0.953	$1.394	$2.144	$1.829	$1.820
Rate 20	$0.323	$0.496	$0.771	$0.881	$1.030	$1.607	$1.573	$1.791	$1.005	$0.851	$1.554	$0.312	$1.194
Rate 100	$1.535	$4.542	$3.950	$4.471	$1.614	$2.305	$1.828	$1.517	$0.799	$0.573	$0.809	$0.820	$0.708
Total	**$23.133**	**$29.664**	**$31.778**	**$28.818**	**$36.418**	**$40.481**	**$41.001**	**$43.011**	**$40.019**	**$54.968**	**$70.277**	**$75.648**	**$71.741**

**Figures include all DSM spend, shareholder incentive, and lost distribution revenue.*
[1]Aligns to DSMVA approved in EB-2018-0300 (2016 Disposition of DSM Deferral and Variance Accounts). Actual expenditures from 2017 and 2018 related to the DSM tracking system upgrades have been accounted for through the 2016 DSMVA.
[2]Actual expenditures related to the DSM tracking system upgrades in these years are reflected in 2016.

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Table 4.2 Historic Annual Total DSM Spending ($ million) (Union Rate Zones)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016[1]	2017[2]	2018[2]	2019
Total DSM Spending	$16.13	$20.26	$22.04	$21.61	$27.97	$31.32	$32.84	$33.71	$32.39	$50.67	$64.58	$69.12	$65.60

[1]Aligns to DSMVA approved in EB-2018-0300 (2016 Disposition of DSM Deferral and Variance Accounts). Actual expenditures from 2017 and 2018 related to the DSM tracking system upgrades have been accounted for through the 2016 DSMVA.
[2]Actual expenditures related to the DSM tracking system upgrades in these years are reflected in 2016.

Table 4.3 DSM Spending as a Percent of Distribution Revenue (Union Rate Zones)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1,2]
Total DSM Spending ($ million)	$16	$20	$22	$22	$28	$31	$33	$34	$32	$51	$65	$69	$138
Total Distribution Revenue ($ million)	$655	$675	$658	$699	$713	$727	$772	$778	$800	$812	$834	$893	$2,366
DSM Spending as a % of Distribution Revenue	2%	3%	3%	3%	4%	4%	4%	4%	4%	6%	8%	8%	6%

[1]Total DSM spending of Enbridge Gas Inc. (both EGD rate zone and Union rate zones); to allow for proper comparison to Distribution Revenue, which is now being presented as a combined figure.
[2]Consistent with EB-2020-0134 (Disposition of Deferral & Variance Accounts and Earnings Sharing), this is now presented as combined figures for Enbridge Gas Inc. The methodology in deriving the values differs from historical practice due to amalgamation and alignment.

Table 4.4 Historic Annual DSM Shareholder Incentive Amounts Available and Earned ($million) (Union Rate Zones)

ITEMS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
DSM Shareholder Incentive Earned	$6.23	$8.70	$8.75	$6.58	$7.64	$8.21	$7.78	$8.99	$7.47	$4.12	$8.24	$6.37	$5.95
DSM Shareholder Incentive Available	$8.50	$8.70	$8.92	$8.94	$9.24	$10.45	$10.68	$10.82	$11.00	$10.45	$10.45	$10.45	$10.45

[1]2019 Shareholder Incentive subject to OEB approval

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Table 4.5 DSM Shareholder Incentive Earned as a Percent of DSM Spending (Union Rate Zones)

$ MILLIONS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
DSM Shareholder Incentive Earned ($ million)	$6.23	$8.70	$8.75	$6.58	$7.64	$8.21	$7.78	$8.99	$7.47	$4.12	$8.24	$6.37	$5.95
Total DSM Spending ($ million)	$16.13	$20.26	$22.04	$21.61	$27.97	$31.32	$32.84	$33.71	$32.39	$50.67	$64.58	$69.12	$65.60
Shareholder Incentive Earned as a % of DSM Spending	39%	43%	40%	30%	27%	26%	24%	27%	23%	8%	13%	9%	9%

[1] *2019 Shareholder Incentive subject to OEB approval*

Table 4.6 Annual and Long-Term Natural Gas Savings Targets (million m^3) (Union Rate Zones)

SCORECARD	2015	2016	2017	2018	2019	2020
Resource Acquisition	816.6	1,120.3	976.5	818.3	798.6	*Targets subject to OEB approval of 2019 performance*
Low-Income	43.6	59.2	80.2	68.8	74.7	
Large Volume	1,236.1	890.9	463.1	195.7	137.7	

Table 4.7 Total Annual and Cumulative Natural Gas Savings for 2019 (Gross and Net) (million m^3) (Union Rate Zones)

SCORECARD	ANNUAL NATURALGAS SAVINGS		CUMULATIVE NATURALGAS SAVINGS	
	GROSS	NET	GROSS	NET
Resource Acquisition	105.44	52.78	1,847.99	935.59
Low-Income	3.67	3.59	80.80	79.31
Large Volume	46.03	7.05	472.70	72.37
Performance-Based	0.01	0.01	0.04	0.04
Total	**155.14**	**63.43**	**2,401.53**	**1,087.32**

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Table 4.8 Total Historic Annual Natural Gas Savings (Gross and Net) (million m^3) (Union Rate Zones)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
Total Net Annual Natural Gas Savings	55.85	61.85	92.60	121.12	139.03	137.44	179.97	131.83	125.08	55.97	69.93	66.17	63.43
Total Gross Annual Natural Gas Savings	Not reported for 2007-2011					282.18	370.47	267.47	255.17	188.74	183.24	160.87	155.14

[1]*2019 DSM results subject to OEB approval*

Table 4.9 Total Historic Cumulative Natural Gas Savings (Gross and Net) (million m^3) (Union Rate Zones)

ITEM	2007-2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
Total Net Cumulative Natural Gas Savings	Not reported for 2007-2011	2,336.35	2,820.83	1,889.46	1,750.77	959.44	1,182.36	1,124.48	1,087.32
Total Gross Cumulative Natural Gas Savings	Not reported for 2007-2011	4,777.83	5,752.39	3,752.37	3,482.50	2,758.90	2,886.61	2,451.15	2,401.53

[1]*2019 DSM results subject to OEB approval*

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Table 4.10 Total Annual Natural Gas Savings as a Percent of Total Annual Natural Gas Sales (Gross and Net) (Union Rate Zones)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
Net Annual Natural Gas Savings (million m^3)	55.9	61.9	92.6	121.1	139.0	137.4	180.0	131.8	125.1	56.0	69.9	66.2	63.4
Net Annual Natural Gas Savings as a % of Natural Gas Sales	0.42%	0.47%	0.75%	0.95%	1.02%	1.03%	1.29%	0.93%	0.93%	0.43%	0.56%	0.50%	0.47%
Gross Annual Natural Gas Savings (million m^3)	Not reported for 2007-2011					282.2	370.5	267.5	255.2	188.7	183.2	160.9	155.1
Gross Annual Natural Gas Savings as a % of Natural Gas Sales						2.11%	2.65%	1.88%	1.90%	1.46%	1.48%	1.22%	1.15%
Total Natural Gas Sales (million m^3)[2]	13,158.0	13,231.2	12,327.8	12,778.9	13,655.0	13,396.1	13,992.7	14,204.1	13,405.0	12,935.8	12,408.7	13,210.0	13,508.9

[1]2019 DSM results subject to OEB approval
[2]Total Natural Gas Sales only includes rate classes that are eligible for DSM and subject to DSM costs

Table 4.11 Total Cumulative Natural Gas Savings as a Percent of Total Annual Natural Gas Sales (Gross and Net) (Union Rate Zones)

ITEM	2017-2011	2012	2013	2014	2015	2016	2017	2018	2019[1]
Net Cumulative Natural Gas Savings (million m^3)	Not reported for 2007-2011	2,336.4	2,820.8	1,889.5	1,750.8	959.4	1,182.4	1,124.5	1,087.3
Net Cumulative Natural Gas Savings as a % of Natural Gas Sales		17.44%	20.16%	13.30%	13.06%	7.42%	9.53%	8.51%	8.05%
Gross Cumulative Natural Gas Savings (million m^3)	Not reported for 2007-2011	4,777.8	5,752.4	3,752.4	3,482.5	2,758.9	2,886.6	2,451.1	2,401.5
Gross Cumulative Natural Gas Savings as a % of Natural Gas Sales		35.67%	41.11%	26.42%	25.98%	21.33%	23.26%	18.56%	17.78%
Total Natural Gas Sales (million m^3)[2]		13,396.1	13,992.7	14,204.1	13,405.0	12,935.8	12,408.7	13,210.0	13,508.9

[1]2019 DSM results subject to OEB approval
[2]Total Natural Gas Sales only includes rate classes that are eligible for DSM and subject to DSM costs

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Table 4.12 Actual Annual Gas Operating Revenue ($ million) (Union Rate Zones)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[1,2]
Gas Sales and Distribution Revenue	$1,811.0	$1,852.0	$1,684.0	$1,493.0	$1,468.0	$1,365.0	$1,621.0	$1,755.0	$1,675.0	$1,529.0	$1,873.0	$1,813.0	$4,631.5
Less Total Cost of Gas	$1,156.0	$1,177.0	$1,026.0	$794.0	$755.0	$638.0	$849.0	$977.0	$875.0	$717.0	$1,039.0	$920.0	$2,265.3
Total Distribution Revenue	**$655.0**	**$675.0**	**$658.0**	**$699.0**	**$713.0**	**$727.0**	**$772.0**	**$778.0**	**$800.0**	**$812.0**	**$834.0**	**$893.0**	**$2,366.2**

[1]*As of 2019, Distribution Revenue is the gas sales and distribution revenue (excluding transportation, storage, and other operating revenue) less the cost of gas.*
[2]*Consistent with EB-2020-0134 (Disposition of Deferral & Variance Accounts and Earnings Sharing), this is now presented as combined figures for Enbridge Gas Inc. The methodology in deriving the values differs from historical practice due to amalgamation and alignment.*

Table 4.13 Total Natural Gas Sales Volumes (million m^3) (Union Rate Zones)

ITEM	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Natural Gas Sales[1]	13,158.02	13,231.16	12,327.85	12,778.87	13,654.99	13,396.12	13,992.69	14,204.10	13,404.98	12,935.77	12,408.73	13,210.01	13,508.92

[1]*Only includes rate classes eligible for DSM and subject to DSM costs*

Table 4.14 Number of Customers by Customer Type (Union Rate Zones)

CUSTOMER TYPE	2015	2016	2017	2018	2019
Residential[1]	1,306,495	1,325,703	1,344,513	1,364,322	1,381,941
Commercial	119,899	120,613	121,234	121,971	122,909
Industrial	463	460	470	470	493
Wholesale	5	5	6	7	7
Total	**1,426,862**	**1,446,781**	**1,466,223**	**1,486,770**	**1,505,350**

[1]*Residential customers include Low Income*

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Table 4.15 Number of Customers by Rate Class (Union Rate Zones)

RATE CLASS	2015	2016	2017	2018	2019
General Service					
M1	1,083,032	1,097,032	1,111,544	1,127,352	1,141,280
M2	7,437	7,730	7,553	7,469	7,783
01	333,773	339,335	344,458	349,354	353,643
10	2,152	2,219	2,192	2,118	2,144
Total	**1,426,394**	**1,446,316**	**1,465,747**	**1,486,293**	**1,504,850**
Contract					
M4	156	165	185	208	232
M5	80	72	59	38	42
M7	28	28	30	30	36
T1	37	37	37	37	37
T2	22	22	23	24	25
20	50	47	46	44	54
100	10	11	11	11	12
Total	**383**	**382**	**391**	**392**	**438**
Non-DSM Rate Classes					
M9	2	2	3	3	4
M10	2	2	2	3	2
T3	1	1	1	1	1
25	80	78	79	78	55
Total	**1,426,862**	**1,446,781**	**1,466,223**	**1,486,770**	**1,505,350**

5. Programs and Offerings (EGD Rate Zone)

Enbridge Gas' DSM portfolio for the EGD rate zone consists of the following programs:

- Resource Acquisition Program (Section 5.1)
- Low-Income Program (Section 5.2)
- Market Transformation & Energy Management Program (Section 5.3)

5.1 RESOURCE ACQUISITION PROGRAM

Enbridge Gas' Resource Acquisition Program for the EGD rate zone consists of the following offerings:

- Home Efficiency Rebate Offering (Section 5.1.1)
- Residential Adaptive Thermostat Offering (Section 5.1.2)
- Custom Commercial Offering (Section 5.1.3)
- Custom Industrial Offering (Section 5.1.4)
- Commercial & Industrial Prescriptive (Fixed) Incentive Offering (Section 5.1.5)
- Commercial & Industrial Direct Install Offering (Section 5.1.6)
- Energy Leaders Offering (Section 5.1.7)

5.1.1 Home Efficiency Rebate Offering

Through the Home Efficiency Rebate ("HER") Offering, residential customers gain a better understanding of their home's energy usage, and insights into energy improvement opportunities identified through the completion of a home energy audit. By participating in HER, homeowners can increase the energy efficiency of their home and decrease their energy bills each year, enhance home comfort, avoid unsightly mould and condensation caused by poor insulation, and improve their health through better indoor air quality.

Through the offering, participants work with an approved Service Organization ("SO") to complete a preliminary energy assessment to determine the home's current energy use and profile. A Registered Energy Advisor ("REA") models the home using Natural Resources Canada ("NRCan") energy modelling software (HOT2000) to produce an energy efficiency report for the homeowner that outlines all energy saving opportunities, along with the home's EnerGuide rating and energy saving tips and information. With this information, the homeowner is able to make informed decisions regarding potential energy efficient improvements. Rebates are available for completing the assessments and at least two eligible measures recommended in the energy efficiency report (incentive structure and measure list can be found in Appendix C). After upgrades to the home are complete, participants complete a post-energy assessment with the REA to quantify the energy savings achieved by the retrofits, as determined by HOT2000.

The target customer for this offering are residential customers within the EGD rate zone, including detached, semi-detached, townhouses, row townhouses, and mobile homes. To be eligible for the offering, participants must have a natural gas furnace or boiler as a primary heating system. Additionally, participants must complete both the pre-energy assessment and post-energy assessments using an Enbridge Gas approved SO and install at least two qualifying measures.

The aggregate annual gas savings across all participants in the offering must achieve, on average, at least a 15% reduction in annual natural gas use, when comparing the results of the pre-energy assessment to the results of the post-energy assessment as determined by HOT2000.

Table 5.0 2019 Home Efficiency Rebate Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Small Volume Customers Net Cumulative Natural Gas Savings (m^3)	220,374,038
Participants (homes)	16,480

Offering Changes in 2019:

Following the amalgamation of Union Gas Limited and Enbridge Gas Distribution, the former home retrofit offerings were harmonized in May of 2019 from the customer/participant perspective. The offering adopted a new name, the Home Efficiency Rebate ("HER") Offering, to facilitate clarity and a consistent customer-facing experience for all Enbridge Gas customers province-wide. By Q3 2019, consistent marketing initiatives were being deployed across all rate zones in the Enbridge Gas franchise area.

Harmonization also included combining participating SOs. The 12 SOs signed amended program delivery agreements, which allowed their energy advisors to service homes across both former franchise areas. The energy advisor process and documentation requirements were streamlined for consistency so that customers would have a similar experience regardless of their rate zone.

Enbridge Gas' partnerships with the Government of Ontario and IESO, which began in 2016 and 2017 respectively, concluded during the 2018 program year. No new participants were enrolled in the offering in 2019 using Government of Ontario or IESO funding. With the conclusion of these partnerships, the offering returned to being DSM ratepayer funded only. As such, all non-Enbridge Gas natural gas homes, and homes heated by fuels other than natural gas, were no longer eligible to enroll in the offering in 2019.

Lessons Learned:

With the conclusion of funding from the Government of Ontario and IESO, the Company saw a reduction in participation, specifically as it relates to the furnace rebate, which was reduced from $1000 to $750.

Enbridge Gas also identified that many participants were pairing furnaces with air sealing to meet the minimum offering eligibility of two measures. While this results in significant gas savings that meet the offering's requirements, it became apparent that the measure mix of installations could be diversified to focus more on insulation and building envelope measures, which can generate even greater gas savings. To diversify the measure mix, Enbridge Gas launched two limited time offers ("LTO"). The purpose of the LTOs were to encouraged homeowners to think more about their entire home, beyond the furnace and air sealing, and to increase participation in attic insulation resulting in higher gas savings per home. The LTOs also enabled HVACs and insulators to work together, with homeowners, to support the goals of the offering. LTO incentive details can be found in Appendix C.

By the end of 2019, results began to show a change in participant behaviour with an increase in the installation of attic insulation. The information and analytics gathered from these 2019 projects will allow Enbridge Gas to tweak and update the offering design for 2020 and beyond.

Anticipated Offering Changes for 2020:

As a result of NRCan's Regulations Amending the Energy Efficiency Regulations, 2016 (Amendment 15): SOR/2019-164 ("Amendment 15"), changes to the furnace rebate are likely required, as the new regulation is expected to reduce the savings associated with the furnace measure. With the introduction of the LTOs in 2019 noted above, Enbridge Gas was able to test potential changes to the offering, such as a shift from furnace participation to other measures.

5.1.2 Residential Adaptive Thermostat Offering

Adaptive thermostats, also known as smart thermostats, are one of the easiest ways for residential customers to save on energy costs. Adaptive thermostats use sensors and Wi-Fi technology to give homeowners greater flexibility in controlling heating and cooling needs while at home or away, which supports a reduced demand on energy consumption. The offering provides customers a rebate towards the purchase of an eligible adaptive thermostat. Incentive details are provided in Appendix C.

To be eligible for the offering, a customer must:

- Be a residential customer in the EGD rate zone;
- Reside in a single-family home (detached, semi-detached, and row townhouse homes are eligible);
- Have their adaptive thermostat control their primary heating source of natural gas (i.e. propane, oil and electric heating is not eligible); and,
- Have not applied to and/or received an incentive related to the thermostat through any other conservation program(s) in Ontario.

Table 5.1 2019 Residential Adaptive Thermostat Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Small Volume Customers Net Cumulative Natural Gas Savings (m^3)	35,203,822

Offering Changes in 2019:

For the 2019 program year, the rebate was decreased from $100 to $75. This change was made to reflect the decrease in retail prices for the adaptive thermostat technology, and to maximize energy savings within the DSM budget available.

Furthermore, in July 2019 the design of the offering changed from a post-purchase rebate to an instant rebate. This made the incentive available in-store at the time of purchase (at participating Home Depot locations) as well as online. This change was made to modernize and enhance the participation experience, in an effort to increase participation.

Lessons Learned:

Providing an instant rebate for purchases of adaptive thermostats is a new and innovative procedure, and as such required significant time and effort to launch. Several learnings were experienced throughout the process, including how to handle data transfer issues and

how to make process changes to enhance customer experience. As the year progressed, the issues were resolved, and the Company started to see increased participation. The year ended with strong monthly results, illustrating the potential of the program. Enbridge Gas will continue to monitor uptake to ensure the growth of the offering.

Anticipated Offering Changes for 2020:

Enbridge Gas does not anticipate significant changes to the offering in 2020. The focus in 2020 will be to enhance marketing efforts to generate offering awareness, increase participation, and improve customer experience. In addition, efforts will be made to explore opportunities to expand the offering to other online/retail channels and to add more qualifying devices to the program.

5.1.3 Custom Commercial Offering

The Custom Commercial Offering addresses energy savings opportunities related to unique building specifications, design concepts, processes and/or new technologies that are outside the scope of prescriptive measures. The offering provides technical assistance and financial incentives to encourage customers to implement energy efficient technologies. Enbridge Gas provides consultative services to customers and third-party service providers aimed at assessing building energy consumption and making recommendations for gas-saving measures. See Appendix C for the offering details.

The Custom Commercial Offering targets commercial customers, with the exception of low-income qualified multi-family buildings (see Section 5.2.2, the Multi-Residential Affordable Housing Offering).

Table 5.2 2019 Custom Commercial Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Large Volume Customers Net Cumulative Natural Gas Savings (m^3)	146,097,211
Small Volume Customers Net Cumulative Natural Gas Savings (m^3)	9,723,006

Offering Changes in 2019:

In 2019, Enbridge Gas adjusted the incentive structure from three tiers to two tiers, in an effort to:

- Reduce complexity of the offering;
- Align all offering incentives within the Custom Commercial Offering;
- Provide a larger incentive for projects with higher savings percentages; and,
- Provide more opportunity for smaller customers to participate.

In response to market needs, Enbridge Gas began providing support and financial incentives for custom new construction projects that are not applicable to the Savings by Design Commercial Offering (i.e. for warehouses and other buildings under 50,000 ft^2). Pre- and post-built energy simulation models are required, and incentives are available for energy simulation modeling and the implementation of

energy efficient measures. However, no results occurred in 2019 due to the longer timeframe required to influence new construction projects.

Lessons Learned:

Limited time offers continue to drive increased results, by increasing the number of projects influenced during the customers' typical budget planning cycle (i.e. prior to Q4).

Early review of the incentive structure changes showed that it may not have drove additional participation from smaller customers. Enbridge Gas will continue to explore strategies to better support smaller customers.

Anticipated Offering Changes for 2020:

Enbridge Gas expects to align the custom incentive structures across the EGD rate zone and Union rate zones, to create a consistent province-wide offering. Additional business partner incentives will also be launched in order to better support smaller customers/projects. Enbridge Gas also expects to shift all prescriptive boilers to custom.

5.1.4 Custom Industrial Offering

The Custom Industrial Offering addresses energy savings opportunities related to unique building specifications, design concepts, processes and/or new technologies that are outside the scope of prescriptive measures. The offering provides technical assistance and financial incentives to encourage industrial customers to implement energy efficient technologies. Enbridge Gas provides consultative services to customers and third-party service providers aimed at assessing building energy consumption and making recommendations for gas-saving measures. See Appendix C for the offering details.

Table 5.3 2019 Custom Industrial Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Large Volume Customers Net Cumulative Natural Gas Savings (m^3)	292,996,747
Small Volume Customers Net Cumulative Natural Gas Savings (m^3)	1,768,395

Offering Changes in 2019:

In 2019, Enbridge Gas introduced a limited time offer for industrial customers with annual consumption greater than 1 million m^3. To qualify, customers must apply early in the year and participants must work with Enbridge Gas Energy Solutions Advisors to develop an annual energy efficiency plan. As part of the offer, customers are eligible to apply for energy efficiency training assistance as well as receiving funding support to attend energy awareness education sessions. Upon a timely submission of the annual energy efficiency

plan, the projects within the submitted energy efficiency plan qualify for double the regular incentive, with an increased cap of $250,000 per customer annually.

Lessons Learned:

Regarding the limited time offer, Enbridge Gas experienced more influence over the project decision through the increased involvement in customer's capital planning cycle early in the year. The increased engagement between Enbridge Gas and customer's team led to a better project approval and implementation.

Anticipated Offering Changes for 2020:

Enbridge Gas will explore aligning the custom offerings across the EGD rate zone and Union rate zones, to create a consistent province-wide offering.

5.1.5 Commercial & Industrial Prescriptive (Fixed) Incentive Offering

Through the Commercial/Industrial Prescriptive (Fixed) Incentive Offering, fixed financial incentives are available for the installation of eligible high-efficiency technologies. Incentives are provided to customers, service providers, and/or distributors/dealers, depending on the technology. Please see Appendix C for the full list of eligible technologies and their incentives. Energy savings are based on the OEB's Technical Resource Manual. See Section 2.6 for more details regarding the TRM.

Table 5.4 2019 Commercial & Industrial Prescriptive (Fixed) Incentive Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Large Volume Customers Net Cumulative Natural Gas Savings (m^3)	18,898,183
Small Volume Customers Net Cumulative Natural Gas Savings (m^3)	29,861,941

Offering Changes in 2019:

In an effort to improve offering consistency between the EGD rate zone and Union rate zones, incentive structures for the majority of prescriptive measures were aligned province-wide in 2019.

In June 2019, Enbridge Gas launched a new midstream initiative through a third-party delivery agent, branded as the "Distributor Discount Program". This initiative targets distributors or equipment dealers who sell select high-efficient equipment, to promote the purchase of the high-efficiency option at the point of sale. The following measures were transitioned from a downstream customer incentive to the midstream initiative:

- HVAC
    - Condensing Water Heaters (Tankless, Storage Tanks)

- Condensing Unit Heaters

- Foodservice
  - EnergyStar Fryers
  - EnergyStar Steam Cookers
  - High Efficiency Under Fired Broilers

Other notable 2019 offering changes include:

- Discontinuation of the infrared heater incentive, in an attempt to lower free-ridership in the offering (see Lessons Learned below)
- Introduction of ERV/HRV multi-family in-suite measure for the EGD rate zone.
- The launch of limited-time bonus offers for ozone laundry measures, to drive greater participation from commercial customers.

Lessons Learned:

Early results for the new midstream initiative were low due to typical challenges when launching new large-scale initiatives, including challenges to ensure the offering's requirements are met by distributors/dealers (most distributors/dealers take 1-2 months to align their operations to meet reporting and documentation requirements). In addition, distributors/dealers require time and resources to effectively communicate the offering within their organization.

Informed in part by the 2017 C&I Prescriptive Verification Report[9], Enbridge Gas learned that the infrared heater technology has high free-rider participation within the offering. The decision was made to discontinue the infrared heater incentive, in an attempt to lower free-ridership in the offering.

Anticipated Offering Changes for 2020:

With respect to the new midstream initiative, Enbridge Gas will seek to improve engagement throughout the distributor/dealer's organizations. This includes:

- Enhancing offering materials and marketing efforts;
- Providing hands-on training for branch staff; and,
- Providing contact information for direct support at the counter-staff level.

Enbridge Gas will also explore adding more high-efficiency equipment options to the midstream initiative.

Enbridge Gas anticipates that there will be opportunities increase to customer incentive levels for certain technologies within the offering, to optimize natural gas savings results.

[9] https://www.oeb.ca/sites/default/files/2017-DSM-Annual-Verification-Report.pdf, *Appendix S*

5.1.6 Commercial & Industrial Direct Install Offering

The Commercial & Industrial Direct Install Offering provides a turnkey solution for customers who are less likely to participating in traditional offerings, by providing the installation of energy efficient technologies. The offering also provides increased incentive levels for select technologies. Offering details are provided in Appendix C.

Table 5.5 2019 Commercial & Industrial Direct Install Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Large Volume Customers Net Cumulative Natural Gas Savings (m^3)	42,896,376
Small Volume Customers Net Cumulative Natural Gas Savings (m^3)	72,538,571

Offering Changes in 2019:

In 2019, the pedestrian air door measure was removed from the offering due to low uptake and interest from customers. The shipping and receiving air door measure, and demand control kitchen ventilation measure, remained as part of the offering.

Lessons Learned:

Enbridge Gas has found that a barrier in initial participation is lack of clarity in the legitimacy of the offering (due to the high incentive and turnkey installation). To mitigate the issue, vendors require direct touchpoints with customers, including personalized site visits to provide a quote and set up the installation. Furthermore, promoting the offering earlier in the year and using multiple marketing channels can help improve legitimacy of the offering to potential participants.

Enbridge Gas also found that streamlining the offering's administrative processes (such as the documentation requirements for invoicing) to expedite the project submissions and payments to the contractors can increase participation results.

Anticipated Offering Changes for 2020:

The following offering changes are being explored for 2020:

- Addition of the dock door seals measure to the offering
- Launch of a demand control kitchen ventilation collaboration initiative with the IESO

5.1.7 Energy Leaders Offering

The Energy Leaders Offering is intended to appeal to early adopters of new and emerging technologies, by providing early adopters with increased incentives for the implementation of new and innovative technologies. Offering details are provided in Appendix C.

The main target for this offering are commercial, agriculture, and industrial customers who Enbridge Gas identifies as a leader in energy efficiency.

Table 5.6 2019 Energy Leaders Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Large Volume Customers Net Cumulative Natural Gas Savings (m^3)	0
Small Volume Customers Net Cumulative Natural Gas Savings (m^3)	0

Offering Changes in 2019:

Projects approved through the offering are required to be new technologies (i.e. not widely adopted or widely available) implemented by early adopters. While several technologies and opportunities were explored in 2019, Enbridge Gas did not identify projects for the offering. The technologies and opportunities reviewed in 2019 however will support future projects within the offering.

Lessons Learned:

While the offering focuses on barriers such as the commercial availability of the technologies, market barriers are in fact an issue in some cases. Enbridge Gas will look to support market barriers as well as technical barriers in future years.

Anticipated Offering Changes for 2020:

Enbridge Gas expects that some of the opportunities explored in 2019 may be implemented in the 2020 program year. While this is a smaller offering, Enbridge Gas believes it is important to maintain that status of the offering to support new energy-efficient technologies.

5.2 LOW-INCOME PROGRAM

Enbridge Gas' Low-Income Program for the EGD rate zone consists of the following offerings:

- Home Winterproofing Offering (Section 5.2.1)
- Multi-Residential Affordable Housing Offering (Section 5.2.2)
- Savings by Design Affordable Housing Offering (Section 5.2.3)

5.2.1 Home Winterproofing Offering

The Home Winterproofing Offering, branded as Home Winterproofing or "HWP", is designed to reduce energy costs and improve indoor home comfort for low-income customers (homeowners and tenants who pay their natural gas bill). Participants receive a home energy assessment and direct installation of weatherization services, with no cost to the participant. As a health and safety value add-on, a carbon monoxide monitor is provided to participants where one is not already present in the home. At the time of the home energy assessment, the home is also prequalified for water conservation measures (showerheads and aerators) and a smart thermostat. The offering is available for both privately owned single-family homes, and the social and assisted housing. Offering details can be found in Appendix C.

Table 5.7 2019 Home Winterproofing Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	27,618,723

Offering Changes in 2019:

To enhance the offering delivery, Enbridge Gas increased the number of delivery agents to assist with customer scheduling and to ensure annual targets are achieved.

From an internal systems standpoint, Enbridge Gas proceeded with EnergyX testing and training in Q4 of 2019. This tool serves as a standardized reporting platform for all offering projects and will reduce the administrative burden for delivery agents. During Q4 of 2019, delivery agents started using the tool to upload 2019 projects and future 2020 projects.

In Q4 of 2019, Enbridge Gas also completed the alignment of offering processes and materials for the EGD rate zone and the Union rate zones' low-income single-family offerings. This resulted in all rate zones using the same reporting, application and marketing materials.

Also in 2019, the HWP Mobile Truck was introduced and attended events across the EGD rate zone to promote the Home Winterproofing Offering and the Home Efficiency Rebate Offering. Through the initiative, approximately 1,000 qualified Home Winterproofing Offering applications were signed.

Furthermore, Enbridge Gas and the IESO shared the same delivery agent for their respective low-income single-family offerings within the Toronto area. As such, the two entities were able to coordinate on income qualification for potential participants in the area. This collaboration reduced duplicative income qualification efforts and confusion among customers, and resulted in the ability to advise of potential participants between Enbridge Gas and IESO.

Lessons Learned:

In 2019, it was identified that the time to complete some projects was longer than anticipated for some delivery agents, due to large volumes and competing programs. To mitigate this issue, Enbridge Gas increased the number of delivery agents from three to four, and redefined their service areas to assist with the backlog. This strategy proved to be a success as the offering exceeded target.

In 2019, a robust marketing campaign over a variety of media channels drove a steady supply of leads to the delivery agent, driving increased offering results record results and proving the impact that marketing and awareness has on achieving energy efficiency results.

Anticipated Offering Changes for 2020:

The EnergyX platform will be fully operational in 2020, which will provide more effective management and delivery of the offering.

Enbridge Gas will also launch the collaboration with The Affordability Fund ("AFT") program to identify additional potential low-income participants. Through this program, AFT's delivery agent will promote Enbridge Gas' offer to qualified AFT participants.

Enbridge Gas will continue to explore alignment with the Union rate zones' Home Weatherization Offering to maximize uptake and provide a better experience to low-income customers. This could include:

- Aligning the offering name to limit market confusion; and,
- Sharing more marketing, associations and partnerships costs to maximize cost effectiveness and efficiencies.

5.2.2 Multi-Residential Affordable Housing Offering

The Multi-Residential Affordable Housing Offering provides social and assisted housing and low-income market rate multi-family buildings with technical assistance and incentives for a variety of energy efficiency measures. Participants are eligible for both custom and prescriptive measure incentives, similar to the Commercial & Industrial Prescriptive (Fixed) Incentives Offering and the Custom Commercial Offering, however incentive levels are higher to reflect the needs of the low-income market. Offering details are provided in Appendix C.

Table 5.8 2019 Multi-Residential Affordable Housing Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	88,957,000

Offering Changes in 2019:

Enbridge Gas adjusted the incentive structure for certain measures, from a per estimated annual m^3 of natural gas savings basis to a per estimated lifetime m^3 of natural gas savings. This change was made to influence longer-term savings.

Lessons Learned:

Enbridge Gas clarified the eligibility criteria for condominium buildings in designated low-income areas within the City of Toronto. In order to participate in the offering, condominium buildings in designated low-income areas within Toronto must be built in 1985 or earlier. This aligns with the eligibility cut-off for the City of Toronto's TowerWise program, and avoids situations where high-end condos constructed in low-income areas might inadvertently qualify to participate in the offering.

Enbridge Gas continuously explored opportunities to improve the offering, such as focusing on the marketing efforts to increase market rate participation.

Anticipated Offering Changes for 2020:

Several changes are anticipated for 2020 in an effort to align the EGD rate zone's low-income multi-family offering with the Union rate zones' comparable offering, including using consistently branded names and changes to measure lists.

Further changes to incentive structures and measure lists are anticipated, to align Enbridge Gas' low-income multi-family offerings with the non-low-income commercial offerings, where appropriate. This is being explored to reduce customer confusion.

5.2.3 Savings by Design Affordable Housing Offering

The Savings by Design Affordable Housing Offering helps affordable housing builders improve energy performance in new construction projects, by providing a variety of support activities from the early design phase through to construction. The offering is designed to influence builders to build affordable housing that exceed the 2017 Ontario Building Code by at least 7% for multi-residential projects, and at least 15% for single family homes. Offering details are provided in Appendix C.

Table 5.9 2019 Savings by Design Affordable Housing Offering Results (EGD Rate Zone)

METRIC	ACHIEVEMENT
Project Applications	11

Offering Changes in 2019:

In 2019, Enbridge Gas re-branded the Affordable Housing New Construction Offering as the Savings by Design Affordable Housing offering, to better align with Enbridge Gas' residential and commercial new construction Savings by Design ("SBD") offerings. The key milestones within this offering have also been renamed: the Plan Review Summary became the Visioning Session, and the Design Phase Charette ("DCP") became Integrated Design Process ("IDP").

Within the offering, Enbridge Gas also aligned incentives between multi-residential (Part 3) and residential low-rise (Part 9) participants. The Technical Assistance Incentive for multi-residential (Part 3) participants was modified from a tiered structure to a fixed amount of $7,500, to reduce confusion among participants.

Furthermore in 2019, two additional delivery agents (Canada Green Building Council and Building Knowledge) were added to the roster of consultants that facilitate the IDP workshops and produce energy modelling reports. The additions were made to meet the increasing demand of IDP workshops that were previously delivered solely by Sustainable Buildings Canada.

In response to feedback from 2018 participant experience research, sales staff were encouraged to follow up more frequently with the housing providers throughout the process. This ensures the participant received the necessary energy modelling support and helped them to achieve the offering energy efficiency goals.

Lessons Learned:

In 2019, Enbridge Gas identified inconsistencies in the quality of the reports produced by delivery agents. To improve quality control and consistency of participant experience, Enbridge Gas is developing a common IDP report template across all of the offering's delivery agents.

Enbridge Gas also learned that affordable housing providers would benefit from additional energy modelling to show their level of the energy efficiency achievement relative to the National Energy Code of Canada for Buildings ("NECB"), in addition to the Ontario Building Code. This is because several federal programs that provide funding for new affordable housing require funding recipients to disclose the energy efficiency of their building design relative to the NECB. Without receiving funding from federal programs, many affordable housing projects would be unable to proceed; thus, providing NECB equivalency assists housing providers to execute construction in the manner that the offering has helped them to design.

Anticipated Offering Changes for 2020:

In 2020, Enbridge Gas will require all delivery agents to use a common template for IDP reports, which will include a non-technical executive summary for decision-makers.

Enbridge Gas will also explore offering certain participants free re-modelling of their housing project relative to NECB, up to a maximum value of $7,500.

5.3 MARKET TRANSFORMATION & ENERGY MANAGEMENT PROGRAM

Enbridge Gas' Market Transformation & Energy Management Program for the EGD rate zone consists of the following offerings:

- Savings by Design Residential Offering (Section 5.3.1)
- Savings by Design Commercial Offering (Section 5.3.2)
- School Energy Competition Offering (Section 5.3.3)
- Run it Right Offering (Section 5.3.4)
- Comprehensive Energy Management Offering (Section 5.3.5)

5.3.1 Savings by Design Residential Offering

The Savings by Design Residential Offering helps residential builders improve energy performance in new construction projects, by providing a variety of support activities from the early design phase through to construction. The offering is designed to transform builders, over a multi-year period, to build more homes that exceed the 2017 Ontario Building Code ("OBC 2017") by at least 15%. Offering details are provided in Appendix C.

Table 5.10 2019 Savings by Design Residential Offering Results (EGD Rate Zone)

METRICS	ACHIEVEMENT
Builders	39
Homes Built	2,989

Offering Changes in 2019:

In 2019, Enbridge Gas allowed builders to receive design support on more than one project (development) during a single full-day IDP workshop. The change was made to attract more projects into the offering, and to make it easier for builders to assemble their design teams and trades people to receive support on multiple projects. Stipulations were outlined, to ensure that each project (development) has a separate address and its own individual application, design and modelling report.

Lessons Learned:

Despite general increased awareness of energy efficiency among homebuyers, a significant effort is still required to convince homebuyers that buying a home built above OBC 2017 is a good investment. In addition, it can be difficult to convince builders to focus on the long-term benefits of energy efficiency due to the evolving state of the housing market.

Enbridge Gas has found that municipalities are making changes to their sustainability checklists for new homes, and builders are looking to Enbridge Gas to assist them in fulfilling the requirements within sustainability checklist. Enbridge Gas will continue to support builders with improving the energy performance of their developments.

Anticipated Offering Changes for 2020:

In 2020, Enbridge Gas will require all delivery agents to use a common template for IDP reports, which will include a non-technical executive summary for decision-makers.

5.3.2 Savings by Design Commercial Offering

The Savings by Design Commercial Offering encourages commercial developers and builders to design and build new developments to a level above the current Ontario Building Code (“OBC”). The offering provides participants an integrated design process (“IDP”) and financial incentives. Through detailed analysis and modelling of various building elements, the goal is for participants to build at least 15% or above the 2017 OBC Part 3 requirements. Offering details are provided in Appendix C.

Table 5.11 2019 Savings by Design Commercial Offering Results (EGD Rate Zone)

METRICS	ACHIEVEMENT
New Developments	35

Offering Changes in 2019:

In 2019, Enbridge Gas enhanced its marketing efforts to increase awareness and participation in offering, by developing case studies that showcase past participation successes. Also, Enbridge Gas increased its municipal outreach efforts at various conferences, to influence changes at the municipal government level.

Lessons Learned:

Enbridge Gas has had success in not only improving building practices of participating builders and developers, but also in increasing the expertise and involvement of the subject matter experts in delivering the IDP workshops. This has led the workshops to become a platform to set modelling guidelines and protocols within the commercial new construction sector in Ontario.

Enbridge Gas will continue to focus on enhancing the key relationships with the architect community.

Anticipated Offering Changes for 2020:

Enbridge Gas does not anticipate major changes to the offering in 2020. Enbridge Gas will continue to expand the reach of offering by identifying new commercial and multi-residential projects, by working more closely with the municipalities and using internal data.

5.3.3 School Energy Competition Offering

The School Energy Competition Offering educates and empowers students to take action on energy use within their schools, homes and communities. Marketed as the Energy School Challenge (the “Challenge”), the offering engages schools in a friendly competition and has five main elements: education, behavioural change, implementation of activities, monitoring, and performance. Through the competition, each school is awarded points and is scored on the completion of activities. The three elementary and high schools that have scored the most points are awarded a financial prize. See Appendix C for offering details.

Table 5.12 2019 School Energy Competition Offering Results (EGD Rate Zone)

METRICS	ACHIEVEMENT
Schools	32

Offering Changes in 2019:

In 2019, Enbridge Gas launched the following strategies to increase offering awareness and improve the participants experience:

- Implementation of an online platform to improve the activity submission process. This platform also creates a more fluid interactive experience for the participating schools;
- Increased focus on marketing initiatives, digital marketing tools to increase offering awareness and participation, and video case studies that profile schools; and,

- The launch of limited time offers to increase actions, by providing school/library supplies and computing assets. This was initiated based on prior feedback from teachers.

Lessons Learned:

Enbridge Gas has identified some barriers that limits participation in the offering, such as:

- Competing priorities for teachers;
- Multiple programs being delivered to schools by other entities;
- Job uncertainties for the teachers; and,
- Lengthy approval process from school boards, so that schools can participate.

Regarding school board approval processes, Enbridge Gas Energy Solutions Advisors play an important role in overcoming the barriers, by directly engaging with the school boards. Furthermore, the permission application for school boards was extended to be applicable the end of 2020, rather than requiring annual updates.

Furthermore, the program team continuously revises the activity descriptions to provide clear deliverables and adds flexibility to the activity criterion to accommodate various teaching methods.

Anticipated Offering Changes for 2020:

Enbridge Gas will explore partnership opportunities with the Ontario Science Centre to deliver fieldtrip activities for schools in 2020.

5.3.4 Run it Right Offering

The Run it Right Offering is designed to motivate commercial customers to optimize the operation of their buildings. Through analysis of detailed energy data, building operators and managers are empowered to make strategic data-driven decisions regarding energy use in their facility.

Technical support is provided to participants in order to identify opportunities to more efficiently use heating equipment and systems in place. Customers complete recommended actions, then monitor and maintain these actions over a 12-month time period. Offering details including financial incentives available to participants are provided in Appendix C.

Table 5.13 2019 Run it Right Offering Results (EGD Rate Zone)

METRICS	ACHIEVEMENT
Participants	84
Large Volume Net Cumulative Gas Savings (m^3) (RA)	1,611,139

Offering Changes in 2019:

In 2019, the incentive towards implementation costs was harmonized to $8,000 regardless of customer consumption level. This change was made to reflect the fact that the cost of implementing operational improvement measures is not necessarily corelated to their gas

consumption level, but rather complexity of the building and/or gas usage. As with previous years, the implementation incentive coverage cannot exceed the total implementation cost.

Lessons Learned:

Enbridge Gas continues to experience some challenges in gaining access to daily energy consumption data in a timely manner for smaller participants.

Anticipated Offering Changes for 2020:

Enbridge Gas will continue to monitor the success of the Run it Right Offering. Enbridge Gas will review the offering design for approaches that better target participants, by using data analysis to identifying potential participants with the greatest savings opportunities.

5.3.5 Comprehensive Energy Management Offering

Through the Comprehensive Energy Management ("CEM") Offering, Enbridge Gas influences industrial and large commercial customers to adopt and nurture a culture of conservation and continuous energy improvement. Enbridge Gas works with participants in the offer by examining their unique energy usage, creating an energy model, and guiding customers to undertake recommended actions suitable to their operation.

Incentives are structured to support initial start-up costs in baseline and energy plan development and then provide incentives for energy efficiency improvements. Appendix C outlines the offering details.

Table 5.14 2019 Comprehensive Energy Management Offering Results (EGD Rate Zone)

METRICS	ACHIEVEMENT
Participants	7

Offering Changes in 2019:

In 2019, the Energy Management Information System ("EMIS") incentive limit was increased from $40,000 to $50,000, with a cap of 80% of the total EMIS cost. In addition, participant can apply for up to $2,500 financial assistance for their energy team to cover the costs of energy management related training (such as CEM certification).

Lessons Learned:

Enbridge Gas has found that significant effort is required to strengthen the educational element of the offering among potential participants, which is critical to the success of the offering. In 2019, Enbridge Gas expanded its multi-media campaign by leveraging

various marketing tools including radio, digital media, and targeted print magazines to better reach the mid-to-low tier consumption customers. Furthermore, to better promote the offering and enhance Enbridge Gas' technical expertise in energy management, Enbridge Gas continued to engage in various events and speaking engagement.

Anticipated Offering Changes for 2020:

Enbridge Gas will continue to monitor the efficacy of the CEM Offering in order to identify improvement opportunities for 2020.

6. Programs and Offerings (Union Rate Zones)

Enbridge Gas' DSM portfolio for the Union rate zones consists of the following programs:

- Residential Program (Section 6.1)
- Commercial/Industrial Program (Section 6.2)
- Low-Income Program (Section 6.3)
- Large Volume Program (Section 6.4)
- Market Transformation Program (Section 6.5)
- Performance-Based Program (Section 6.6)

6.1 RESIDENTIAL PROGRAM

Enbridge Gas' Residential Program for the Union rate zones consists of the following offerings:

- Home Efficiency Rebate Offering (Section 6.1.1)
- Residential Adaptive Thermostat Offering (Section 6.1.2)

6.1.1 Home Efficiency Rebate Offering

Through the Home Efficiency Rebate ("HER") Offering, residential customers gain a better understanding of their home's energy usage, and insights into energy improvement opportunities identified through the completion of a home energy audit. By participating in HER, homeowners can increase the energy efficiency of their home and decrease their energy bills each year, enhance home comfort, avoid unsightly mould and condensation caused by poor insulation, and improve their health through better indoor air quality.

Through the offering, participants work with an approved Service Organization ("SO") to complete a preliminary energy assessment to determine the home's current energy use and profile. A Registered Energy Advisor ("REA") models the home using Natural Resources Canada ("NRCan") energy modelling software (HOT2000) to produce an energy efficiency report for the homeowner that outlines all energy saving opportunities, along with the home's EnerGuide rating and energy saving tips and information. With this information, the homeowner is able to make informed decisions regarding potential energy efficient improvements. Rebates are available for completing the assessments and at least two eligible measures recommended in the energy efficiency report (incentive structure and measure list can be found in Appendix D). After upgrades to the home are complete, participants complete a post-energy assessment with the REA to quantify the energy savings achieved by the retrofits, as determined by HOT2000.

The target customer for this offering are residential customers within Union rate zones, including detached, semi-detached, townhouses, row townhouses, and mobile homes. To be eligible for the offering, participants must have a natural gas furnace or boiler as a primary heating system. Additionally, participants must complete both the pre-energy and post-energy assessments using an Enbridge Gas approved SO and install at least two qualifying measures.

The aggregate annual gas savings across all participants in the offering must achieve, on average, at least a 15% reduction in annual natural gas use, when comparing the results of the pre-energy assessment to the results of the post-energy assessment as determined by HOT2000.

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Table 6.0 2019 Home Efficiency Rebate Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	154,742,128
Participants (homes)	10,958

Offering Changes in 2019:

Following the amalgamation of Union Gas Limited and Enbridge Gas Distribution, the former home retrofit offerings were harmonized in May of 2019 from the customer/participant perspective. The offering adopted a new name, the Home Efficiency Rebate ("HER") offering, to facilitate clarity and a consistent customer-facing experience for all Enbridge Gas customers province-wide. By Q3 2019, consistent marketing initiatives were being deployed across all rate zones in the Enbridge Gas franchise area.

Harmonization also included combining participating SOs. The 12 SOs signed amended program delivery agreements, which allowed their energy advisors to service homes across both former franchise areas. The energy advisor process and documentation requirements were streamlined for consistency so that customers would have a similar experience regardless of their rate zone.

Enbridge Gas's partnerships with the Government of Ontario and IESO, which began in 2016 and 2017 respectively, concluded during the 2018 program year. No new participants were enrolled in the offering in 2019 using Government of Ontario or IESO funding. With the conclusion of these partnerships, the offering returned to being DSM ratepayer funded only. As such, all non-Enbridge Gas natural gas homes, and homes heated by fuels other than natural gas, were no longer eligible to enroll in the offering in 2019.

Lessons Learned:

With the conclusion of funding from the Government of Ontario and IESO, the Company saw a reduction in participation, specifically as it relates to the furnace rebate, which was reduced from $1000 to $750.

Enbridge Gas also identified that many participants were pairing furnaces with air sealing to meet the minimum offering eligibility of two measures. While this results in significant gas savings that meet the offering's requirements, it became apparent that the measure mix of installations could be diversified to focus more on insulation and building envelope measures, which can generate even greater gas savings. To diversify the measure mix, Enbridge Gas launched two limited time offers ("LTO"). The purpose of the LTOs were to encouraged homeowners to think more about their entire home, beyond the furnace and air sealing, and to increase participation in attic insulation resulting in higher gas savings per home. The LTOs also enables HVACs and insulators to work together, with homeowners, to support the goals of the offering. LTO incentive details can be found in Appendix D.

By the end of 2019, results began to show a change in participant behaviour with an increase in the installation of attic insulation. The information and analytics gathered from these 2019 projects will allow Enbridge Gas to tweak and update the offering design for 2020 and beyond.

Anticipated Offering Changes for 2020:

As a result of Amendment 15, changes to the furnace rebate are likely required, as the new regulation is expected to reduce the savings associated with the furnace measure. With the introduction of the LTOs in 2019 noted above, Enbridge Gas was able to test potential changes to the offering, such as a shift from furnace participation to other measures.

6.1.2 Residential Adaptive Thermostat Offering

Adaptive thermostats, also known as smart thermostats, are one of the easiest ways for residential customers to save on energy costs. Adaptive thermostats use sensors and Wi-Fi technology to give homeowners greater flexibility in controlling heating and cooling needs while at home or away, which supports a reduced demand on energy consumption.

Within its Decision and Order on the 2015-2020 DSM Plans, the OEB directed the Company to consider the adaptive thermostat technology as part of its residential programming for the Union rate zones at the mid-term review (the EGD rate zone has provided an incentive for the technology to residential customers since 2016). In its January 15, 2018 mid-term review submission for Union rate zones, the Company proposed the development of a new adaptive thermostat offering within its Residential Program and began delivering the offering in 2019. The offering provides customers a rebate towards the purchase of an eligible adaptive thermostat. Incentive details are provided in Appendix D.

To be eligible for the offering, a customer must:

- Be a residential customer in a Union rate zone;
- Reside in a single-family home (detached, semi-detached, and row townhouse homes are eligible).
- Have their adaptive thermostat control their primary heating source of natural gas (i.e. propane, oil and electric heating is not eligible)
- Have not applied to and/or received an incentive related to the thermostat through any other conservation program(s) in Ontario.

Table 6.1 2019 Residential Adaptive Thermostat Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	8,416,434

Offering Changes in 2019:

As noted above, the offering is new for residential customers in Union rate zones in 2019. The offering, which mirrors the EGD rate zone offering, ensures equal access and a consistent offer to all Enbridge Gas residential customers province-wide.

Previously, the EGD rate zone offering consisted of a $100 rebate for the purchase of the technology. For 2019 the rebate was lowered to $75 across Union rate zones and the EGD rate zone. This change was made to reflect the decrease in retail prices for the adaptive thermostat technology, and to maximize energy savings within the DSM budget available.

Furthermore, the EGD rate zone offering consisted of a post-purchase customer rebate. In July 2019 the design of the offering changed to an instant rebate, across Union rate zones and the EGD rate zone. This made the incentive available in-store at the time of purchase (at participating Home Depot locations) as well as online. This change was made to modernize and enhance the participation experience, in an effort to increase participation.

Lessons Learned:

Providing an instant rebate for purchases of adaptive thermostats is a new and innovative procedure, and as such required significant time and effort to launch. Several learnings were experienced throughout the process, including how to handle data transfer issues and how to make process changes to enhance customer experience. As the year progressed, the issues were resolved, and the Company started to see increased participation. The year ended with strong monthly results, illustrating the potential of the program. Enbridge Gas will continue to monitor uptake to ensure the growth of the offering.

Anticipated Offering Changes for 2020:

Enbridge Gas does not anticipate significant changes to the offering in 2020. The focus in 2020 will be to enhance marketing efforts to generate offering awareness, increase participation, and improve customer experience. In addition, efforts will be made to explore opportunities to expand the offering to other online/retail channels and to add more qualifying devices to the program.

6.2 COMMERCIAL/INDUSTRIAL PROGRAM

Enbridge Gas' Commercial/Industrial Program for the Union rate zones consists of the following offerings:

- Commercial/Industrial Prescriptive Offering (Section 6.2.1)
- Commercial/Industrial Direct Install Offering (Section 6.2.2)
- Commercial/Industrial Custom Offering (Section 6.2.3)

6.2.1 Commercial/Industrial Prescriptive Offering

Through the Commercial/Industrial Prescriptive ("C/I Prescriptive") Offering, fixed financial incentives are available for the installation of eligible high-efficiency technologies. Incentives are provided to customers, service providers, and/or distributors/dealers, depending on the technology. Please see Appendix D for the full list of eligible technologies and their incentives. Energy savings are based on the OEB's Technical Resource Manual. See Section 2.6 for more details regarding the TRM.

Table 6.2 2019 Commercial/Industrial Prescriptive Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	152,270,800

Offering Changes in 2019:

In an effort to improve offering consistency between the EGD rate zone and Union rate zones, incentive structures for the majority of prescriptive measures were aligned province-wide in 2019.

In June 2019, Enbridge Gas launched a new midstream initiative through a third-party delivery agent, branded as the "Distributor Discount Program". This initiative targets distributors or equipment dealers who sell select high-efficient equipment, to promote the purchase of the high-efficiency option at the point of sale. The following measures were transitioned from a downstream customer incentive to the midstream initiative:

- HVAC
    - Condensing Water Heaters (Tankless, Storage Tanks)
    - Condensing Unit Heaters
- Foodservice
    - EnergyStar Fryers
    - EnergyStar Steam Cookers
    - High Efficiency Under Fired Broilers

Other notable 2019 offering changes include:

- Discontinuation of the infrared heater incentive, in an attempt to lower free-ridership in the offering (see Lessons Learned below)
- The launch of limited-time bonus offers for ozone laundry measures, to drive greater participation from commercial customers.

Lessons Learned:

Early results for the new midstream initiative were low due to typical challenges when launching new large-scale initiatives, including challenges to ensure the offering's requirements are met by distributors/dealers (most distributors/dealers take 1-2 months to align their operations to meet reporting and documentation requirements). In addition, distributors/dealers require time and resources to effectively communicate the offering within their organization.

Informed in part by the 2017 C&I Prescriptive Verification Report[10], Enbridge Gas learned that the infrared heater technology has high free-rider participation within the offering. The decision was made to discontinue the infrared heater incentive, in an attempt to lower free-ridership in the offering.

Anticipated Offering Changes for 2020:

With respect to the new midstream initiative, Enbridge Gas will seek to improve engagement throughout the distributor/dealer's organizations. This includes:

- Enhancing offering materials and marketing efforts;
- Providing hands-on training for branch staff; and,
- Providing contact information for direct support at the counter-staff level.

[10] https://www.oeb.ca/sites/default/files/2017-DSM-Annual-Verification-Report.pdf, *Appendix S*

Enbridge Gas will also explore adding more high-efficiency equipment options to the midstream initiative.

Enbridge Gas anticipates that there will be opportunities increase to customer incentive levels for certain technologies within the offering, to optimize natural gas savings results.

6.2.2 Commercial/Industrial Direct Install Offering

The Commercial/Industrial Direct Install Offering provides a turnkey solution for customers who are less likely to participating in traditional offerings, by providing the installation of energy efficient technologies. The offering also provides increased incentive levels for select technologies. Offering details are provided in Appendix D.

Table 6.3 2019 Commercial/Industrial Direct Install Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	72,789,855

Offering Changes in 2019:

In 2019, the areas served were expanded in the London to Windsor area and in Eastern Ontario. The offering's base incentive structure was carried over from 2018, enabling vendors to continue their consistency and momentum into 2019. While the base incentive received by the participant did not change, a 30-day bonus offer ($750) was introduced to encourage customers to pursue projects.

Lessons Learned:

Enbridge Gas has found that a barrier in initial participation is lack of clarity in the legitimacy of the offering (due to the high incentive and turnkey installation). To mitigate the issue, vendors require direct touchpoints with customers, including personalized site visits to provide a quote and set up the installation. Furthermore, promoting the offering earlier in the year and using multiple marketing channels can help improve legitimacy of the offering to potential participants.

Enbridge Gas also found that streamlining the offering's administrative processes (such as the documentation requirements for invoicing) to expedite the project submissions and payments to the contractors can increase participation results.

Enbridge Gas also found that having experienced vendor staff played an important role in meeting the logistical demands of the offering's expansion to new geographic areas.

Anticipated Offering Changes for 2020:

The following offering changes are being explored for 2020:

- Expanding the offering's installation areas for shipping and receiving air doors within the Union rate zones to include regions north of the Greater Toronto Area
- Addition of the dock door seals measure to the offering

- Addition of the demand control kitchen ventilation measure to the offering, including the launch of a collaboration initiative with the IESO

6.2.3 Commercial/Industrial Custom Offering

The Commercial/Industrial Custom ("C/I Custom") Offering addresses energy savings opportunities related to unique building specifications, design concepts, processes and/or new technologies that are outside the scope of prescriptive measures. The offering provides technical assistance and financial incentives to encourage customers to implement energy efficient technologies. Enbridge Gas provides consultative services to customers and third-party service providers aimed at assessing building energy consumption and making recommendations for gas-saving measures. See Appendix D for the offering details.

The C/I Custom Offering targets commercial, agricultural, and industrial customers, with the exception of large volume customers (see Section 6.4.1, the Large Volume Direct Access Offering) and low-income qualified multi-family buildings (see Section 6.3.4, the Multi-Residential Affordable Housing Offering).

Table 6.4 2019 Commercial/Industrial Custom Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	542,374,593

Offering Changes in 2019:

The financial incentive for meter installation was increased from $3,500 to $5,000, with a limit of 5 meters per site, to reflect the increasing cost of meters.

Lessons Learned:

Providing customers with access to technical experts continues to be critical to the success of the offering. They provide full account management support, from initial assessment of energy efficiency opportunities, to completing the custom project application including confirming the appropriate base case, high efficiency option and measure life for the project.

Two initiatives, the study top-up and limited time offers, which continued from previous years, have continued to draw positive responses from customers. Both campaigns continue to contribute to the offering's results, and are expected to continue driving participation going forward.

Anticipated Offering Changes for 2020:

For 2020, Enbridge Gas is exploring the reintroduction of steam trap replacement studies and steam trap replacement incentives to capture scenarios where customers are not conducting replacements on their own. Enbridge Gas also expects to transition common

dock door seal projects from the C/I Custom Offering to the C/I Prescriptive Offering and C/I Direct Install Offering, as an outcome of a new prescriptive measures being added to TRM Version 4.0 (see Section 2.6 for more information on the TRM).

6.3 LOW-INCOME PROGRAM

Enbridge Gas' Low-Income Program for the Union rate zones consists of the following offerings:

- Home Weatherization Offering (Section 6.3.1)
- Furnace End-of-Life Upgrade Offering (Section 6.3.2)
- Indigenous Offering (Section 6.3.3)
- Multi-Residential Affordable Housing Offering (Section 6.3.4)

6.3.1 Home Weatherization Offering

The Home Weatherization Offering is designed to reduce energy costs and improve indoor home comfort for low-income customers (homeowners and tenants who pay their natural gas bill). Participants receive a home energy assessment and direct installation of weatherization services, with no cost to the participant. As a health and safety value add-on, a carbon monoxide monitor is provided to participants where one is not already present in the home. At the time of the home energy assessment, the home is also prequalified for water conservation measures (showerheads and aerators) and a smart thermostat. The offering is available for both privately owned single-family homes, and the social and assisted housing. Offering details can be found in Appendix D.

Table 6.5 2019 Home Weatherization Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	51,145,673

Offering Changes in 2019:

In 2019, Union offered smart thermostats to past participants. Outreach was conducted as a standalone initiative to reach the large number of past participants.

Enbridge Gas and the IESO shared the same delivery agent for their respective low-income single-family offerings. As such, the two entities were able to coordinate on income qualification for potential participants. This collaboration reduced duplicative income qualification efforts and confusion among customers, and resulted in the ability to share potential low-income participants between Enbridge Gas and IESO.

Lessons Learned:

In 2019, a robust marketing campaign over a variety of media channels drove a steady supply of leads to the delivery agent, driving increased offering results and proving the impact that marketing and awareness has on achieving energy efficiency results.

Anticipated Offering Changes for 2020:

Enbridge Gas will continue to explore alignment with the EGD rate zone's Home Winterproofing Offering to maximize offering uptake and provide a better experience to low-income customers. This could include:

- Aligning the offering name to limit market confusion;
- Sharing more marketing, associations and partnerships costs to maximize cost effectiveness and efficiencies;
- Implementation of EnergyX;
- Implementation of HWP Mobile Truck; and,
- Adding exterior cladding as an optional measure.

6.3.2 Furnace End-of-Life Upgrade Offering

The Furnace End-of-Life Upgrade Offering provides an incentive to low-income customers to upgrade to a high-efficiency furnace upon failure of their existing furnace. Offering details are provided in Appendix D.

Table 6.6 2019 Furnace End-of-Life Upgrade Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	106,596

Offering Changes in 2019:

Uptake in this offering has been low in recent years, and while the Union rate zones' Low-Income Program remains above the OEB's low-income TRC-Plus threshold, this offering specifically is not cost-effective. Cost-effectiveness of the offering is further impacted by Amendment 15, which increases the baseline of residential furnaces from 90% Annual Fuel Utilization Efficiency ("AFUE") to 95% AFUE. As such, Enbridge Gas shifted focus to other offerings within the Low-Income Program.

Lessons Learned:

Uptake in this offering has been low in recent years and has a low TRC-Plus result. See "Offering Changes in 2019" above for more details.

Anticipated Offering Changes for 2020:

Enbridge Gas does not anticipate increased participation in this offering in 2020. See “Offering Changes in 2019” above for more details.

6.3.3 Indigenous Offering

The Indigenous Offering combines the Home Weatherization Offering and the Furnace End-of-Life Upgrade Offering, and is delivered directly to Indigenous communities within the Union rate zones. Participants receive a home energy assessment and direct installation of weatherization services, installed by an Indigenous delivery agent with no cost to the participant, along with a financial incentive if upgrading an end-of-life furnace to a higher-efficiency furnace. As a health and safety value add-on, a carbon monoxide monitor is provided to participants where one is not already present in the home. At the time of the home energy assessment, the home is also prequalified for water conservation measures (showerheads and aerators) and a smart thermostat. Offering details are provided in Appendix D. The offering also has an economic development component in an effort to provide local employment opportunities for members of participating communities.

In 2019, the offering included 5 communities. The number of communities targeted each year is dependent on the Band Council’s endorsement to operate in their communities and capacity of the delivery agent.

Table 6.7 2019 Indigenous Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	479,971

Offering Changes in 2019:

There were no changes to the offering in 2019.

Lessons Learned:

Enbridge Gas has found that the offering has helped to foster stronger energy conservation relationships with the Indigenous communities.

Anticipated Offering Changes for 2020:

Enbridge Gas anticipates undertaking a pilot project will to determine other measures that are needed by Indigenous communities. The results will provide information for the planning of future DSM programs.

6.3.4 Multi-Residential Affordable Housing Offering

The Multi-Residential Affordable Housing Offering provides social and assisted housing and low-income market rate multi-family buildings with technical assistance and incentives for a variety of energy efficiency measures. Participants are eligible for both custom and prescriptive measure incentives, similar to the Commercial/Industrial Prescriptive Offering and Commercial/Industrial Custom Offering, however incentive levels are higher to reflect the needs of the low-income market. Offering details are provided in Appendix D.

Table 6.8 2019 Multi-Residential Affordable Housing Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Social and Assisted Multi-Family Net Cumulative Natural Gas Savings (m^3)	22,803,825
Market Rate Multi-Family Net Cumulative Natural Gas Savings (m^3)	4,774,193

Offering Changes in 2019:

There were no major offering changes in 2019.

Lessons Learned:

Recognizing that the offering's past participation was mainly from large social housing providers, significant analysis and preparation work was completed to improve the program delivery strategies. Lessons learned from this work will help Enbridge Gas serve more mid-size and smaller social housing providers, as well as private market rate buildings.

Anticipated Offering Changes for 2020:

Several changes are anticipated for 2020 in an effort to align the Union rate zones' offering with the EGD rate zone's comparable low-income multi-family offering, including using consistently branded names and changes to measure lists.

Further changes to incentive structures and measure lists are anticipated, to align Enbridge Gas' low-income multi-family offerings with the non-low-income commercial offerings, where appropriate. This is being explored to reduce customer confusion.

6.4 LARGE VOLUME PROGRAM

Enbridge Gas' Large Volume Program for the Union rate zones consists of the following offering:

- Large Volume Direct Access Offering (Section 6.4.1)

6.4.1 Large Volume Direct Access Offering

The Large Volume Direct Access Offering is exclusive to large volume contract customers within Rate T2 or Rate 100. All customers in these rate classes are eligible to participate in the offer. Customers in these rate classes have very high natural gas consumption and include large volume industrial operations, power generators, chemical plants, and petroleum refineries.

The offering uses a self-directed funding model, whereby each customer has direct access to the incentive budget they pay in rates. Under this model, customers know exactly how much funding they have available each program year and they can appropriately plan their expenditures to reduce energy usage in their facility. With the support of Enbridge Gas Energy Solutions Advisors, customers are required to submit an Energy Efficiency Plan ("EEP"), which serves as a roadmap, allowing customers and Enbridge Gas to actively work together, driving energy efficiency projects. If a customer elects not to participate, the funds are dispersed via an aggregated pool approach. The aggregated pool is then used to fund additional energy efficiency projects for all Rate T2 and Rate 100 customers, on a first-come first-serve basis. Offering details are provided in Appendix D.

Table 6.9 2019 Large Volume Direct Access Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Net Cumulative Natural Gas Savings (m^3)	72,370,192

Offering Changes in 2019:

In 2019, a pilot initiative was developed that included detailed steam audit and steam/energy training. Incentives were provided to cover up to 100% of the project cost, which is more lucrative then the offering's standard incentive structure.

Lessons Learned:

Due to customer capital budget cycles, it took longer to deploy the pilot initiative than expected, with most of the projects planned for 2019 rescheduled for 2020. As a result, the natural gas savings in 2019 were lower than expected.

Anticipated Offering Changes for 2020:

With strong customer interest in the pilot initiative, the pilot initiative will continue in 2020.

6.5 MARKET TRANSFORMATION PROGRAM

Enbridge Gas' Market Transformation Program for the Union rate zones consists of the following offerings:

- Optimum Home Offering (Section 6.5.1)
- Commercial Savings by Design Offering (Section 6.5.2)

6.5.1 Optimum Home Offering

The Optimum Home Offering helps residential builders improve energy performance in new construction projects, by providing a variety of support activities from the early design phase through to construction. The offering is designed to transform builders, over a multi-year period, to build more homes that exceed the 2017 Ontario Building Code ("OBC 2017") by at least 15%. Offering details are provided in Appendix D.

Table 6.10 2019 Optimum Home Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
Participating Builders (Regional Top 10)	4
Prototype Homes Built	95%
Percentage of Homes Built (>15% above OBC 2017) by Participating Builder	28.6%

Offering Changes in 2019:

In an effort to increase homebuyer demand for homes built above OBC 2017, Enbridge Gas launched a digital marketing campaign in 2019 to drive traffic to the homebuyer website, which was updated in 2018 to include homebuyer testimonial videos.

Enbridge Gas also launched a digital marketing campaign in 2019 to drive traffic to the builder website, which assist the builder with development of a business case for homes built above OBC 2017.

In 2019, Enbridge Gas launched a pilot initiative to address the needs of small to mid-size builders (6-30 builds annually). Ten small to mid-size builder participants were recruited in 2019, and Enbridge Gas will measure the success of the pilot based on the same metrics as the large builder offering. The findings from the pilot will help inform future DSM programming.

Lessons Learned:

Despite general increased awareness of energy efficiency among homebuyers, a significant effort is still required to convince homebuyers that buying a home built above OBC 2017 is a good investment. In addition, it can be difficult to convince builders to focus on the long-term benefits of energy efficiency due to the evolving state of the housing market.

Enbridge Gas also found that there is a lack of qualified Energy Star evaluators in some regions within the Union rate zones, impacting Enbridge Gas' ability to influence those markets.

Anticipated Offering Changes for 2020:

Further digital market campaigns are being planned for 2020 to drive traffic to Enbridge Gas' homebuyer and builder websites. In addition, the pilot, designed for small to mid-sized builders, will continue through 2020.

6.5.2 Commercial Savings by Design Offering

The Commercial Savings by Design ("CSBD") Offering encourages commercial developers and builders to design and build new developments to a level above the current Ontario Building Code ("OBC"). The offering provides participants an integrated design process ("IDP") and financial incentives. Through detailed analysis and modelling of various building elements, the goal is for participants to build at least 15% or above the 2017 OBC Part 3 requirements. Offering details are provided in Appendix D.

Table 6.11 2019 Commercial Savings by Design Offering Results (Union Rate Zones)

METRIC	ACHIEVEMENT
New Developments Enrolled by Participating Builders	22

Offering Changes in 2019:

In 2019, bonus offers were provided to increase participation and to encourage participants to progress through the offering, including:

- A $3,000 bonus incentive for participants that completed the IDP workshop prior to November 30, 2019
- A $1,000 bonus incentive for architects who identified eligible projects within the Union rate zones that are in the design phase and could benefit from the IDP session

Enbridge Gas also enhanced its marketing efforts to increase awareness and participation in offering, by developing case studies that showcase past participation successes.

Lessons Learned:

Enbridge Gas has had success in not only improving building practices of participating builders and developers, but also in increasing the expertise and involvement of the subject matter experts in delivering the IDP workshops. This has led the workshops to become a platform to set modelling guidelines and protocols within the commercial new construction sector in Ontario.

Enbridge Gas will continue to focus on enhancing the key relationships with the architect community.

Anticipated Offering Changes for 2020:

Enbridge Gas does not anticipate major changes to the offering in 2020. Enbridge Gas will continue to expand the reach of the offering by identifying new commercial and multi-residential projects, by working more closely with the municipalities and using internal data.

6.6 PERFORMANCE-BASED PROGRAM

Enbridge Gas' Performance-Based Program for the Union rate zones consists of the following offerings:

- RunSmart Offering (Section 6.6.1)

- Strategic Energy Management Offering (Section 6.6.2)

6.6.1 RunSmart Offering

The RunSmart Offering is designed to motivate commercial customers to optimize the operation of their buildings. Through analysis of detailed energy data, building operators and managers are empowered to make strategic data-driven decisions regarding energy use in their facility.

Technical support is provided to participants in order to identify opportunities to more efficiently use heating equipment and systems in place. Customers complete recommended actions, then monitor and maintain these actions over a 12-month time period. Offering details including financial incentives available to participants are provided in Appendix D.

Table 6.12 2019 RunSmart Offering Results (Union Rate Zones)

METRICS	ACHIEVEMENT
Participants	58
Savings (%)	0.4%

Offering Changes in 2019:

There were no changes to the offering in 2019.

Lessons Learned:

Enbridge Gas has found that ensuring the decision maker and maintenance personnel are present for the initial site visit has proven to be beneficial to the success of the offering. Although it is ultimately the customer's decision who will engage with Enbridge Gas through the offering process, Enbridge Gas has focused efforts towards ensuring the appropriate contact is available, in order to improve results.

Anticipated Offering Changes for 2020:

Enbridge Gas is reviewing the design of the RunSmart Offering in an effort to improve cost-effectiveness results. Enbridge Gas will explore a more targeted approach, using data analysis to identify potential participants who have greater savings potential and would benefit most from the offering.

6.6.2 Strategic Energy Management Offering

Through the Strategic Energy Management ("SEM") Offering, Enbridge Gas influences industrial customers to adopt and nurture a culture of conservation and continuous energy improvement. Enbridge Gas works with participants in the offer by examining their unique energy usage, creating an energy model, and guiding customers to undertake recommended actions suitable to their operation.

Incentives are structured to support initial start-up costs in baseline and energy plan development and then provide incentives for measured energy efficiency improvements over a 5-year participation period. Appendix D outlines the offering details.

Table 6.13 2019 Strategic Energy Management Offering Results (Union Rate Zones)

METRICS	ACHIEVEMENT
Savings (%)	0%

Offering Changes in 2019:

No offering changes were made in 2019. Consistent with the 2015-2020 DSM Plan, 2018 was the last year new participants are enrolled in the offering.

Lessons Learned:

None of the 3 customers that were eligible for incentives in 2019 received incentives, due internal priorities on the customer's side. Enbridge Gas will continue to work with the participants in 2020 to achieve natural gas savings.

Enbridge Gas continues to try different approaches to influence customers to implement the suggested improvements provided by the offering. Even with enhanced business cases to justify expenditures, customers face other barriers that prevent implementation, such as a focus on the customer's long-term viability.

Anticipated Offering Changes for 2020:

Consistent with the 2015-2020 DSM Plan, 2018 was the last year new participants are enrolled in the offering. As such Enbridge Gas will continue to work with the participants already enrolled in the offering.

7. Evaluation

As per the DSM Guidelines, “There are two broad categories of evaluation activity: impact evaluation and process evaluation. Impact evaluation focuses on the specific impacts of the program – for example, savings and costs. Process evaluation focuses on the effectiveness of the program design – for example, the delivery channel.”

As discussed in Section 2.3, impact evaluation is coordinated and executed by the OEB. Since program design and implementation are program administrator activities, process evaluation is coordinated and executed by Enbridge Gas.

7.1 IMPACT EVALUATION AND AUDIT

As discussed in Section 2.3, the OEB coordinates the impact evaluation and annual audit process, including selecting a third-party Evaluation Contractor (“EC”). The intention of the audit is for the EC provide an opinion on whether the claimed DSM shareholder incentive amount, amount to be added to the Lost Revenue Adjustment Mechanism Variance Account, and Demand Side Management Variance Account have been correctly calculated using reasonable assumptions. The EAC, as described in Section 2.3, provides input and advice to the EC to support the achievement of the audit objectives.

The audit for the 2019 program year was initiated by the OEB and the EC in March 2020 and completed in December 2020. Details on the impact evaluation activities and other audit activities are outlined in the EC’s 2019 audit report available on the OEB’s DSM EM&V webpage.[11]

7.2 PROCESS EVALUATION

Enbridge Gas continuously evaluates its programs and offerings to assess the effectiveness of its program design. Most of the time, these assessments consist of many smaller, topic-focused, informal process evaluations conducted by Enbridge Gas’ program design staff. The most common examples of these process evaluations include assessing incentive levels, customer communication tactics, and implementation logistics and systems.

In some instances, broad-based, formal process evaluations can be undertaken with support from external consultants, focusing on entire offerings or initiatives, rather than an individual topic.

Throughout 2018 and 2019, Enbridge Gas conducted a broad process evaluation on the Union rate zones’ Home Efficiency Rebate (“HER”) Offering, formerly named the Home Reno Rebate (“HRR”) Offering. The report was finalized by Econoler on October 10, 2019 and can be found in Appendix F. The main objectives of the process evaluation included:

- Identifying opportunities to improve the efficacy of program offerings and implementation efforts; and,
- Determining whether the data entry and quality assurance processes are sufficiently robust, efficiencies can be gained, or enhancements need to be made.

Some recommendations from the process evaluation, and the steps Enbridge Gas has undertaken or anticipates undertaking, include:

- Recommendation: Define additional performance indicators to correspond with the adjusted logic model and track all performance indicators linked to program objectives.

[11] https://www.oeb.ca/industry/policy-initiatives-and-consultations/natural-gas-demand-side-management-dsm-evaluation

- Enbridge Gas has added more offering performance indicators. One example, in an attempt to influence external energy advisors to recommend more measures to potential participants, Enbridge Gas has begun tracking and assessing Service Organizations based on average number of measures installed.

- Recommendation: Consider ways to increase uptake in insulation upgrades, such as increasing the rebate amount or better communicating the benefits of installing insulation.
  - Anticipated for the 2020 program year, Enbridge Gas will add additional participation requirements that any job with a furnace requires two additional measures. Furthermore, in Q3 2019 Enbridge Gas launched the limited time offer packages to encourage homeowners to implement attic insulation.

8. Results and Spend (EGD Rate Zone)

8.1 SCORECARD RESULTS AND SHAREHOLDER INCENTIVE

Enbridge Gas is eligible to earn a shareholder incentive of up $10.45M for the EGD rate zone, for DSM results measured against the EGD rate zone's Resource Acquisition, Low-Income and Market Transformation & Energy Management scorecards. The DSM shareholder incentive is established by the OEB to "effectively motivate the gas utilities to both actively and efficiently pursue DSM savings and to recognize exemplary performance."[12] The maximum incentive available is allocated to each scorecard based on the allocation of budget to each scorecard. For more information on the DSM shareholder incentive, refer to Section 5.0 of the DSM Framework and Section 5.0 of the DSM Guidelines.

In 2019, Enbridge Gas earned $6.7M in DSM incentive for the EGD rate zone, as outlined in Table 8.0 below.

Table 8.0 2019 Maximum Shareholder Incentive & Achievement by Scorecard (EGD Rate Zone)

SCORECARD	MAXIMUM DSM INCENTIVE	DSM SHAREHOLDER INCENTIVE ACHIEVED
Resource Acquisition	$7,013,471	$4,827,040
Low-Income	$2,264,127	$1,159,746
Market Transformation & Energy Management	$1,172,401	$730,586
Total	**$10,450,000**	**$6,717,372**

Detailed scorecard results for the EGD rate zone are provided in Table 8.1 to Table 8.3 below.

Table 8.1 2019 Resource Acquisition Scorecard Results (EGD Rate Zone)

METRICS	METRIC TARGET LEVELS			WEIGHT	ACHIEVEMENT	WEIGHTED % OF SCORECARD ACHIEVED
	LOWER BAND	TARGET	UPPER BAND			
Large Volume Customers – Cumulative Natural Gas Savings (m^3)	326,798,345	435,731,127	653,596,690	40%	502,499,656	46%
Small Volume Customers – Cumulative Natural Gas Savings (m^3)	223,954,472	298,605,963	447,908,944	40%	369,469,772	49%
Deep Residential Savings Participants	8,705	11,606	17,409	20%	16,480	28%
				Total Scorecard Target Achieved		***124%***
				Scorecard Company Incentive Achieved		***$4,827,040***

[12] *Report of the Board: DSM Framework for Natural Gas Distributors (2015-2020), EB-2014-0134, p. 20.*

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Table 8.2 2019 Low-Income Scorecard Results (EGD Rate Zone)

METRICS	METRIC TARGET LEVELS			WEIGHT	ACHIEVEMENT	WEIGHTED % OF SCORECARD ACHIEVED
	LOWER BAND	TARGET	UPPER BAND			
Single Family (Part 9) – Cumulative Natural Gas Savings (m^3)	15,454,405	20,605,874	30,908,811	45%	27,618,723	60%
Multi-Residential (Part 3) – Cumulative Natural Gas Savings (m^3)	76,908,576	102,544,768	153,817,153	45%	88,957,000	39%
New Construction Participants	8	11	17	10%	11	10%
				Total Scorecard Target Achieved		***109%***
				Scorecard Company Incentive Achieved		***$1,159,746***

Table 8.3 2019 Market Transformation & Energy Management Scorecard Results (EGD Rate Zone)

METRICS	METRIC TARGET LEVELS			WEIGHT	ACHIEVEMENT	WEIGHTED % OF SCORECARD ACHIEVED
	LOWER BAND	TARGET	UPPER BAND			
Residential Savings by Design – Builders	23	30	45	10%	39	13%
Residential Savings by Design – Homes Built	1,902	2,536	3,804	15%	2,989	18%
Commercial Savings by Design – New Developments	23	30	45	25%	35	29%
School Energy Competition – Schools	24	32	48	10%	32	10%
Run it Right – Participants	27	36	54	20%	84	40%
Comprehensive Energy Management – Participants	12	16	24	20%	7	9%
				Total Scorecard Target Achieved		***119%***
				Scorecard Company Incentive Achieved		***$730,586***

8.2 LOST REVENUE ADJUSTMENT MECHANISM

The Lost Revenue Adjustment Mechanism ("LRAM") allows the Enbridge Gas to recover the lost distribution revenue associated with DSM activity in the EGD rate zones. For more information on the LRAM, refer to Section 11.3 of the DSM Guidelines.

In 2019, lost distribution revenues associated with DSM activity for the EGD rate zone was $0.031M, as outlined in Table 8.4 below.

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Table 8.4 2019 LRAM Statement (EGD Rate Zone)

RATE CLASS	LRAM VOLUMES (M^3)	DISTRIBUTION MARGIN ($/M^3$)	REVENUE IMPACT
	(A)	(B)	(A) X (B)
Rate 110	1,841,371	$0.5944	$10,945
Rate 115	4,303,547	$0.2071	$8,912
Rate 135	618,172	$1.7467	$10,798
Rate 145	-	$1.2285	-
Rate 170	206,362	$0.1524	$315
TOTAL	**6,969,451**		**$30,969**

8.3 COST-EFFECTIVENESS RESULTS

As described in Section 2.4, cost-effectiveness screening for the 2015-2020 DSM Framework uses the "TRC-Plus" test. A secondary reference tool is the Program Administrator Cost ("PAC") test. The cost-effectiveness tests are performed at the program and portfolio level.

Table 8.5 and Table 8.6 provide the program and portfolio TRC-Plus and PAC results, respectively, for the EGD rate zone.

Table 8.5 2019 TRC-Plus Summary (EGD Rate Zone)

PROGRAM	NPV TRC-PLUS BENEFITS	TRC-PLUS PROGRAM COSTS	INCREMENTAL COSTS	TOTAL TRC COSTS	NET TRC-PLUS	TRC-PLUS RATIO
Resource Acquisition Program	$234,570,105	$8,532,950	$69,327,183	$77,860,133	$156,709,973	3.01
Low-Income Program	$30,571,280	$4,844,732	$9,034,779	$13,879,510	$16,691,769	2.20
Total DSM Portfolio	**$265,141,385**	**$13,377,682**	**$78,361,961**	**$91,739643**	**$173,401,742**	**2.89**

Table 8.6 2019 PAC Summary (EGD Rate Zone)

PROGRAM	NPV PAC BENEFITS	TOTAL PAC COSTS	NET PAC	PAC RATIO
Resource Acquisition Program	$188,940,978	$48,906,152	$140,034,826	3.86
Low-Income Program	$25,713,015	$11,968,215	$13,744,800	2.15
Total DSM Portfolio	**$214,653,993**	**$60,874,367**	**$153,779,626**	**3.53**

8.4 BUDGETS AND SPENDING

Total 2019 DSM spend for the EGD rate zone was $72.8M, compared to an OEB-approved budget of $66.4M. See Table 8.7 for more details. As per the OEB's Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020), Enbridge Gas was eligible to overspend by up to 15% of the total OEB-approved budget. The ability to overspend "is meant to allow the natural gas utilities to aggressively pursue programs which prove to be very successful".[13] For more details refer to Section 11.2 of the DSM Guidelines.

DSM spending for the EGD rate zone is categorized as:

- Incentive costs, promotion costs, evaluation costs, and overhead costs, related to the design and delivery of DSM programming;
- Collaboration and Innovation (Section 8.4.1); and,
- DSM IT System (Section 8.4.2).

Furthermore, 2019 spending also included the 2019 Conservation Achievable Potential Study[14].

Table 8.7 2019 Budget/Spend/Variance (EGD Rate Zone)

ITEM	OEB-APPROVED BUDGET	ACTUAL SPEND	VARIANCE
Resource Acquisition Program Costs			
Home Efficiency Rebate Offering - Incentives	$18,360,000	$27,755,661	$11,060,859
Home Efficiency Rebate Offering - Promotion		$1,665,198	
Residential Adaptive Thermostat Offering - Incentives	$2,218,500	$1,079,000	($860,891)
Residential Adaptive Thermostat Offering - Promotion		$278,609	
Commercial & Industrial Prescriptive (Fixed) Incentive Offering - Incentives	$2,277,564	$1,060,280	($895,959)
Commercial & Industrial Prescriptive (Fixed) Incentive Offering - Promotion		$321,325	
Commercial & Industrial Direct Install Offering - Incentives	$4,853,510	$3,866,652	($966,314)
Commercial & Industrial Direct Install Offering - Promotion		$20,543	
Custom Commercial Offering - Incentives	$7,508,793	$3,662,092	($190,580)
Custom Commercial Offering - Promotion		$708,246	
Custom Industrial Offering - Incentives		$2,732,226	
Custom Industrial Offering - Promotion		$215,648	
Energy Leaders Offering - Incentives	$0	$0	$4,600
Energy Leaders Offering - Promotion		$4,600	
Run It Right Offering (RA) - Incentives	$1,618,946	$17,000	($1,401,221)
Run It Right Offering (RA) - Promotion		$200,725	
Comprehensive Energy Management Offering (RA) - Incentives	$96,900	$0	($96,900)
Comprehensive Energy Management Offering (RA) - Promotion		$0	
Resource Acquisition Program - Overheads	$5,122,057	$4,794,602	($327,455)
Resource Acquisition Program Total	**$42,056,270**	**$48,382,409**	**$6,326,139**

[13] *DSM Guidelines, pp. 38*
[14] *The 2019 Conservation Achievable Potential Study was fully designed and executed by the OEB and the IESO (http://www.ieso.ca/2019-conservation-achievable-potential-study). The costs of the natural gas components of the study were passed on to the EGD rate zone and Union rate zones.*

ITEM	OEB-APPROVED BUDGET	ACTUAL SPEND	VARIANCE
Low-Income Program Costs			
Home Winterproofing Offering - Incentives	$6,605,744	$4,222,337	$536,152
Home Winterproofing Offering - Promotion		$2,919,559	
Multi-Residential Affordable Housing Offering - Incentives	$3,889,562	$2,901,146	($611,063)
Multi-Residential Affordable Housing Offering - Promotion		$377,353	
Savings by Design Affordable Housing Offering - Incentives	$1,428,000	$1,119,497	$294,304
Savings by Design Affordable Housing Offering - Promotion		$602,806	
Low-Income Program - Overheads	$1,653,531	$1,547,820	($105,711)
Low-Income Program Total	**$13,576,837**	**$13,690,519**	**$113,682**
Market Transformation & Energy Management Program Costs			
Savings by Design Residential Offering - Incentives	$3,320,443	$3,535,740	$857,961
Savings by Design Residential Offering - Promotion		$642,664	
Savings by Design Commercial Offering - Incentives	$1,098,300	$1,016,966	$394,092
Savings by Design Commercial Offering - Promotion		$475,426	
School Energy Competition Offering - Incentives	$510,000	$16,500	($254,587)
School Energy Competition Offering - Promotion		$238,913	
Run It Right Offering (MT) - Incentives	$322,236	$200,289	$206,107
Run It Right Offering (MT) - Promotion		$328,054	
Comprehensive Energy Management Offering (MT) - Incentives	$923,100	$5,356	($699,282)
Comprehensive Energy Management Offering (MT) - Promotion		$218,462	
Market Transformation & Energy Management Program - Overheads	$856,225	$801,486	($54,739)
Market Transformation & Energy Management Program Total	**$7,030,304**	**$7,479,856**	**$449,552**
TOTAL Program Costs	**$62,663,411**	**$69,552,784**	**$6,889,373**
Portfolio Costs			
Evaluation	$1,736,746	$1,524,765	($211,981)
Portfolio Total	**$1,736,746**	**$1,524,765**	**($211,981)**
TOTAL Program and Portfolio Costs	**$64,400,157**	**$71,077,548**	**$6,677,391**
Other Costs			
DSM IT	$1,000,000	$342,245	($657,755)
Collaboration and Innovation	$1,021,616	$1,145,846	$124,230
Achievable Potential Study	$0	$277,800	$277,800
Other Costs Total	**$2,021,616**	**$1,765,892**	**($255,724)**
TOTAL DSM Costs	**$66,421,773**	**$72,843,440**	**$6,421,667**

Included in the spend amounts above are customer incentives deferred to future years, for offerings where incentives are paid when future milestones/activities are reached. The deferred amounts will be used when the customer incentive commitment is due. For more information on customer incentive deferrals, please refer to Section 5.3.2 of the OEB's Mid-Term Report.

Specifically, the amounts are:

- Savings by Design Affordable Housing Offering: $811,300
- Savings by Design Residential Offering: $2,223,000
- Savings by Design Commercial Offering: $150,000

8.4.1 Collaboration and Innovation

The collaboration and innovation budget is used to explore and implement collaborative and innovative partnerships, technologies, and market approaches. The budget provides the flexibility needed to commit to pilot funding opportunities from electric LDCs and other innovative initiatives and research.

Given the importance and potential reach of these partnerships, there is a need for collaborative programs to be thoroughly tested and strengthened before being adopted for province-wide rollout. These efforts are expected to yield results and build strong collaborative relationships over time.

Actual collaboration and innovation spend was approximately $1.1M in 2019, and included the following major items:

- **AeroBarrier**
    - Enbridge Gas and AeroBarrier are partnering to demonstrate, measure, and analyze the energy savings that can be driven by the AeroBarrier air sealing technology in the Ontario new home residential market. The goal will be to test feasibility and measure reduction in air leakage through the application of AeroBarrier across a proposed 150-200 homes of varied size & type (stacked, detached, towns). In conjunction with Building Knowledge Inc. and through blower door testing and the use of energy modelling software, Enbridge Gas will generate a data set that measures the energy savings that the technology can drive in the new home building industry.
- **Affordability Fund Trust Pilot**
    - This pilot is designed to offer home insulation and air sealing to 20 moderate income customers in the Peterborough area. The pilot would target gas-heated homes participating in the Affordability Fund Trust's ("AFT") existing electricity conservation program, which AFT is delivering to customers without access to modern energy services, in collaboration with the local electricity utilities. Learnings from the pilot would be applied to a potential future collaborative gas/electric program targeting moderate-income customers who do not qualify to participate in Enbridge Gas' Low-Income Home Winterproofing Offering and the IESO's Home Assistance Program, but are unlikely to participate in mass market residential home retrofit programs due to lack of funds available to pay for retrofits out-of-pocket.
- **Centre for Energy Advancement through Technological Innovation ("CEATI") Cannabis Research**
    - To conduct a study to assess baseline consumption of electricity and natural gas for cannabis warehouse and greenhouse operations, and document best practices, available technologies, and implementation costs for saving energy in both warehouse and greenhouse facilities.
- **Gas Technology Institute ("GTI") Utilization Technology Development ("UTD") Membership**
    - UTD and its 20+ members serve over 47 million natural gas customers in across the Americas and Europe. These companies work together on technology developments that meet their end-use customer energy efficiency and environmental needs.
- **Independent Electricity System Operator ("IESO") Training**
    - To provide training incentives towards successful completion of the Building Operators Certification ("BOC") Program, Dollars to $ense and Selling Energy Efficiency ("SEE") training programs in its service area. Through a co-funding arrangement, Enbridge Gas and the IESO view this initiative as helping to meet capacity building, trade allies education,

and training DSM and CDM objectives. With Enbridge Gas' participation, holistic energy management approach is promoted with information on IESO's saveONenergy and Enbridge Gas' energy efficiency programs and services.

- **iFLOW Combination Heating System Assessment Project**
    - The iFLOW Combination Heating System is an innovative, high-efficiency smart air handler/heat exchanger with intelligent boiler demand control and pump modulation control. The project would see a in-field demonstration and performance assessment of five iFLOW units in model homes and new construction developments. Results would be compared with base case natural gas consumption of the model homes to quantify gas savings achieved by the iFlow Combination Heating System in new construction residential homes. The second phase of this project is to test 5 iFlow Combination Heating Systems in residential retrofit homes to quantify gas savings of the iFlow system in retrofit houses. Results could be used to support a new DSM programming.
- **Power House Hybrid ("PHH") Net Zero Energy Emissions ("NZEE")**
    - Alectra Utilities, City of Markham and Enbridge Gas have formed a partnership to validate how comprehensive, deep energy efficiency retrofits can be optimized with HVAC solutions that incorporate electrical and natural gas solutions for hybrid (dual fuel) heating. The project will also validate how micro-CHP solutions are integrated with solar photovoltaic and battery storage.
- **Sustainable Buildings Canada ("SBC") Combined Heat and Power ("CHP") Study**
    - The purpose of this project was to model a combined-heat and power system for a Part 3 Multi-Unit Residential Building (MURB) that was designed to meet the energy efficiency requirements of Supplementary Standard SB-10.
- **Stone Mountain Technologies ("SMTI") Rinnai Gas Heat Pump Water Heaters ("GHPWH")**
    - The purpose of the project is to join a multi-million dollar North American field demonstration project to support Rinnai in their business decision to start manufacturing GHPWH at commercial production levels and to address a diverse set of policy, technology, market and efficiency program considerations driving stakeholders focus on gas heat pumps.

8.4.2 DSM IT System

Enbridge Gas completed the work on implementation of the EGD rate zone IT system in Q1 of 2019 and rolled out the solution to users. The Company had completed the bulk of the design and execution activities in 2018, with the completion of these occurring during Q1 of 2019.

The main elements for the Delivery Phase included completion of User Testing, User Training and Change Management. More specifically, the Delivery Phase included:

- System Configuration and Customization;
- Systems Integration Testing and Acceptance;
- Data mapping;
- Data migration and integration;
- User Acceptance Testing;
- User Training; and,

- Change Management and Rollout.

As per the OEB Decision, Enbridge Gas was budgeted an annual $1 million chargeback for the DSM IT system. In practice, Enbridge Gas spent $0.1M in 2016, $3.1M in 2017, and $2.5M in 2018. In 2019, the Company will incur an additional cost of $0.3M. As spending for a project of this nature is not linear, it is understood that some years will have a significant underspend and some years will have a significant overspend. These imbalances will flow through the DSMVA as a credit or debit to ratepayers.

During 2019, Enbridge Gas determined that the costs related to the IT system were not capital in nature. Therefore, all costs incurred have been recorded as O&M costs in the respective year they have been incurred.

Within the OEB's decision on EGI's 2017/2018 DSM Deferral and Variance Account Disposition Application (EB-2020-0067), the OEB found that EGI should bear 50% of the cost of the overrun of $1.087 M (i.e. $0.544M) associated with the EGD rate zone's DSM Tracking and Reporting System. As per the decision, this amount was removed entirely from the 2017 DSMVA.

9. Results and Spend (Union Rate Zones)

9.1 SCORECARD RESULTS AND SHAREHOLDER INCENTIVE

Enbridge Gas is eligible to earn a shareholder incentive of up $10.45M for the Union rate zones, for DSM results measured against the Union rate zones' Resource Acquisition, Low-Income, Performance-Based, Large Volume, and Market Transformation Scorecards. The DSM shareholder incentive is established by the OEB to "effectively motivate the gas utilities to both actively and efficiently pursue DSM savings and to recognize exemplary performance."[15] The maximum incentive available is allocated to each scorecard based on the allocation of budget to each scorecard. For more information on the DSM shareholder incentive, refer to Section 5.0 of the DSM Framework and Section 5.0 of the DSM Guidelines.

In 2019, Enbridge Gas earned $6.0M in DSM incentive for the Union rate zones, as outlined in Table 9.0 below.

Table 9.0 2019 Maximum Shareholder Incentive & Achievement by Scorecard (Union Rate Zones)

SCORECARD	MAXIMUM DSM INCENTIVE	DSM SHAREHOLDER INCENTIVE ACHIEVED
Resource Acquisition	$6,682,671	$4,344,389
Low-Income	$2,499,922	$1,253,615
Large Volume	$706,956	$0
Market Transformation	$413,228	$352,359
Performance-Based	$147,223	$0
Total	**$10,450,000**	**$5,950,363**

Detailed scorecard results for the Union rate zones are provided in Table 9.1 to Table 9.5 below.

Table 9.1 2019 Resource Acquisition Scorecard Results (Union Rate Zones)

METRICS	METRIC TARGET LEVELS			WEIGHT	ACHIEVEMENT	WEIGHTED % OF SCORECARD ACHIEVED
	LOWER BAND	TARGET	UPPER BAND			
Cumulative Natural Gas Savings (m^3)	598,939,485	798,585,979	1,197,878,969	75%	935,593,809	88%
Home Reno Rebate Participants (Homes)	6,231	8,308	12,462	25%	10,958	33%
				Total Scorecard Target Achieved		***121%***
				Scorecard Company Incentive Achieved		***$4,344,389***

[15] *Report of the Board: DSM Framework for Natural Gas Distributors (2015-2020), EB-2014-0134, p. 20.*

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Table 9.2 2019 Low-Income Scorecard Results (Union Rate Zones)

METRICS	METRIC TARGET LEVELS			WEIGHT	ACHIEVEMENT	WEIGHTED % OF SCORECARD ACHIEVED
	LOWER BAND	TARGET	UPPER BAND			
Single Family Cumulative Natural Gas Savings (m^3)	32,841,561	43,788,748	65,683,123	60%	51,732,240	71%
Social and Assisted Multi-Family Cumulative Natural Gas Savings (m^3)	17,349,279	23,132,372	34,698,558	35%	22,803,825	35%
Market Rate Multi-Family Cumulative Natural Gas Savings (m^3)	5,835,560	7,780,746	11,671,119	5%	4,774,193	3%
				Total Scorecard Target Achieved		***108%***
				Scorecard Company Incentive Achieved		***$1,253,615***

Table 9.3 2019 Large Volume Scorecard Results (Union Rate Zones)

METRICS	METRIC TARGET LEVELS			WEIGHT	ACHIEVEMENT	WEIGHTED % OF SCORECARD ACHIEVED
	LOWER BAND	TARGET	UPPER BAND			
Cumulative Natural Gas Savings (m^3)	103,250,094	137,666,792	206,500,188	100%	72,370,192	53%
				Total Scorecard Target Achieved		***53%***
				Scorecard Company Incentive Achieved		***$0***

Table 9.4 2019 Market Transformation Scorecard Results (Union Rate Zones)

METRICS	METRIC TARGET LEVELS			WEIGHT	ACHIEVEMENT	WEIGHTED % OF SCORECARD ACHIEVED
	LOWER BAND	TARGET	UPPER BAND			
Optimum Home: Participating Builders (Regional Top 10)	3	4	6	10%	4	10%
Optimum Home: Prototype Homes Built	68%	90%	100%	10%	95%	13%
Optimum Home: Percentage of Homes Built (>15% above OBC 2017) by Participating Builders	3.25%	4.34%	6.50%	30%	28.6%	60%
Commercial Savings by Design: New Developments Enrolled by Participating Builders	15	20	30	50%	22	55%
				Total Scorecard Target Achieved		***138%***
				Scorecard Company Incentive Achieved		***$352,359***

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Table 9.5 2019 Performance-Based Scorecard Results (Union Rate Zones)

METRICS	METRIC TARGET LEVELS			WEIGHT	ACHIEVEMENT	WEIGHTED % OF SCORECARD ACHIEVED
	LOWER BAND	TARGET	UPPER BAND			
RunSmart Participants	42	56	84	10%	58	10%
RunSmart Savings (%)	0.53%	0.70%	1.05%	40%	0.35%	20%
Strategic Energy Management (SEM) Savings (%)	4%	5%	7%	50%	0%	0%
				Total Scorecard Target Achieved		***30%***
				Scorecard Company Incentive Achieved		***$0***

9.2 LOST REVENUE ADJUSTMENT MECHANISM

The Lost Revenue Adjustment Mechanism ("LRAM") allows the Enbridge Gas to recover the lost distribution revenue associated with DSM activity in the Union rate zones. For more information on the LRAM, refer to Section 11.3 of the DSM Guidelines.

In 2019, lost distribution revenues associated with DSM activity for the Union rate zones was $0.186M, as outlined in Table 9.6 below.

Table 9.6 2019 LRAM Statement (Union Rate Zones)

	LRAM VOLUMES (10^3 M^3)	DELIVERY RATES ($/$10^3$ M^3)	REVENUE IMPACT
	(A)	(B)	(A) X (B)
South - M4 Industrial	9,759	$14.69	$143,378.56
South - M5 Industrial	294	$26.10	$7,665.61
South - M7 Industrial	7,240	$2.99	$21,646.15
South - T1 Industrial	497	$1.03	$512.25
South - T2 Industrial	3,057	$0.20	$620.58
South Total	**20,847**		**$173,823.15**
North - 20 Industrial	1,653	$6.62	$10,938.60
North - 100 Industrial	677	$2.55	$1,723.71
North Total	**2,330**		**$12,662.31**
TOTAL	**23,177**		**$186,485.46**

9.3 COST-EFFECTIVENESS RESULTS

As described in Section 2.4, cost-effectiveness screening for the 2015-2020 DSM Framework uses the "TRC-Plus" test. A secondary reference tool is the Program Administrator Cost ("PAC") test. The cost-effectiveness tests are performed at the program and portfolio level.

Table 9.7 and Table 9.8 provide the program and portfolio TRC-Plus and PAC results, respectively, for the Union rate zones.

In 2019, as was the case in 2018, the Performance-Based Program screened below the 1.0 TRC-Plus threshold. This is due to natural gas savings results for RunSmart Offering participants being significantly lower than forecasted. Enbridge Gas has, and will continue to, review the design of the offering, and is considering changes in 2020 to improve cost-effectiveness. This includes improving data analysis approaches, to identify customers who have greater potential savings opportunities and would benefit more from active participation in this offering. This is expected to improve cost-effectiveness for this offering.

Similarly, natural gas savings from the Strategic Energy Management Offering were lower than initially forecast, as some participants limited their efficiency improvements due to competing financial priorities. Given the nature of multi-year participation in the offering, Enbridge Gas is not enrolling new participants. Enbridge Gas is focused on continuing to support participants already enrolled and in the process of implementing energy management plans, with the aim of identifying efficiency opportunities that realize greater savings. This is expected to improve cost-effectiveness for this offering.

Table 9.7 2019 TRC-Plus Summary (Union Rate Zones)

PROGRAM	NPV TRC-PLUS BENEFITS	TRC-PLUS PROGRAM COSTS	INCREMENTAL COSTS	TOTAL TRC COSTS	NET TRC-PLUS	TRC-PLUS RATIO
Residential Program	$45,330,575	$4,200,885	$28,005,436	$32,206,321	$13,124,254	1.41
Commercial/Industrial Program	$164,527,447	$4,493,318	$50,479,154	$54,972,472	$109,554,975	2.99
Low-Income Program	$19,870,911	$4,455,707	$8,003,183	$12,458,890	$7,412,020	1.59
Large Volume Program	$13,766,441	$404,127	$5,535,828	$5,939,955	$7,826,486	2.32
Performance-Based Program	$11,186	$540,798	$0	$540,798	-$529,611	0.02
Total DSM Portfolio	**$243,506,560**	**$14,094,835**	**$92,023,601**	**$106,118,436**	**$137,388,124**	**2.29**

Table 9.8 2019 PAC Summary (Union Rate Zones)

PROGRAM	NPV PAC BENEFITS	PAC PROGRAM COSTS	NET PAC	PAC RATIO
Residential Program	$32,423,671	$22,612,143	$9,811,528	1.43
Commercial/Industrial Program	$148,225,519	$17,969,715	$130,255,804	8.25
Low-Income Program	$16,060,986	$13,367,910	$2,693,076	1.20
Large Volume Program	$12,487,498	$3,088,606	$9,398,892	4.04
Performance-Based Program	$10,091	$579,846	-$569,755	0.02
Total DSM Portfolio	**$209,207,765**	**$57,618,219**	**$151,589,546**	**3.63**

9.4 BUDGETS AND SPENDING

Total 2019 DSM spend for the Union rate zones was $65.6M, compared to an OEB-approved budget of $63.3M. See Table 9.9 for more details. As per the OEB's Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020), Enbridge Gas was eligible to overspend by up to 15% of the total OEB-approved budget. The ability to overspend "is meant to allow the natural gas utilities to aggressively pursue programs which prove to be very successful".[16] For more details refer to Section 11.2 of the DSM Guidelines.

DSM spending for the Union rate zones is categorized as:

- Incentive costs, promotion costs, evaluation costs, administration costs, related to the design and delivery of DSM programming (see Section 6 for details on Union rate zones DSM offerings)
- Research (See Section 9.4.1 for more details); and,
- Pilots (See Section 9.4.2 for more details);

Furthermore, spending also included the 2019 Conservation Achievable Potential Study[17], the open bill project, and the future infrastructure planning study.

As noted in the 2016 DSM Deferrals proceeding (EB-2018-0300), Enbridge Gas successfully implemented its upgraded DSM tracking and reporting system for the Union rate zones in January 2018. As such, Enbridge Gas did not incur any further system development costs for the Union rate zones in 2019.

Table 9.9 2019 Budget/Spend/Variance (Union Rate Zones)

ITEM	OEB-APPROVED BUDGET[18]	ACTUAL SPEND	VARIANCE
Residential Program Costs			
Home Efficiency Rebate Offering - Incentives	$12,226,000	$18,059,348	$7,589,812
Home Efficiency Rebate Offering - Promotion		$1,756,464	
Residential Adaptive Thermostat Offering - Incentives	$0	$351,910	$550,816
Residential Adaptive Thermostat Offering - Promotion		$198,906	
Residential Program - Evaluation	$859,000	$1,690,315	$831,315
Residential Program - Administration	$822,697	$555,200	($267,497)
Residential Program Total	**$13,907,697**	**$22,612,143**	**$8,704,446**
Commercial/Industrial Program Costs			
Commercial/Industrial Prescriptive Offering - Incentives	$7,149,000	$2,696,862	($3,906,246)
Commercial/Industrial Prescriptive Offering - Promotion		$545,892	
Commercial/Industrial Direct Install Offering - Incentives	$2,500,000	$1,993,075	($488,089)
Commercial/Industrial Direct Install Offering - Promotion		$18,836	
Commercial/Industrial Custom Offering - Incentives	$7,808,000	$8,786,459	$1,057,926
Commercial/Industrial Custom Offering - Promotion		$79,467	
Commercial/Industrial Program - Evaluation	$189,000	$0	($189,000)

[16] *DSM Guidelines, pp. 38*
[17] *The 2019 Conservation Achievable Potential Study was fully designed and executed by the OEB and the IESO (http://www.ieso.ca/2019-conservation-achievable-potential-study). The costs of the natural gas components of the study were passed on to the Union rate zones and the EGD rate zone.*
[18] *The total budget shown for 2019-2020 does not include amounts related to the Residential Adaptive Thermostat offering approved through the Mid-Term Review. Expenditures for this offering will be tracked in the DSMVA.*

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ITEM	OEB-APPROVED BUDGET[18]	ACTUAL SPEND	VARIANCE
Commercial/Industrial Program - Administration	$4,757,286	$3,849,124	($908,162)
Commercial/Industrial Program Total	**$22,403,286**	**$17,969,715**	**($4,433,571)**
Low-Income Program Costs			
Home Weatherization Offering - Incentives	$8,063,000	$6,194,597	$1,191,777
Home Weatherization Offering - Promotion		$3,060,180	
Multi-Residential Affordable Housing Offering - Incentives	$3,031,000	$2,432,842	($432,285)
Multi-Residential Affordable Housing Offering - Promotion		$165,873	
Indigenous Offering - Incentives	$456,000	$254,238	($128,101)
Indigenous Offering - Promotion		$73,660	
Furnace End-of-Life Upgrade Offering - Incentives	$919,000	$30,525	($882,925)
Furnace End-of-Life Upgrade Offering - Promotion		$5,550	
Low-Income Program - Evaluation	$244,983	$321,600	$76,617
Low-Income Program - Administration	$1,430,737	$828,843	($601,894)
Low-Income Program Total	**$14,144,720**	**$13,367,910**	**($776,810)**
Large Volume Program Costs			
Large Volume Direct Access Offering - Incentives	$3,150,000	$2,684,479	($465,390)
Large Volume Direct Access Offering - Promotion		$131	
Large Volume Program - Evaluation	$63,000	$0	($63,000)
Large Volume Program - Administration	$787,000	$403,996	($383,004)
Large Volume Program Total	**$4,000,000**	**$3,088,606**	**($911,394)**
Performance-Based Program Costs			
RunSmart Offering - Incentives	$582,000	$27,548	($119,361)
RunSmart Offering - Promotion		$126,084	
Strategic Energy Management Offering - Incentives		$11,500	
Strategic Energy Management Offering - Promotion		$297,507	
Performance-Based Program - Evaluation	$35,000	$0	($35,000)
Performance-Based Program - Administration	$216,000	$117,207	($98,793)
Performance-Based Program Total	**$833,000**	**$579,846**	**($253,154)**
Market Transformation Program Costs			
Optimum Home Offering - Incentives	$841,000	$558,400	($23,807)
Optimum Home Offering - Promotion		$258,793	
Commercial Savings by Design Offering - Incentives	$1,000,000	$737,827	($75,853)
Commercial Savings by Design Offering - Promotion		$186,319	
Market Transformation Program - Evaluation	$36,820	$0	($36,820)
Market Transformation Program - Administration	$460,250	$500,654	$40,404
Market Transformation Program Total	**$2,338,070**	**$2,241,994**	**($96,076)**
TOTAL Program Costs	**$57,626,773**	**$59,860,214**	**$2,233,441**
Portfolio Costs			
Research	$1,000,000	$770,142	($229,858)
Evaluation	$1,300,000	$919,748	($380,252)
Administration	$2,842,000	$3,541,362	$699,362
Portfolio Total	$5,142,000	$5,231,252	$89,252
TOTAL Program and Portfolio Costs	**$62,768,773**	**$65,091,465**	**$2,322,692**
Other Costs			
Pilots	$500,000	$311,748	($188,252)
Open Bill Project	$0	$4,968	$4,968
Achievable Potential Study	$0	$185,200	$185,200

ITEM	OEB-APPROVED BUDGET[18]	ACTUAL SPEND	VARIANCE
Future Infrastructure Planning Study	$0	$10,924	$10,924
Other Costs Total	**$500,000**	**$512,840**	**$12,840**
TOTAL DSM Costs	**$63,268,773**	**$65,604,306**	**$2,335,533**

Included in the spend amounts above are customer incentives deferred to future years, for offerings where incentives are paid when future milestones/activities are reached. The deferred amounts will be used when the customer incentive commitment is due. For more information on customer incentive deferrals, please refer to Section 5.3.2 of the OEB's Mid-Term Report.

Specifically, the amounts are:

- Commercial Savings by Design Offering: $137,280

9.4.1 Research Fund

The research budget is used to investigate emerging energy efficiency technologies to provide an increased understanding of new opportunities. As an outcome of this budget, the Company is able to offer customers a modern, more comprehensive suite of measures in an ever-evolving industry.

Research projects investigate critical input assumptions for new technologies, including natural gas savings, electricity savings, water savings, equipment costs, and equipment useful life, across a variety of market segments. Market information, such as market barriers, product market share, and how supply chains operate, is also examined to assist in designing programs that are well informed. Research projects can also enable the Company to convert common custom DSM technologies into prescriptive measures.

Actual research spend was approximately $0.8M in 2019, and included the following major items:

- **Aquanta Domestic Hot Water Tank ("DHWT") Control**
    - To evaluate the Aquanta smart water heater controller for energy, water, and GHG savings in three residential homes.
- **Cold Climate Air Source Heat Pump ("ccASHP")**
    - Support NRCan's project for 7 pilot homes in Ontario, assessing the performance of the various cold climate heat pump producs.
- **Consortium for Energy Efficiency ("CEE") Emerging Technologies Collaborative Fees**
    - The goals of the Emerging Technologies Collaborative is to provide greater support to CEE member program administrators and the energy efficiency program industry in identifying and assessing new opportunities. Pursuit of these objectives will not only assist sponsors in their immediate emerging technologies work but also achieve the shared broader objectives of accelerating adoption of emerging technologies across the efficiency program industry at CEE.
- **Consortium for Energy Efficiency ("CEE") Membership Dues**
    - CEE is the US and Canadian consortium of gas and electric efficiency program administrators. The goal of the consortium is to work together to accelerate the development of energy efficient products and services for lasting public benefit.
- **Commercial Kitchen Combi-oven & Rack Oven Research**
    - Technology research to explore possibility of inclusion as a new measure.

- **Demand Control Ventilation (“DCV”) with Variable Frequency Drive (“VFD”) Rooftop Unit (“RTU”) Research**
    - Technology research to explore possibility of inclusion as a new measure.
- **Home Efficiency Rebate Participant Survey**
    - Ongoing survey to measure participant feedback with the Home Efficiency Rebate Offering. Results are used to monitor the customer experience including interactions with the service organizations.
- **BKR Energy Hybrid System with Smart Fuel Switching Controller (“SFSC”)**
    - Project for 4 pilot homes across Ontario to investigate the effectiveness of smart fuel switching control for hybrid electric heat pumps and furnace. Goal is to substantiate the energy, cost savings and GHG reductions.
- **Hybrid System with Smart Fuel Switching Controller (“SFSC”)**
    - Support NRCan’s project for 2 pilot homes in Ottawa to investigate the effectiveness of smart fuel switching control for hybrid electric heat pumps and furnace. Goal is to substantiate the energy, cost savings and GHG reductions.
- **iFLOW Phase 1, Hybrid System Hydronic Installation & Monitoring**
    - To evaluate the iFLOW hydronic system’s performance as part of a hybrid heating system, in terms of energy, cost savings and GHG reductions in two residential retrofit homes. The study will also evaluate energy saving from the smart zoning control technology of the iFlow air handling unit.
- **Indigenous Home Weatherization New Measures Test**
    - To conduct a two-phased approach to look at alternatives for next generation DSM planning for on-reserve housing stock. The first phase will encompass a thorough study of housing stock on-reserve to determine what the true needs are with respect to energy-savings and to conduct energy modelling on a whole-home basis to determine where opportunities lie.
- **McMaster Integrated Community Energy (“ICE”) Meter Install Research**
    - ICE-Harvest system integrates electricity and heating generation and storage into intensive urban infrastructure. The system can harvest the waste heat from electricity generation, chiller units and the community with excess thermal energy (grocery stores, restaurants, etc.) and utilizing it to provide heating and cooling at a higher efficiency than traditional district energy systems. The objective of the project is to assess and demonstrate the energy savings, cost savings, and GHG reductions.
- **On Demand Controls for Domestic Hot Water (“DHW”) Recirculation Systems**
    - Research to assess the energy savings associated with on demand control of DHW recirculation operations, develop engineering tools to estimate savings, compile sub-docs, and explore development of DSM offerings for the technology.
- **Stone Mountain Technologies (“SMTI”) Gas Heat Pump Furnace Research**
    - Field monitoring, demonstration, and laboratory testing of the Trane combi thermal gas heat pump.
- **Yanmar Three-Pipe System Research**
    - Demonstrate the possibility to offer a Gas Engine Driven Heat Pump system that provides natural gas heating and cooling and water heating in Ontario buildings (commercial buildings) with increased resiliency and energy efficiency.

9.4.2 Pilot Fund

The pilot budget aims to explore innovative DSM programs and market approaches. In addition to providing offers to customers, the pilots can help to better understand new program designs and delivery concepts, ultimately leading to greater natural gas savings and market penetration of programs.

Pilots involve the testing of energy efficient technologies, alternative financing mechanisms, and/or detailed customer-specific natural gas usage information that may serve as a model for future DSM program development.

Actual pilot spend was approximately $0.3M in 2019, and included the following items:

- **Optimum Home Lite**
    - This pilot involves 3 components. The first component is the outreach. Enbridge Gas will utilize workshops to attract small to mid-size builders to learn about future building code changes, and then position building to an Energy Star level as the best way to future proof their business. The second component is the offer. As demonstrated through success in the Optimum Home Offering, Enbridge Gas will utilize building science consultants to provide 1-to-1 consultation to participating builders on how to build to Energy Star levels most efficiently for their business. The consultation will comprise of 3 consulting days, the first to assess current building practices, the second to allow the consultant to identify and draft recommendations, and the third to present recommendations. The third component is tracking results. This is through demonstrating builder learnings and commitments, by building an Energy Star certified discovery home and tracking future progress towards building to that standard.
- **Residential Air Sealing Pilot**
    - Pilot to test professional air sealing as a stand-alone offering. The idea of a stand-alone air sealing pilot is driven by recognition that professional air sealing is currently an underserved market, and recognition that a stand-alone air sealing offering for homeowners has significant market potential within the residential existing homes sector. Enbridge Gas believes that there is opportunity to drive higher and more comprehensive savings from professional well-executed air sealing efforts, compared to the more typical do-it-yourself. Additionally, there is the potential to reach a greater number of participants with air sealing as a stand-alone measure, compared the current model which bundles it with other (more costly) retrofit measures. It is expected that the stand-alone air sealing pilot will target ~200 customers for participation.
- **Waterloo Community Energy Investment Strategy**
    - Enbridge Gas is partnering with the Region of Waterloo to support their implementation of a Community Energy Investment Strategy (“CEIS”). Waterloo's CEIS is a community-based action plan to achieve significant GHG reductions, and stakeholders have the opportunity to influence it. A significant portion of the plan ties back to energy efficiency opportunities for homes, businesses and new construction. With the local electric LDCs, Enbridge Gas is partially funding an energy manager to support the implementation of the CEIS.

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Appendix A: 2019 Avoided Costs

A1. EGD RATE ZONE 2019 AVOIDED COSTS

The inflation factor used is 1.27%. The discount rate is 5.32%. Avoided costs are presented in nominal dollars.

	GAS AVOIDED COSTS							
	RESIDENTIAL/COMMERCIAL WATER HEATING		RESIDENTIAL/COMMERCIAL SPACE HEATING		RESIDENTIAL/COMMERCIAL COMBINED SPACE & WATER HEATING		INDUSTRIAL	
	($/M³)		($/M³)		($/M³)		($/M³)	
	RATE	NPV	RATE	NPV	RATE	NPV	RATE	NPV
1	0.193	0.196	0.211	0.223	0.214	0.225	0.192	0.195
2	0.185	0.372	0.204	0.417	0.203	0.418	0.186	0.372
3	0.191	0.543	0.210	0.606	0.210	0.607	0.191	0.544
4	0.196	0.711	0.217	0.791	0.216	0.792	0.197	0.713
5	0.202	0.876	0.223	0.973	0.222	0.973	0.203	0.877
6	0.208	1.036	0.230	1.150	0.229	1.150	0.209	1.039
7	0.214	1.193	0.237	1.323	0.236	1.322	0.215	1.196
8	0.221	1.347	0.244	1.493	0.243	1.491	0.222	1.350
9	0.228	1.497	0.251	1.659	0.250	1.657	0.228	1.501
10	0.234	1.644	0.259	1.821	0.258	1.818	0.235	1.649
11	0.241	1.788	0.266	1.980	0.265	1.976	0.242	1.793
12	0.249	1.929	0.274	2.135	0.273	2.131	0.249	1.934
13	0.256	2.066	0.283	2.286	0.282	2.282	0.257	2.072
14	0.264	2.201	0.291	2.435	0.290	2.430	0.265	2.207
15	0.272	2.332	0.300	2.580	0.299	2.575	0.273	2.339
16	0.280	2.461	0.309	2.722	0.308	2.716	0.281	2.468
17	0.288	2.587	0.318	2.860	0.317	2.855	0.289	2.594
18	0.297	2.710	0.328	2.996	0.327	2.990	0.298	2.717
19	0.306	2.830	0.337	3.129	0.336	3.122	0.307	2.838
20	0.315	2.948	0.347	3.259	0.346	3.252	0.316	2.956
21	0.324	3.063	0.358	3.386	0.357	3.378	0.325	3.071
22	0.334	3.175	0.369	3.510	0.367	3.502	0.335	3.184
23	0.344	3.285	0.380	3.631	0.379	3.623	0.345	3.295
24	0.354	3.393	0.391	3.750	0.390	3.741	0.356	3.403
25	0.365	3.498	0.403	3.866	0.402	3.857	0.366	3.508
26	0.376	3.601	0.415	3.979	0.414	3.970	0.377	3.612
27	0.387	3.702	0.427	4.091	0.426	4.081	0.389	3.713
28	0.399	3.800	0.440	4.199	0.439	4.189	0.400	3.811
29	0.411	3.896	0.453	4.305	0.452	4.295	0.412	3.908
30	0.423	3.990	0.467	4.409	0.466	4.398	0.425	4.002

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	WATER AND ELECTRICITY AVOIDED COSTS			
	RESIDENTIAL/COMMERCIAL/INDUSTRIAL			
	WATER ($/1000 LITRE)		ELECTRICITY (¢/KWH)	
	RATE	NPV	RATE	NPV
1	0.898	0.898	0.133	0.133
2	0.909	1.761	0.134	0.261
3	0.921	2.591	0.136	0.383
4	0.932	3.389	0.138	0.501
5	0.944	4.156	0.140	0.615
6	0.956	4.894	0.141	0.724
7	0.968	5.603	0.143	0.829
8	0.981	6.285	0.145	0.930
9	0.993	6.941	0.147	1.027
10	1.006	7.572	0.149	1.120
11	1.018	8.178	0.151	1.210
12	1.031	8.761	0.153	1.296
13	1.044	9.322	0.155	1.379
14	1.058	9.861	0.156	1.459
15	1.071	10.380	0.158	1.536
16	1.085	10.878	0.160	1.609
17	1.098	11.357	0.163	1.680
18	1.112	11.818	0.165	1.749
19	1.127	12.261	0.167	1.814
20	1.141	12.688	0.169	1.877
21	1.155	13.097	0.171	1.938
22	1.170	13.491	0.173	1.996
23	1.185	13.870	0.175	2.052
24	1.200	14.234	0.178	2.106
25	1.215	14.585	0.180	2.158
26	1.231	14.921	0.182	2.208
27	1.246	15.245	0.184	2.256
28	1.262	15.557	0.187	2.302
29	1.278	15.856	0.189	2.346
30	1.294	16.144	0.191	2.389

	AVOIDED CARBON COSTS	
	RESIDENTIAL/COMMERCIAL/INDUSTRIAL	
	($/M³)	
	RATE	NPV
1	0.039	0.039
2	0.059	0.095
3	0.078	0.165
4	0.098	0.249
5	0.099	0.330
6	0.100	0.407
7	0.102	0.482
8	0.103	0.553
9	0.104	0.622
10	0.106	0.689
11	0.107	0.752
12	0.108	0.813
13	0.110	0.872
14	0.111	0.929
15	0.112	0.983
16	0.114	1.036
17	0.115	1.086
18	0.117	1.134
19	0.118	1.181
20	0.120	1.226
21	0.121	1.269
22	0.123	1.310
23	0.124	1.350
24	0.126	1.388
25	0.128	1.425
26	0.129	1.460
27	0.131	1.494
28	0.133	1.527
29	0.134	1.558
30	0.136	1.589

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A2. UNION RATE ZONES 2019 AVOIDED COSTS

The inflation factor used is 1.27%. The discount rate is 5.32%. Avoided costs are presented in nominal dollars.

	GAS AVOIDED COSTS					
	RESIDENTIAL/COMMERCIAL BASELOAD		RESIDENTIAL/COMMERCIAL WEATHER SENSITIVE		INDUSTRIAL	
	($/M^3)		($/M^3)		($/M^3)	
	RATE	NPV	RATE	NPV	RATE	NPV
1	0.132	0.132	0.179	0.179	0.133	0.133
2	0.131	0.257	0.177	0.347	0.134	0.260
3	0.131	0.375	0.179	0.509	0.133	0.380
4	0.152	0.505	0.201	0.681	0.154	0.511
5	0.176	0.648	0.226	0.864	0.178	0.656
6	0.181	0.788	0.231	1.042	0.182	0.796
7	0.177	0.918	0.229	1.210	0.179	0.927
8	0.176	1.040	0.228	1.369	0.177	1.051
9	0.180	1.159	0.233	1.523	0.182	1.171
10	0.191	1.278	0.245	1.676	0.192	1.291
11	0.199	1.397	0.255	1.828	0.201	1.411
12	0.202	1.511	0.259	1.974	0.204	1.526
13	0.205	1.622	0.263	2.115	0.207	1.637
14	0.211	1.729	0.269	2.252	0.213	1.746
15	0.213	1.832	0.273	2.384	0.215	1.850
16	0.221	1.934	0.282	2.514	0.223	1.953
17	0.222	2.031	0.284	2.638	0.224	2.050
18	0.219	2.122	0.281	2.754	0.220	2.142
19	0.234	2.214	0.298	2.871	0.236	2.234
20	0.247	2.306	0.312	2.988	0.249	2.327
21	0.247	2.394	0.313	3.099	0.249	2.416
22	0.250	2.478	0.317	3.206	0.252	2.500
23	0.256	2.559	0.325	3.310	0.258	2.583
24	0.262	2.639	0.332	3.410	0.264	2.663
25	0.268	2.716	0.339	3.508	0.270	2.741
26	0.274	2.791	0.347	3.603	0.276	2.816
27	0.281	2.864	0.355	3.695	0.283	2.890
28	0.288	2.935	0.363	3.785	0.290	2.961
29	0.294	3.004	0.371	3.872	0.297	3.031
30	0.301	3.071	0.380	3.956	0.304	3.098

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	WATER AND ELECTRICITY AVOIDED COSTS			
	RESIDENTIAL/COMMERCIAL/INDUSTRIAL			
	WATER ($/1000 LITRE)		ELECTRICITY ($/KWH)	
	RATE	NPV	RATE	NPV
1	0.777	0.777	0.133	0.133
2	0.787	1.524	0.134	0.261
3	0.797	2.243	0.136	0.383
4	0.807	2.934	0.138	0.501
5	0.817	3.598	0.140	0.615
6	0.828	4.237	0.141	0.724
7	0.838	4.851	0.143	0.829
8	0.849	5.442	0.145	0.930
9	0.860	6.010	0.147	1.027
10	0.871	6.556	0.149	1.120
11	0.882	7.081	0.151	1.210
12	0.893	7.586	0.153	1.296
13	0.904	8.071	0.155	1.379
14	0.916	8.538	0.156	1.459
15	0.927	8.986	0.158	1.536
16	0.939	9.418	0.160	1.609
17	0.951	9.833	0.163	1.680
18	0.963	10.232	0.165	1.748
19	0.975	10.616	0.167	1.814
20	0.988	10.984	0.169	1.877
21	1.000	11.339	0.171	1.938
22	1.013	11.680	0.173	1.996
23	1.026	12.008	0.175	2.052
24	1.039	12.323	0.178	2.106
25	1.052	12.627	0.180	2.158
26	1.065	12.918	0.182	2.208
27	1.079	13.198	0.184	2.255
28	1.093	13.468	0.187	2.301
29	1.107	13.727	0.189	2.346
30	1.121	13.976	0.191	2.388

	AVOIDED CARBON COSTS	
	RESIDENTIAL/COMMERCIAL/INDUSTRIAL	
	($/M³)	
	RATE	NPV
1	0.039	0.039
2	0.059	0.095
3	0.078	0.165
4	0.098	0.249
5	0.099	0.330
6	0.100	0.407
7	0.102	0.482
8	0.103	0.553
9	0.104	0.622
10	0.106	0.689
11	0.107	0.752
12	0.108	0.813
13	0.110	0.872
14	0.111	0.929
15	0.112	0.983
16	0.114	1.036
17	0.115	1.086
18	0.117	1.134
19	0.118	1.181
20	0.120	1.226
21	0.121	1.269
22	0.123	1.310
23	0.124	1.350
24	0.126	1.388
25	0.128	1.425
26	0.129	1.460
27	0.131	1.494
28	0.133	1.527
29	0.134	1.558
30	0.136	1.589

Appendix B: Target Setting Methodology

B1. EGD RATE ZONE

Enbridge Gas Distribution Inc. - 2019 Resource Acquisition Scorecard		Metric Target			
Programs	**Metrics**	**Lower Band**	**Target**	**Upper Band**	**Weight**
Home Energy Conservation Residential Adaptive Thermostats Commercial & Industrial Custom Commercial & Industrial Prescriptive Commercial & Industrial Direct Install Run-it-Right Comprehensive Energy Management (CEM)	Large Volume Customers Cumulative Natural Gas Savings (m3)	75% of Target	2018 metric achievement (LRAM natural gas savings) / 2018 Large Volume Customers Resource Acquisition actual spend without overheads x 2019 Large Volume Customers Resource Acquisition budget without overheads x 1.02	150% of Target	40%
	Small Volume Customers Cumulative Natural Gas Savings (m3)	75% of Target	2018 metric achievement (LRAM natural gas savings) / 2018 Small Volume Customers Resource Acquisition actual spend without overheads x 2019 Small Volume Customers Resource Acquisition budget without overheads x 1.02	150% of Target	40%
Home Energy Conservation	Residential Deep Savings Participants (Homes)	75% of Target	2018 metric achievement / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.02	150% of Target	20%

Note: Metric achievement is calculated using verified program savings used for LRAMVA purposes

Enbridge Gas Distribution Inc. - 2019 Low Income Scorecard		Metric Target			
Programs	**Metrics**	**Lower Band**	**Target**	**Upper Band**	**Weight**
Home Winterproofing	Cumulative Natural Gas Savings (m3)	75% of Target	2018 metric achievement (LRAM natural gas savings) / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.02	150% of Target	45%
Low-Income Multi-Residential	Cumulative Natural Gas Savings (m3)	75% of Target	2018 metric achievement (LRAM natural gas savings) / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.02	150% of Target	45%
Low-Income New Construction	Number of Project Applications	75% of Target	2018 metric achievement / 2018 accrued program cost without overheads x 2019 program budget without overheads x 1.02	150% of Target	10%

Note: Metric achievement is calculated using verified program savings used for LRAMVA purposes

Enbridge Gas Distribution Inc. - 2019 Market Transformation Scorecard		Metric Target			
Programs	**Metrics**	**Lower Band**	**Target**	**Upper Band**	**Weight**
School Energy Competition	Schools	75% of Target	2018 metric achievement / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.1	150% of Target	10%
Run-it-Right	Participants	75% of Target	2018 metric achievement / 2018 accrued program costs without overheads x 2019 program budget without overheads x 1.1	150% of Target	20%
Comprehensive Energy Management (CEM)	Participants	75% of Target	2018 metric achievement / 2018 accrued program costs without overheads x 2019 program budget without overheads x 1.1	150% of Target	20%
Residential Savings by Design	Builders	75% of Target	2018 metric achievement / 2018 accrued program costs without overheads x 2019 program budget without overheads x 1.1	150% of Target	10%
	Homes Built	75% of Target	2018 metric achievement / 2018 accrued program costs without overheads x 2019 program budget without overheads x 1.1	150% of Target	15%
Commercial Savings by Design	New Developments	75% of Target	2018 metric achievement / 2018 accrued program costs without overheads x 2019 program budget without overheads x 1.1	150% of Target	25%

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B2. UNION RATE ZONES

Union Gas Limited - 2019 Resource Acquisition Scorecard

		Metric Targets			
Programs	Metrics	Lower Band	Target	Upper Band	Weight
Home Reno Rebate Residential Adaptive Thermostat Commercial & Industrial Custom Commercial & Industrial Prescriptive Commercial & Industrial Direct Install	Cumulative Natural Gas Savings (m3)	75% of Target	2018 metric achievement (LRAM natural gas savings) / 2018 Resource Acquisition actual spend without overheads x 2019 Resource Acquisition budget without overheads (and not including Residential Adaptive Thermostat program) x 1.02 + 34,645,500 m3	150% of Target	75%
Home Reno Rebate	Home Reno Rebate Participants (Homes)	75% of Target	2018 metric achievement / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.02	150% of Target	25%

Note: Metric achievement is calculated using verified program savings used for LRAMVA purposes

Union Gas Limited - 2019 Low Income Scorecard

		Metric Target			
Programs	Metrics	Lower Band	Target	Upper Band	Weight
Home Weatherization Furnace End-of-Life Aboriginal	Cumulative Natural Gas Savings (m3)	75% of Target	2018 metric achievement (LRAM natural gas savings) / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.02	150% of Target	60%
Multi-family	Social and Assisted Multi-Family Cumulative Natural Gas Savings (m3)	75% of Target	2018 metric achievement (LRAM natural gas savings) / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.02	150% of Target	35%
	Market Rate Multi-Family Cumulative Natural Gas Savings (m3)	75% of Target	2018 metric achievement (LRAM natural gas savings) / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.02	150% of Target	5%

Union Gas Limited - 2019 Market Transformation Scorecard

		Metric Target			
Programs	Metrics	Lower Band	Target	Upper Band	Weight
Optimum Home	Participating Builders (Regional Top 10)	3	4	6	10%
	Prototype Homes Built	68%	90%	100%	10%
	Homes Built (>15% above OBC 2017) by Participating Builders	75% of Target	2018 metric achievement / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.1	150% of Target	30%
Commercial New Construction	New Developments Enrolled by Participating Builders	75% of Target	2018 metric achievement / 2018 actual program spend without overheads x 2019 program budget without overheads x 1.1	150% of Target	50%

Union Gas Limited - 2019 Large Volume Scorecard

		Metric Target			
Programs	Metrics	Lower Band	Target	Upper Band	Weight
Large Volume Program for T2/R100 Customers	Cumulative Natural Gas Savings (m3)	75% of Target	Three-year rolling average (2016-2018) Rate T2/Rate 100 cost effectiveness x 2019 budget without overheads x 1.02	150% of Target	100%

*Cost effectiveness = Final verified metric achievement used for LRAMVA purposes divided by final actual program spend for that year

Union Gas Limited - 2019 Performance-Based Scorecard

		Metric Target			
Programs	Metrics	Lower Band	Target	Upper Band	Weight
RunSmart	Participants	75% of Target	2018 metric achievement / 2018 accrued program cost without overheads x 2019 program budget without overheads x 1.1	150% of Target	10%
	Savings (%)	75% of Target	2018 metric achievement / 2018 accrued program cost without overheads x 2019 program budget without overheads x 1.1	150% of Target	40%
Strategic Energy Management (SEM)	Savings (%)	75% of Target	2018 metric achievement / 2018 accrued program cost without overheads x 2019 program budget without overheads x 1.1	150% of Target	50%

Appendix C: Offering Details (EGD Rate Zone)

C1. HOME EFFICIENCY REBATE OFFERING

The maximum rebate payment for the Home Efficiency Rebate ("HER") Offering was $5,000 per home, which includes rebates for the home energy assessments, measure upgrades, and bonuses.

Measure Rebates

MEASURE	CRITERIA	REBATE
Attic Insulation	Increase insulation from R12 or less to at least R50	$500
	Increase insulation from R13 to R25 to at least R50	$250
	Increase cathedral/flat roof insulation by at least R14	$500
Air Sealing	Achieve 10% or more above base target	$150
	Achieving base target	$100
Basement Insulation Must upgrade a minimum of 20 per cent of the total wall area	Add at least R23 insulation to 100% of basement	$1,000
	Add at least R12 insulation to 100% of basement	$500
	Add at least R23 insulation to 100% of crawl space wall	$800
	Add at least R10 insulation to 100% of crawl space wall	$400
	Add at least R24 insulation to 100% of floor above crawl space	$450
Exterior Wall Insulation Must upgrade a minimum of 20 per cent of the total wall area	Add at least R20 to 100% of building	$2,000
	Add at least R9 insulation to 100% of building to achieve a minimum of R12	$1,500
	Add at least R3.8 to 100% of building to achieve a minimum of R12	$1,000
Furnace/Boiler	Replace a 94% or less AFUE with a 95% or higher AFUE natural gas, propane, or oil furnace; OR, Replace an 89% or less AFUE with a 90% or higher AFUE natural gas, propane, or oil boiler.	$750
Water Heater	• Replace existing natural gas water heater with 0.80 EF or higher tanked ENERGY STAR® qualified natural gas water heater. or • Replace existing natural gas water heater with 0.90 EF or higher tankless ENERGY STAR® qualified natural gas water heater.	$200
Window/Door/Skylight	For each window, door or skylight replaced with an ENERGY STAR®-qualified model.	$40

Assessment Rebate

Since pre-energy and post-energy assessments are participation requirements, eligible customers receive a rebate of $550 for completing the assessments. The amount is intended to cover almost the full cost of the assessments, excluding HST.

Bonus Rebate

A bonus rebate of $250 was available for each measure installed beyond the first two. This rebate was intended to encourage homeowners to pursue all energy savings opportunities available to them.

Limited Time Offers

In Q4 2019, Enbridge Gas introduced limited time offers, whereby homeowners were encouraged to participate in one of two customized packages that provided greater savings and aimed at driving greater participation in insulation and building envelope measures. The LTO packages were available to qualifying participants who completed their initial assessment on/after September 1, 2019 and their final assessment on/before December 31, 2019.

- Package 1: Receive $1,750 Rebate + $550 rebate for audit cost (Total $2,300) when the homeowner completes the following measures:
    - Replace furnace/boiler
    - Attic Insulation
    - Achieve Air Sealing target or target + 10%
- Package 2: Receive $750 Rebate + $550 rebate for audit cost (Total $1,300) when the homeowner completes the following measures:
    - Attic Insulation
    - Achieve Air Sealing target or target + 10%

C2. RESIDENTIAL ADAPTIVE THERMOSTAT OFFERING

A $75 instant rebate offer is provided to customers towards their purchase of a qualifying adaptive thermostat device through specific retailers.

The rebate could be obtained in one of two ways:

- An instant point-of-purchase $75 rebate towards their online purchase of an eligible device

  OR
- An instant point-of-purchase $75 rebate towards their in-store purchase of an eligible device from participating Home Depot stores province-wide

C3. CUSTOM COMMERCIAL OFFERING

In addition to technical expertise, participants are eligible to receive financial incentives based on the incentive structure below:

% OF ANNUAL CONSUMPTION (M^3) SAVED	$/$M^3$ INCENTIVE
0-20%	$0.15/$m^3$
above 20%	$0.30/$m^3$

Participants can also receive an incentive for audit costs based on the table below:

OFFER	INCENTIVE AMOUNT
HVAC	The Lesser of: (i)$0.01 per m^3 of estimated natural gas savings based on consumption in the most recently completed calendar year, or (ii) 50% of the Eligible Audit Costs** up to a maximum of $5,000 per Facility
Steam Trap	The Lesser of: (i)$10 per trap audited, or (ii) 50% of the Eligible Audit Costs** up to a maximum Incentive of $5,000

*** The Eligible Audit Costs consist of are the costs invoiced by the Applicant's Contractor and, exclusive of applicable taxes, incurred solely for the purpose of conducting the Audit and preparing the Audit Report, that are paid by the Applicant.*

Limited Time Offer

Enbridge Gas provided double incentive amount on the custom retrofit projects, covering up to 50% of the project cost to a maximum of $100,000/project. This offer available for the first 150 qualified commercial custom projects booked with an Enbridge Gas Energy Solutions Advisor by June 30, 2019.

C4. CUSTOM INDUSTRIAL OFFERING

In addition to technical expertise, customers are eligible for energy assessment rebates of up to 50% of the cost up to a maximum of:

ANNUAL NATURAL GAS CONSUMPTION	MAXIMUM INCENTIVE
2,500,000 m^3 or greater	$10,000
1,000,000 m^3 to 2,499,999 m^3	$6,000
340,000 m^3 to 999,999 m^3	$2,000
Up to 339,999 m^3	$1,000

Participants are also eligible to receive up to 50% of their project costs, to a maximum of $100,000 per project based on the following incentive structure:

- $0.20/$m^3$ for first 50,000 m^3 gas saved
- $0.05/$m^3$ for gas savings above 50,000 m^3

C5. COMMERCIAL & INDUSTRIAL PRESCRIPTIVE (FIXED) INCENTIVE OFFERING

TECHNOLOGY	CUSTOMER INCENTIVE	SERVICE PROVIDER INCENTIVE	DISTRIBUTOR/DEALER INCENTIVE
Space Heating			
Air Doors (pedestrian, no vestibule, 7'x3')	$300/door	$100	$50
Air Doors (pedestrian, no vestibule, 7'x6')	$400/door	$100	$50
Air Doors (pedestrian, no vestibule, 8'x6')	$500/door	$100	$50
Air Doors (pedestrian, with vestibule, 7'x3')	$200/door	$100	$50
Air Doors (pedestrian, with vestibule, 7'x6')	$300/door	$100	$50
Air Doors (pedestrian, with vestibule, 8'x6')	$400/door	$100	$50
Air Doors (shipping/receiving, 8'x8')	$1,200/door	$100	$50
Air Doors (shipping/receiving, 8'x10')	$1,200/door	$100	$50
Air Doors (shipping/receiving, 10'x10')	$1,800/door	$100	$50
Condensing Boilers (up to 299 MBH, AFUE of 90% or Greater)	$1,000	$100	$50
Condensing Furnaces (up to 225 kBtu/hr)	$200	$100	$50
Condensing Make-Up Air Units (single speed, up to 14,000 CFM)	$0.30/CFM	$100	$50
Condensing Make-Up Air Units (two speed, up to 14,000 CFM)	$0.60/CFM	$100	$50
Demand Control Ventilation (single zone, per sensor)	$500	$100	$50

TECHNOLOGY	CUSTOMER INCENTIVE	SERVICE PROVIDER INCENTIVE	DISTRIBUTOR/DEALER INCENTIVE
Destratification Fans (>20ft diameter)	$1,000	$100	$50
Energy Recovery Ventilators (no existing ERV and not required by code, 55% to 64% sensible heat recovery effectiveness)	$1.00/CFM	$100	$50
Energy Recovery Ventilators (no existing ERV and not required by code, 65% to 74% sensible heat recovery effectiveness)	$1.25/CFM	$100	$50
Energy Recovery Ventilators (no existing ERV and not required by code, 75% to 84% sensible heat recovery effectiveness)	$1.50/CFM	$100	$50
Energy Recovery Ventilators (no existing ERV and not required by code, 85% or greater sensible heat recovery effectiveness)	$1.75/CFM	$100	$50
Energy Recovery Ventilators, Improved Effectiveness (replacement of existing ERV, 65% to 74% sensible heat recovery effectiveness)	$0.50/CFM	$100	$50
Energy Recovery Ventilators, Improved Effectiveness (replacement of existing ERV, 75% to 84% sensible heat recovery effectiveness)	$0.75/CFM	$100	$50
Energy Recovery Ventilators, Improved Effectiveness (replacement of existing ERV, 85% or greater sensible heat recovery effectiveness)	$1.15/CFM	$100	$50
Heat Recovery Ventilators (no existing HRV and not required by code, 55% to 64% sensible heat recovery effectiveness)	$0.50/CFM	$100	$50
Heat Recovery Ventilators (no existing HRV and not required by code, 65% to 74% sensible heat recovery effectiveness)	$0.75/CFM	$100	$50
Heat Recovery Ventilators (no existing HRV and not required by code, 75% to 84% sensible heat recovery effectiveness)	$1.00/CFM	$100	$50
Heat Recovery Ventilators (no existing HRV and not required by code, 85% or greater sensible heat recovery effectiveness)	$1.25/CFM	$100	$50
Heat Recovery Ventilators, Improved Effectiveness (replacement of existing HRV, 65% to 74% sensible heat recovery effectiveness)	$0.25/CFM	$100	$50
Heat Recovery Ventilators, Improved Effectiveness (replacement of existing HRV, 75% to 84% sensible heat recovery effectiveness)	$0.50/CFM	$100	$50
Heat Recovery Ventilators, Improved Effectiveness (replacement of existing HRV, 85% or greater sensible heat recovery effectiveness)	$0.75/CFM	$100	$50
High Efficiency Boilers (up to 299 MBH, AFUE of 85% or greater)	$600	$100	$50
High Efficiency Boilers (300 to 599 MBH, AFUE of 85% or greater)	$600	$100	$50
High Efficiency Boilers (600 to 999 MBH, AFUE of 85% or greater)	$1,100	$100	$50
High Efficiency Boilers (1,000 to 1,499 MBH, AFUE of 85% or greater)	$2,000	$100	$50
High Efficiency Boilers (1,500 to 2,000 MBH, AFUE of 85% or greater)	$3,200	$100	$50
High Efficiency Boilers for School Boards (elementary schools)	$2,100	$100	$50
High Efficiency Boilers for School Boards (elementary schools)	$8,500	$100	$50
Condensing Unit Heaters (30 to 300 kBtu/hr)	$750 *(transitioned to Distributor Discount Program during 2019 program year)*	$100 *(transitioned to Distributor Discount Program during 2019 program year)*	$50 *(transitioned to Distributor Discount Program during 2019 program year)*
Infrared Heaters (single stage and high intensity up to 300,000 BTUs)	$300 *(discontinued during 2019 program year)*	$100 *(discontinued during 2019 program year)*	$50 *(discontinued during 2019 program year)*

TECHNOLOGY	CUSTOMER INCENTIVE	SERVICE PROVIDER INCENTIVE	DISTRIBUTOR/DEALER INCENTIVE
Infrared Heaters (two stage up to 300,000 BTUs)	$400 *(discontinued during 2019 program year)*	$100 *(discontinued during 2019 program year)*	$50 *(discontinued during 2019 program year)*
Water Heating			
Ozone Laundry System (commercial)	$0.02 per total annual lbs. of laundry processed, max $8,000 per system	$100	$50
Condensing Storage Water Heaters (greater than 75kBtu/hr)	$450 *(transitioned to Distributor Discount Program during 2019 program year)*	$100 *(transitioned to Distributor Discount Program during 2019 program year)*	$50 *(transitioned to Distributor Discount Program during 2019 program year)*
Condensing Tankless Water Heaters (greater than 75 kBtu/hr)	$450 *(transitioned to Distributor Discount Program during 2019 program year)*	$100 *(transitioned to Distributor Discount Program during 2019 program year)*	$50 *(transitioned to Distributor Discount Program during 2019 program year)*
Food Service			
Demand Control Kitchen Ventilation System (up to 5,000 CFM)	$1,200	$100	$50
Demand Control Kitchen Ventilation System (5,001 to 10,000 CFM)	$3,000	$100	$50
Demand Control Kitchen Ventilation System (10,001 to 15,000 CFM)	$4,400	$100	$50
ENERGY STAR Qualified Dishwashers (undercounter)	$100	$50	$50
ENERGY STAR Qualified Dishwashers (stationary rack)	$200	$50	$50
ENERGY STAR Qualified Dishwashers (rack conveyor)	$450	$50	$50
ENERGY STAR Fryers (qualified natural gas fryers)	$600 *(transitioned to Distributor Discount Program during 2019 program year)*	$50 *(transitioned to Distributor Discount Program during 2019 program year)*	$50 *(transitioned to Distributor Discount Program during 2019 program year)*
ENERGY STAR Steam Cookers (qualified natural gas steam cookers)	*$1,000 (transitioned to Distributor Discount Program during 2019 program year)*	$50 *(transitioned to Distributor Discount Program during 2019 program year)*	$50 *(transitioned to Distributor Discount Program during 2019 program year)*
High-Efficiency Broilers (maximum idle energy rate:65,000 BTU/hr, minimum efficiency 34%, indicate 3,4,5 or 6 foot)	$400 *(transitioned to Distributor Discount Program during 2019 program year)*	*$100 (transitioned to Distributor Discount Program during 2019 program year)*	$50 *(transitioned to Distributor Discount Program during 2019 program year)*

Distributor Discount Program Incentives (midstream initiative)

TECHNOLOGY	DISTRIBUTOR/DEALER INCENTIVE
HVAC	
Condensing Unit Heaters	$750
Condensing Storage Water Heaters	$450
Condensing Tankless Water Heaters	$450
Food Service	
ENERGY STAR Fryers	$600/vat
ENERGY STAR Steam Cookers	$1,000
High-Efficiency Broilers	$400

C6. COMMERCIAL & INDUSTRIAL DIRECT INSTALL OFFERING

Eligible customers are provided with:

- Installation of demand control kitchen ventilation, with up to 80% of the total project cost covered
- Installation of shipping and receiving air doors, with up to 90% of the total project cost covered
- Installation of pedestrian air doors, with up to 100% of the total project cost covered (removed during 2019 program year)

C7. ENERGY LEADERS OFFERING

Technical assistance and financial incentives determined on a case-by-case basis

C8. HOME WINTERPROOFING OFFERING

There is no financial cost to the participant for this offering. In addition to home energy assessments, the offering included the following measures:

- Insulation (attic, wall, basement)
- Draftproofing
- Smart thermostats
- Showerheads
- Kitchen and bathroom aerators
- CO detectors

To be eligible for the offering, the participant must meet the following criteria:

- Occupant of single/semi-detached, town/row house or low-rise multi-family housing (three stories or less, as defined by Part 9 of the Ontario Building Code); and,
- Income is at or below 135% of Statistics Canada's Low-Income Cut-Off ("LICO") or participate in government assistance programs (private homeowner or tenant must heat their home with natural gas and pay their own gas bills); or,
- Tenant resides in social and assisted housing, regardless of gas bill payment responsibility.

C9. MULTI-RESIDENTIAL AFFORDABLE HOUSING OFFERING

TECHNOLOGY	CUSTOMER INCENTIVE	SERVICE PROVIDER INCENTIVE
Direct-Install		
Low-Flow Showerheads	free	N/A

ENBRIDGE

TECHNOLOGY	CUSTOMER INCENTIVE	SERVICE PROVIDER INCENTIVE
Heat Reflector Panels	free	N/A
Energy Audits	Up to $5,000 per building, an annual maximum limit of $40,000 per housing providers	N/A
Custom Incentives		
Capital improvements	$0.04 per lifetime m^3 of gas saved, up to a maximum of $200,000 or 50% of the retrofit cost (whichever is less)	N/A
Fixed Incentives		
Condensing Boilers (up to 299MBH, AFUE of 90% or greater)	$2,000	$100
High-Efficiency Seasonal Boilers (up to 299MBH, AFUE of 90% or greater)	$1,200	$100
High-Efficiency Seasonal Boilers (300 to 599MBH, AFUE of 90% or greater)	$1,500	$100
High-Efficiency Seasonal Boilers (600 to 999MBH, AFUE of 90% or greater)	$2,200	$100
High-Efficiency Seasonal Boilers (1,000 to 1,499MBH, AFUE of 90% or greater)	$4,000	$100
High-Efficiency Seasonal Boilers (1,500 to 1,999MBH, AFUE of 90% or greater)	$6,400	$100
High-Efficiency Seasonal Boilers (2,000MBH, AFUE of 90% or greater)	$9,000	$100
High-Efficiency Non-Seasonal Boilers (up to 299MBH, AFUE of 90% or greater)	$1,200	$100
High-Efficiency Non-Seasonal Boilers (300 to 599MBH, AFUE of 90% or greater)	$1,500	$100
High-Efficiency Non-Seasonal Boilers (600 to 999MBH, AFUE of 90% or greater)	$2,200	$100
High-Efficiency Non-Seasonal Boilers (1,000 to 1,499MBH, AFUE of 90% or greater)	$4,000	$100
High-Efficiency Non-Seasonal Boilers (1,500MBH, AFUE of 90% or greater)	$6,400	$100
Condensing Furnaces (up to 225kBtu/hr, AFUE of 95% or greater)	$400	$100
Condensing Storage Water Heaters (multi-residential 75 to 249kBtu/hr)	$900	$100
Condensing Storage Water Heaters (multi-residential 250kBtu/hr or greater)	$1,250	$100
Condensing Tankless Water Heaters (multi-residential 75 to 249kBtu/hr)	$900	$100
Condensing Tankless Water Heaters (multi-residential 250kBtu/hr or greater)	$1,250	$100
Condensing Make-Up Air Units (up to 14,000CFM)	$1.20/CFM	$100
Energy Recovery Ventilators (no existing ERV or not required by Code, 55% to 64% sensible heat recovery effectiveness)	$2.00/CFM	$100
Energy Recovery Ventilators (no existing ERV or not required by Code, 65% to 74% sensible heat recovery effectiveness)	$2.25/CFM	$100
Energy Recovery Ventilators (no existing ERV or not required by Code, 75% to 84% sensible heat recovery effectiveness)	$2.50/CFM	$100
Energy Recovery Ventilators (no existing ERV or not required by Code, 85% or greater sensible heat recovery effectiveness)	$3.00/CFM	$100
Energy Recovery Ventilators Improved Effectiveness (replacement of existing ERV, 65% to 74% sensible heat recovery effectiveness)	$1.00/CFM	$100

TECHNOLOGY	CUSTOMER INCENTIVE	SERVICE PROVIDER INCENTIVE
Energy Recovery Ventilators Improved Effectiveness (replacement of existing ERV, 75% to 84% sensible heat recovery effectiveness)	$1.50/CFM	$100
Energy Recovery Ventilators Improved Effectiveness (replacement of existing ERV, 85% or greater sensible heat recovery effectiveness)	$2.30/CFM	$100
Heat Recovery Ventilators (no existing HRV or not required by Code, 55% to 64% sensible heat recovery effectiveness)	$1.00/CFM	$100
Heat Recovery Ventilators (no existing HRV or not required by Code, 65% to 74% sensible heat recovery effectiveness)	$1.25/CFM	$100
Heat Recovery Ventilators (no existing HRV or not required by Code, 75% to 84% sensible heat recovery effectiveness)	$1.50/CFM	$100
Heat Recovery Ventilators (no existing HRV or not required by Code, 85% or greater sensible heat recovery effectiveness)	$2.00/CFM	$100
Heat Recovery Ventilators Improved Effectiveness (replacement of existing HRV, 65% to 74% sensible heat recovery effectiveness)	$0.50/CFM	$100
Heat Recovery Ventilators Improved Effectiveness (replacement of existing HRV, 75% to 84% sensible heat recovery effectiveness)	$1.00/CFM	$100
Heat Recovery Ventilators Improved Effectiveness (replacement of existing HRV, 85% or greater sensible heat recovery effectiveness)	$1.50/CFM	$100
Low-Flow Showerheads (multi-family residential buildings only. Replacement of an old showerhead 2.5GPM or more with a new one at a flow rate of 1.5GPM or less	$12.50/showerhead	N/A

To be eligible, Part 3 buildings must be:

- Social and assisted housing, or non-profit housing; or,
- Low-income market rate multi-family (based on census data, and municipal data where available)

C10. SAVINGS BY DESIGN AFFORDABLE HOUSING OFFERING

Offering incentives are as follows:

- Enbridge Gas covers the cost of the IDP workshop. In addition, Enbridge Gas provides a Technical Assistance Incentive of $7,500 to offset the cost of professional consulting fees incurred by the housing provider in order to bring their design team to the workshop.
- For Part 3 developments:
    - Participants are eligible for a tiered incentive, up to a maximum of $120,000, depending on the number of units in the development and achieved energy performance of the multi-residential building once constructed, as follows:

AMOUNT EXCEEDING 2017 ONTARIO BUILDING CODE	INCENTIVE PER UNIT
7% ≤ x ≤ 12%	$750
12% ≤ x ≤ 17%	$850
x > 17%	$1,000

- For Part 9 developments:
    - Following the housing project's construction to at least 15% above the 2017 Ontario Building Code efficiency requirements, participants receive a one-time incentive payment of $5,000.

- Participants are also eligible to receive $1,500 for each residential housing unit designed at least 15% more energy efficient than the 2017 Ontario Building Code, up to a maximum of $120,000 per project.

Eligibility criteria consists of the following:

- New construction project must be located within the EGD rate zone; and,
- The project proponent must have been recognized as a builder or provider of affordable housing by a municipal, provincial, and/or federal body, by virtue of receiving financial assistance, in the present or at any time in the past, from a government program aimed at affordable housing.

C11. SAVINGS BY DESIGN RESIDENTIAL OFFERING

Builders are provided in-kind services up to $25,000 for design and modelling. Performance incentives are as follows:

- Builders that complete the IDP portion of the offer for the first time are eligible to receive $2,000 per home completed to the SBD standard (up to 50 homes);
- Builders that complete the IDP portion of the offer for the second time are eligible to receive $1,000 per home completed to the SBD standard (up to 100 homes);
- Builders that complete the IDP portion of the offer for the third time are eligible to receive $500 per home completed to the SBD standard (up to 200 homes).

Residential builders are eligible if they intend to construct at least 50 homes through the duration of the commitment, within three years of completing the IDP.

C12. SAVINGS BY DESIGN COMMERCIAL OFFERING

PROJECT PHASE	INCENTIVE	DETAILS
Planning/Design	Services (up to $30,000 value)	Includes IDP session and final IDP report
Pre-Construction	$15,000 financial incentive	Provided upon completion of a pre-construction energy model that meets the energy performance target
Commissioning	$15,000 financial incentive	Provided upon completion of a final (as-constructed) energy model that demonstrates the building meets the energy performance target

- Construction projects must have a minimum threshold of 50,000 square feet per project (including aggregate multi-location projects)
- Building(s) must be in the design phase or earlier
- Building construction must be completed within 5 years of completion of the IDP, and building must be commissioned within 1 year of construction completion
- Builders are eligible to participate in the offering multiple times for different projects

C13. SCHOOL ENERGY COMPETITION OFFERING

In addition to prizes awarded throughout the year (such as school/library supplies and computing assets), six financial prizes awarded:

- The top elementary and secondary school with the most points will receive $3,000 each;
- The second place elementary and secondary schools will receive $2,000; and,
- The third place elementary and secondary schools will receive $2,000 each.

Schools must register, implement activities, and have access to an Energy Management Information System (“EMIS”) to track natural gas consumption. Participating schools must be part of a public school board within the EGD rate zone.

C14. RUN IT RIGHT OFFERING

In addition to technical support provided by Enbridge Gas, participants are provided the following incentives:

- Enbridge Gas will fund $1,000 towards a facility investigation.
- Enbridge Gas provides up to $8,000 towards implementation costs.
- Enbridge Gas will fund the cost of using the Enbridge Gas Energy Management Information System (“EMIS”) for a period of 12 months or customers may opt to purchase and install a third party EMIS and receive a $1,000 incentive to cover the cost.

In addition, a $250 incentive is available for energy efficiency partners, for each participant that completes the offering.

Participants must be able to provide Enbridge Gas with daily gas consumption data, and have a building that has been occupied for more than 12 months. In addition, participants must confirm that there are no major capital upgrades in the previous 12 months, and are not planned for the monitoring term.

C15. COMPREHENSIVE ENERGY MANAGEMENT OFFERING

CEM offers financial incentives as follows:

- Up to 80% of the cost of installation or updates to EMIS, to a maximum of $50,000 per participant
- Up to $10,000 in funding to promote energy awareness and encourage energy efficiency training within the organization
- Participant can apply for up to $2,500 financial assistance for their energy team members to cover the costs of energy management related training (such as CEM certification).

Participants are then eligible to receive financial incentives for their projects, as per the Custom Industrial Offering.

Appendix D: Offering Details (Union Rate Zones)

D1. HOME EFFICIENCY REBATE OFFERING

The maximum rebate payment for the Home Efficiency Rebate ("HER") Offering was $5,000 per home, which includes rebates for the home energy assessments, measure upgrades, and bonuses.

Measure Rebates

MEASURE	CRITERIA	REBATE
Attic Insulation	Increase insulation from R12 or less to at least R50	$500
	Increase insulation from R13 to R25 to at least R50	$250
	Increase cathedral/flat roof insulation by at least R14	$500
Air Sealing	Achieve 10% or more above base target	$150
	Achieving base target	$100
Basement Insulation Must upgrade a minimum of 20 per cent of the total wall area	Add at least R23 insulation to 100% of basement	$1,000
	Add at least R12 insulation to 100% of basement	$500
	Add at least R23 insulation to 100% of crawl space wall	$800
	Add at least R10 insulation to 100% of crawl space wall	$400
	Add at least R24 insulation to 100% of floor above crawl space	$450
Exterior Wall Insulation Must upgrade a minimum of 20 per cent of the total wall area	Add at least R20 to 100% of building	$2,000
	Add at least R9 insulation to 100% of building to achieve a minimum of R12	$1,500
	Add at least R3.8 to 100% of building to achieve a minimum of R12	$1,000
Furnace/Boiler	Replace a 94% or less AFUE with a 95% or higher AFUE natural gas, propane, or oil furnace; OR, Replace an 89% or less AFUE with a 90% or higher AFUE natural gas, propane, or oil boiler.	$750
Water Heater	• Replace existing natural gas water heater with 0.80 EF or higher tanked ENERGY STAR® qualified natural gas water heater. or • Replace existing natural gas water heater with 0.90 EF or higher tankless ENERGY STAR® qualified natural gas water heater.	$200
Window/Door/Skylight	For each window, door or skylight replaced with an ENERGY STAR®-qualified model.	$40

Assessment Rebate

Since pre-energy and post-energy assessments are participation requirements, eligible customers receive a rebate of $550 for completing the assessments. The amount is intended to cover almost the full cost of the assessments, excluding HST.

Bonus Rebate

A bonus rebate of $250 was available for each measure installed beyond the first two. This rebate was intended to encourage homeowners to pursue all energy savings opportunities available to them.

Limited Time Offers

In Q4 2019, Enbridge Gas introduced limited time offers, whereby homeowners were encouraged to participate in one of two customized packages that provided greater savings and aimed at driving greater participation in insulation and building envelope

measures. The LTO packages were available to qualifying participants who completed their initial assessment on/after September 1, 2019 and their final assessment on/before December 31, 2019.

- Package 1: Receive $1,750 Rebate + $550 rebate for audit cost (Total $2,300) when the homeowner completes the following measures:
    - Replace furnace/boiler
    - Attic Insulation
    - Achieve Air Sealing target or target + 10%
- Package 2: Receive $750 Rebate + $550 rebate for audit cost (Total $1,300) when the homeowner completes the following measures:
    - Attic Insulation
    - Achieve Air Sealing target or target + 10%

D2. RESIDENTIAL ADAPTIVE THERMOSTAT OFFERING

A $75 instant rebate offer is provided to customers towards their purchase of a qualifying adaptive thermostat device through specific retailers.

The rebate could be obtained in one of two ways:

- · An instant point-of-purchase rebate towards the online purchase of an eligible device

OR

- · An instant point-of-purchase rebate towards the in-store purchase of an eligible device from participating Home Depot stores province-wide

D3. COMMERCIAL/INDUSTRIAL PRESCRIPTIVE OFFERING

TECHNOLOGY	CUSTOMER INCENTIVE AMOUNT	SERVICE PROVIDER INCENTIVE AMOUNT	DISTRIBUTOR/DEALER INCENTIVE
Space Heating			
Air Curtain (pedestrian, no vestibule, 7'x3')	$300	$100	N/A
Air Curtain (pedestrian, no vestibule, 7'x6')	$400	$100	N/A
Air Curtain (pedestrian, no vestibule, 8'x6')	$500	$100	N/A
Air Curtain (pedestrian, with vestibule, 7'x3')	$200	$100	N/A
Air Curtain (pedestrian, with vestibule, 7'x6')	$300	$100	N/A
Air Curtain (pedestrian, with vestibule, 8'x6')	$400	$100	N/A

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TECHNOLOGY	CUSTOMER INCENTIVE AMOUNT	SERVICE PROVIDER INCENTIVE AMOUNT	DISTRIBUTOR/DEALER INCENTIVE
Air Curtain (shipping/dock doors, 8'x8')	$2,400	$100	N/A
Air Curtain (shipping/dock doors, 8'x10')	$2,400	$100	N/A
Air Curtain (shipping/dock doors, 10'x10')	$4,000	$100	N/A
Condensing Boiler (new construction, up to 299 Mbtu/hr)	$600	$100	$50
Condensing Boiler (retrofit, up to 299 Mbtu/hr)	$1,000	$100	$50
Condensing Boiler (retrofit, 300 to 999 Mbtu/hr)	$2,000	$100	$50
Condensing Boiler (retrofit, 1,000 Mbtu/hr or greater)	$6,000	$100	$50
Condensing Furnace (95% AFUE or greater)	$200	$100	N/A
Condensing Make-up Air (Constant speed, Minimum 1,500 CFM to maximum 14,000 CFM per unit)	$0.30/CFM	$100	N/A
Condensing Make-up Air (2-Speed, Minimum 1,500 CFM to maximum 14,000 CFM per unit)	$0.35/CFM	$100	N/A
Condensing Make-up Air (Variable frequency drive (VFD), Minimum 1,500 CFM to maximum 14,000 CFM per unit)	$0.40/CFM	$100	N/A
Condensing Make-up Air (2-speed, Bonus incentives exclusively for units over 5,000 CFM. Maximum 14,000 CFM per unit)	$0.35/CFM+$1,500 bonus incentive per unit	$100	N/A
Condensing Make-up Air (VFD, Bonus incentives exclusively for units over 5,000 CFM. Maximum 14,000 CFM per unit)	$0.40/CFM+$2,500 bonus incentive per unit	$100	N/A
Demand Control Ventilation (RTU/MUA with CO2 sensor)	$500	$50	$50
Destratification Fan (20ft.)	$1,000	$100	N/A
Destratification Fan (24ft.)	$1,000	$100	N/A
Energy Recovery Ventilator (ERV) (no existing ERV and not required by code, 55% to 64% sensible heat recovery effectiveness)	$1.00/CFM	$100	$50
Energy Recovery Ventilator (ERV) (no existing ERV and not required by code, 65% to 74% sensible heat recovery effectiveness)	$1.25/CFM	$100	$50
Energy Recovery Ventilator (ERV) (no existing ERV and not required by code 75% to 84% sensible heat recovery effectiveness)	$1.50/CFM	$100	$50
Energy Recovery Ventilator (ERV) (no existing ERV and not required by code 85% or greater sensible heat recovery effectiveness)	$1.75/CFM	$100	$50
Energy Recovery Ventilator (ERV) (replacement of existing ERV or new ERV required by code, 65% to 74% sensible heat recovery effectiveness)	$0.50/CFM	$100	$50
Energy Recovery Ventilator (ERV) (replacement of existing ERV or new ERV required by code, 75% to 84% sensible heat recovery effectiveness)	$0.75/CFM	$100	$50
Energy Recovery Ventilator (ERV) (replacement of existing ERV or new ERV required by code 85% or greater sensible heat recovery effectiveness)	$1.15/CFM	$100	$50
Heat Recovery Ventilator (HRV) (no existing HRV and not required by code, 55% to 64% sensible heat recovery effectiveness)	$0.50/CFM	$100	$50

ENBRIDGE

TECHNOLOGY	CUSTOMER INCENTIVE AMOUNT	SERVICE PROVIDER INCENTIVE AMOUNT	DISTRIBUTOR/DEALER INCENTIVE
Heat Recovery Ventilator (HRV) (no existing HRV and not required by code, 65% to 74% sensible heat recovery effectiveness)	$0.75/CFM	$100	$50
Heat Recovery Ventilator (HRV) (no existing HRV and not required by code, 75% to 84% sensible heat recovery effectiveness)	$1.00/CFM	$100	$50
Heat Recovery Ventilator (HRV) (no existing HRV and not required by code, 85% or greater sensible heat recovery effectiveness)	$1.25/CFM	$100	$50
Heat Recovery Ventilator (HRV) (replacement of existing HRV or new HRV required by code, 65% to 74% sensible heat recovery effectiveness)	$0.25/CFM	$100	$50
Heat Recovery Ventilator (HRV) (replacement of existing HRV or new HRV required by code, 75% to 84% sensible heat recovery effectiveness)	$0.50/CFM	$100	$50
Heat Recovery Ventilator (HRV) (replacement of existing HRV or new HRV required by code, 85% or greater sensible heat recovery effectiveness)	$0.75/CFM	$100	$50
Condensing Unit Heaters (90% thermal efficiency or greater	$750 *(transitioned to Distributor Discount Program in 2019 program year)*	$100 *(transitioned to Distributor Discount Program in 2019 program year)*	$50 *(transitioned to Distributor Discount Program in 2019 program year)*
Infrared Heaters (single stage)	$300 *(discontinued during 2019 program year)*	$100 *(discontinued during 2019 program year)*	$50 *(discontinued during 2019 program year)*
Infrared Heaters (two stage)	$400 *(discontinued during 2019 program year)*	$100 *(discontinued during 2019 program year)*	$50 *(discontinued during 2019 program year)*
Water Heating			
Condensing Boiler (new construction, up to 299 MBtu/hr)	$600	$100	$50
Condensing Boiler (retrofit, up to 299 MBtu/hr)	$1,000	$100	$50
Condensing Boiler (retrofit, 300 MBtu/hr to 999 MBtu/hr)	$2,000	$100	$50
Condensing Boiler (retrofit 1,000 MBtu/hr or greater)	$6,000	$100	$50
Ozone Laundry (based on weight of laundry processed annually. Maximum $8,000/system)	$0.02/lb.	$100	N/A
Ozone Laundry (bonus incentives exclusively for commercial laundry facilities. Based on weight of laundry processed annually. Maximum $10,000/system.)	$0.03/lb.	$100	N/A
Condensing Water Heater, Storage/Tankless (Instantaneous) (75 KBtu/hr)	$450 *(transitioned to Distributor Discount Program in 2019 program year)*	$100 *(transitioned to Distributor Discount Program in 2019 program year)*	$50 *(transitioned to Distributor Discount Program in 2019 program year)*
Food Service (Commercial food preparation or processing)			
Demand Control Kitchen Ventilation (up to 5,000 CFM)	$1,200	$100	N/A
Demand Control Kitchen Ventilation (5,001 to 10,000 CFM)	$3,000	$100	N/A
Demand Control Kitchen Ventilation (10,001 to 15,000 CFM)	$4,400	$100	N/A
Demand Control Kitchen Ventilation (bonus incentives exclusively for retrofit units up to 5,000 CFM)	$1,700	$100	N/A
Demand Control Kitchen Ventilation (bonus incentives exclusively for retrofit units 5,001 to 10,000 CFM)	$6,400	$100	N/A
Demand Control Kitchen Ventilation (bonus incentives exclusively for retrofit units 10,001 to 15,000 CFM)	$9,200	$100	N/A
ENERGY STAR Dishwasher (undercounter)	$100	$50	N/A

TECHNOLOGY	CUSTOMER INCENTIVE AMOUNT	SERVICE PROVIDER INCENTIVE AMOUNT	DISTRIBUTOR/DEALER INCENTIVE
ENERGY STAR Dishwasher (stationary rack)	$200	$50	N/A
ENERGY STAR Dishwasher (rack conveyor)	$450	$50	N/A
ENERGY STAR Fryers	$600/vat *(transitioned to Distributor Discount Program in 2019 program year)*	$50 *(transitioned to Distributor Discount Program in 2019 program year)*	N/A
ENERGY STAR Steam Cookers	$300/unit *(transitioned to Distributor Discount Program in 2019 program year)*	$50 *(transitioned to Distributor Discount Program in 2019 program year)*	N/A
High-Efficient Broilers	$400/unit *(transitioned to Distributor Discount Program in 2019 program year)*	$50 *(transitioned to Distributor Discount Program in 2019 program year)*	N/A

Distributor Discount Program Incentives (midstream initiative)

TECHNOLOGY	DISTRIBUTOR/DEALER INCENTIVE
HVAC	
Condensing Unit Heaters	$750
Condensing Storage Water Heaters	$450
Condensing Tankless Water Heaters	$450
Food Service	
ENERGY STAR Fryers	$600/vat
ENERGY STAR Steam Cookers	$1,000
High-Efficiency Broilers	$400

D4. COMMERCIAL/INDUSTRIAL DIRECT INSTALL OFFERING

Eligible customers are provided with the installation of shipping and receiving air doors, with approximately 80% of the total project cost covered. There is also a $750 incentive per door when a customer confirms participation within 30 days of receiving a quote.

D5. COMMERCIAL/INDUSTRIAL CUSTOM OFFERING

In addition to technical expertise, the following financial incentives are available to participants:

ITEM	COMMERCIAL CUSTOMERS	INDUSTRIAL CUSTOMERS
New Equipment Installation, Equipment Retrofit, and Process Optimization Projects	General Service customers (rates M1, M2, R1, and R10): $0.20/$m^3$, up to $40,000 or 50% of incremental cost Contract customers (M4, M5, M7, T1, and R20): $0.10/$m^3$, up to $100,000 or 50% of incremental cost	
Engineering Feasibility Studies	50% of study cost, up to $4,000	50% of study cost, up to $10,000

ITEM	COMMERCIAL CUSTOMERS	INDUSTRIAL CUSTOMERS
Study Top-Up	Feasibility Study: 50% to a maximum of $4,000	Feasibility Study: 50% to a maximum of $4,000 Process Improvement: 34% to a maximum of $20,000
Process Improvement Studies	--	66% of study cost, up to $20,000
Meters Installations	--	50% of installed cost, up to $5,000 limit of 5 meters per year per site
Limited Time Offer	20% bonus incentive for Contract customers (M4, M5, M7, T1, and R20) who complete New Equipment Installation, Equipment Retrofit, and/or Process Optimization Projects and submit applications before July 1, 2019.	

D6. HOME WEATHERIZATION OFFERING

There is no financial cost to the participant for this offering. In addition to home energy assessments, the offering included the following measures:

- Insulation (attic, wall, basement)
- Draftproofing
- Smart thermostats
- Showerheads
- Kitchen and bathroom aerators
- CO detectors
- Smart Thermostat
- Pipe Wrap Installation

To be eligible for the offering, the participant must meet the following criteria:

- Occupant of single/semi-detached, town/row house or low-rise multi-family housing (three stories or less, as defined by Part 9 of the Ontario Building Code); and,
- Income is at or below 135% of Statistics Canada's Low-Income Cut-Off ("LICO") or participate in government assistance programs (private homeowner or tenant must heat their home with natural gas and pay their own gas bills); or,
- Tenant resides in social and assisted housing, regardless of gas bill payment responsibility.

D7. FURNACE END-OF-LIFE UPGRADE OFFERING

Participants are given a $275 incentive per furnace upgrade. Union also provides a $50 incentive to the service provider.

Eligibility guidelines are the same as the Home Weatherization Offering. In addition, in order to be eligible for the incentive, the furnace replacement must be in compliance with the TRM substantiation document (see Section 2.6 for more information on the TRM).

D8. INDIGENOUS OFFERING

There is no financial cost to the participant for this offering. In addition to home energy assessments, the offering included the following measures:

- Insulation (attic, wall, basement)
- Draftproofing
- Smart thermostats
- Showerheads
- Kitchen and bathroom aerators
- CO detectors
- Smart Thermostat
- Pipe Wrap Installation

A $275 incentive is available for per furnace upgrade. Union also provides a $50 incentive to the service provider. In addition, the furnace replacement must be in compliance with the TRM substantiation document (see Section 2.6 for more information on the TRM).

D9. MULTI-RESIDENTIAL AFFORDABLE HOUSING OFFERING

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TECHNOLOGY	CUSTOMER INCENTIVE	SERVICE PROVIDER INCENTIVE
Building Assessment (4 stories and higher, or, 6,400sqft and over)	$8,000 per building, maximum of $40,000 per housing provider per year	N/A
Space heating		
Condensing Boilers (up to 299,000 Btu/Hr)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/boiler
Condensing Boilers (retrofit only; 300,000 to 999,000Btu/Hr)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/boiler
Condensing Boilers (retrofit only; 1,000,000Btu/Hr and over)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/boiler
Energy Recovery Ventilators (up to 10,000CFM)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/unit
Energy Recovery Ventilators (up to 20,000CFM)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/unit
Heat Recovery Ventilators (up to 10,000CFM)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/unit
Heat Recovery Ventilators (up to 20,000CFM)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/unit
Condensing Make-up Air (1,500CFM to 14,000CFM; includes: constant speed, 2-speed and variable frequency drive units)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/unit
Commercial Condensing Furnace (95% AFUE or greater)	$400/unit	$100/unit
Water heating		
Condensing Boilers (up to 299,000 Btu/Hr)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/boiler
Condensing Boilers (retrofit only; 300,000 to 999,000Btu/Hr)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/boiler
Condensing Boilers (retrofit only; 1,000,000Btu/Hr and over)	$0.10 per lifetime cubic metres saved, up to a maximum of $15,000	$100/boiler
Condensing Gas Water Heater (storage)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/water heater
Condensing Gas Water Heater (tankless, instantaneous)	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	$100/water heater
In-suite measures		
In-suite Energy Recovery Ventilator (no existing ERV or not required by the code)	$300/unit	5% of the total customer incentive per building. One service provider incentive payment per building.
In-suite Energy Recovery Ventilator (improved effectiveness; existing ERV or above code, 65% to 74% sensible heat recovery effectiveness)	$100/unit	5% of the total customer incentive per building. One service provider incentive payment per building.
In-suite Energy Recovery Ventilator (improved effectiveness; existing ERV or above code, 75% to 84% sensible heat recovery effectiveness)	$200/unit	5% of the total customer incentive per building. One service provider incentive payment per building.
In-suite Energy Recovery Ventilator (improved effectiveness; existing ERV or above code, 85% and greater sensible heat recovery effectiveness)	$300/unit	5% of the total customer incentive per building. One service provider incentive payment per building.
In-suite Heat Recovery Ventilator (no existing HRV or not required by the code)	$150/unit	5% of the total customer incentive per building. One service provider incentive payment per building.
In-suite Heat Recovery Ventilator (improved effectiveness; existing ERV or above code, 65% to 74% sensible heat recovery effectiveness)	$50/unit	5% of the total customer incentive per building. One service provider incentive payment per building.
In-suite Heat Recovery Ventilator (improved effectiveness; existing ERV or above code, 75% to 84% sensible heat recovery effectiveness)	$100/unit	5% of the total customer incentive per building. One service provider incentive payment per building.
In-suite Heat Recovery Ventilator (improved effectiveness; existing ERV or above code, 85% and greater sensible heat recovery effectiveness)	$150/unit	5% of the total customer incentive per building. One service provider incentive payment per building.
Custom building efficiency improvements		
Custom projects to reduce gas consumption in building stock, such as: Insulation Upgrades, Heat Recovery, Control Systems, Building Automation Systems	$0.10 per lifetime cubic metres saved or up to 50% of the fully installed cost of the measure (whichever less)	N/A

To be eligible, Part 3 buildings must be:

- Social and assisted housing, or non-profit housing; or,
- Low-income market rate multi-family (building owner or property manager confirmation that at least 50% of the properties' tenants pay less than the average market rent in that region, as determined by the Canadian Mortgage and Housing Corporation).

D10. LARGE VOLUME DIRECT ACCESS OFFERING

Incentive Guidelines:

ITEM	INCENTIVE
Engineering Feasibility Study	50% of the cost, up to $10,000
Process Improvement Study	66% of the cost, up to $20,000
Steam Trap Survey	50% of the cost, up to $6,000
Meters	50% of the cost, up to $5,000 per meter
Customer Education	Provided by or funded by Union Gas
New Equipment Installation, Equipment Retrofit, Process Optimization Projects and Operational Improvement	Direct Access Funded: $0.10 per annual m^3 saved, up to $100,000* Aggregate Pool Funded: $0.05 per annual m^3 saved, up to $40,000*

**Incentive cannot exceed 50% of project cost*

D11. OPTIMUM HOME OFFERING

Incentives include:

PHASE	INCENTIVE
Phase One: Design	In-kind services up to $30,000 value per builder $3,000 cash incentive per builder towards the prototype Discovery Home
Phase Two: Build	In-kind services up to $25,000 value per builder
Post Phase: Retain	In-kind services up to $15,000 value per builder

Residential builders are eligible if they are among the top 10 regional builders in each regional territory based on the previous year's housing statistics.

D12. COMMERCIAL SAVINGS BY DESIGN OFFERING

PROJECT PHASE	INCENTIVE	DETAILS
Planning/Design	Services (up to $30,000 value)	Includes IDP session and final IDP report
Pre-Construction	$15,000 financial incentive	Provided upon completion of a pre-construction energy model that meets the energy performance target
Commissioning	$15,000 financial incentive	Provided upon completion of a final (as-constructed) energy model that demonstrates the building meets the energy performance target

Bonus offers:

- $3,000 financial incentive for participants that completed the IDP workshop prior to November 30, 2019
- $1,000 financial incentive for architects who identified eligible projects within the Union rate zones that are in the design phase and could benefit from the IDP session

To be eligible for an incentive, the submitted projects must fulfill the following criteria:

- Construction projects must have a minimum threshold of 50,000 square feet per project (including aggregate multi-location projects)
- Building(s) must be in the design phase or earlier
- Building construction must be completed within 5 years of completion of the IDP, and building must be commissioned within 1 year of construction completion
- Builders are eligible to participate in the offering multiple times for different projects

D13. RUNSMART OFFERING

In addition to technical support provided by Enbridge Gas to identify energy savings opportunities, participants are provided the following financial incentives:

DEMONSTRATED SAVINGS	FINANCIAL INCENTIVE
5% to below 10%	$0.20 per annual m^3 saved
10% to below 15%	$0.25 per annual m^3 saved
15% or more	$0.30 per annual m^3 saved

Participants must consume more than 50,000 m^3 of natural gas annually and must not have recently implemented energy conservation measures at their site (e.g., non-DSM participants and/or customers who have not participated in the last two years).

D14. STRATEGIC ENERGY MANAGEMENT OFFERING

PARTICIPATION PERIOD	INCENTIVES
Year One: Start-up incentives	Up to $25,000 to support the purchase and installation of sub-metering and data management equipment
	In-kind technical support from Enbridge Gas and a third-party expert
Year Two: Baseline incentive	Continuation of in-kind technical support, as baseline data is being collected and analyzed
Years Three to Five: Fixed performance incentives*	Year Three: $10,000 for energy savings of 5% or more over baseline
	Year Four: $15,000 for energy savings of 10% or more over baseline
	Year Five: $20,000 for energy savings of 15% or more over baseline

**A minimum of 5% savings compared to baseline is required to qualify for any performance incentive.*

To be eligible, a participant must be a contract industrial-manufacturing customer who has not participated in Enbridge Gas' previous integrated energy management system offering, with a minimum annual natural gas usage of 1,000,000 m^3, and does not have an existing energy management system (i.e., an integrated system to track, report, and plan continuous improvement energy efficiency

activities). Customers also need to enter into a participation agreement with Enbridge Gas and commit to establishing an energy performance baseline.

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Appendix E: Abbreviations and Acronyms List

	ABBREVIATION/ACRONYM	FULL NAME
A	AFUE	Annual Fuel Utilization Efficiency
	Amendment 15	NRCan's Regulations Amending the Energy Efficiency Regulations, 2016 (Amendment 15): SOR.2019-164
C	CEE	Consortium for Energy Efficiency
	CEM	Comprehensive Energy Management
	CFM	Cubic feet per minute
	C/I	Commercial/Industrial
	CSBD	Commercial Savings by Design
D	DCKV	Demand Control Kitchen Ventilation
	DCP	Design Phase Charette
	DCV	Demand Control Ventilation
	Decision	Decision and Order on EGD's and Union's 2015-2020 DSM Plans (EB-2015-0049/EB-2015-0029)
	DSM	Demand Side Management
	DSM Framework	Demand Side Management Framework for Natural Gas Distributors (2015-2020) (EB-2014-0134)
	DSM Guidelines	Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020) (EB-2014-0134)
	DSMVA	Demand Side Management Variance Account
E	EAC	Evaluation Advisory Committee
	EC	Evaluation Contractor
	EEP	Energy Efficiency Plan
	EMIS	Energy Management Information System
	EM&V	Evaluation, Measurement, and Verification
	ERV	Energy Recovery Ventilation
H	HER	Home Efficiency Rebate
	HRR	Home Reno Rebate offering
	HRV	Heat Recovery Ventilation
	HVAC	Heating, Ventilation and Air Conditioning
	HVLS	High Volume Low Speed
I	IDP	Integrated Design Process
	IESO	Independent Electricity System Operator
L	LICO	Low-Income Cut-Offs
	LRAM	Lost Revenue Adjustment Mechanism
	LTO	Limited Time Offers
M	Mid-Term Report	Mid-Term Review of the Demand Side Management Framework for Natural Gas Distributors (2015-2020) (EB-2017-0127 & EB-2017-0128)
N	NECB	National Energy Code of Canada for Buildings
	NRCan	Natural Resources Canada
	NTG	Net-to-Gross study
O	OBC	Ontario Building Code
	OEB	Ontario Energy Board
P	PAC	Program Administrator Cost
R	REA	Registered Energy Advisor
S	SBC	Sustainable Building Canada

	ABBREVIATION/ACRONYM	FULL NAME
	SEM	Strategic Energy Management
	SO	Service Organization
T	TRC-Plus	Total Resource Cost Plus
	TRM	Technical Resource Manual

Appendix F: Home Efficiency Rebate Offering Process Evaluation Report (Union Rate Zones)

HOME RENO REBATE PROGRAM OFFERING

UNION GAS

Final Report

Process Evaluation

October 10, 2019

ECONOLER

ABBREVIATIONS

CEA	Certified energy auditor
D assessment	Pre-renovation energy assessment
DSM	Demand-side management
E assessment	Post-renovation energy assessment
GIF	Green Investment Fund
HRR	Home Reno Rebate
HVAC	Heating, ventilation, and air conditioning
IESO	Independent Electricity System Operator
QA	Quality assurance
SO	Service organization
Union	Union Gas

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EXECUTIVE SUMMARY

This report presents the results of the process evaluation of the Enbridge Gas Inc., operating as Union Gas (hereinafter referred to as Union),[1] Home Reno Rebate[2] (HRR) program offering. The HRR program offering takes a holistic approach to achieving energy savings by helping homeowners understand improvement opportunities throughout their home and encouraging them to install upgrades that generate long-lasting energy savings. To do so, the program offers financial incentives for pre-renovation energy assessments (D assessments), energy efficiency upgrades, and post-renovation energy assessments (E assessments).

Summary of the Evaluation Approach

This evaluation covers the 2018 program year from January 1 to December 31 inclusively. The main objectives of the HRR process evaluation are to:

- Identify opportunities to improve the efficacy of program offerings and implementation efforts;
- Determine whether the data entry and quality assurance processes are sufficiently robust, efficiencies can be gained, or enhancements need to be made.

To meet the evaluation objectives, Econoler (hereinafter the Evaluator) completed the following activities:

- A program database and documentation review;
- Interviews with Union program staff;
- Interviews with service organizations (SOs) and certified energy auditors (CEAs);
- A Union market research survey results review.

Process Evaluation Key Findings and Recommendations

The following presents an overview of the Evaluator's key findings and recommendations resulting from the Home Reno Rebate program offering process evaluation.

The HRR program offering's logic model and program theory are well documented. This documentation enables the program administrator to carefully consider likely program outcomes and ensure that the strategic approaches lead to the desired results. The Evaluator made a few adjustments to the program theory and logic model to better reflect the current program strategy. The logic model should be continuously adapted to reflect any program changes and changes in external factors. The program theory includes a few performance indicators linked to the expected long-term program outcomes, which is a good practice.

[1] As of January 1, 2019, Union Gas and Enbridge Gas Distribution were merged into one utility under the legal name Enbridge Gas Inc.
[2] As of May 1, 2019, the Home Reno Rebate program was rebranded with Enbridge's Home Energy Conservation program into one program called the Home Efficiency Rebate program.

Recommendation No. 1: Define additional performance indicators to correspond with the adjusted logic model and track all performance indicators linked to program objectives.

The program successfully engaged a large number of participants. The HRR program offering is designed to have a significant impact on the residential market by adhering to a whole-house approach to achieving long-term energy savings. Although achieved energy savings are not covered by the scope of this evaluation, the high uptake of the program in the marketplace and the positive feedback from partners indicate the appeal of the program offering.

The HRR program offering effectively leverages its partner network for program promotion and delivery. Union has developed a strong network of partners to promote and deliver the program. Union collaborates with SOs that work with participants through all stages of the program. SOs' work with their networks of CEAs who perform the energy assessments and collaborate with contractors who play an important role in generating participant leads. Union also contributes to program awareness through its website, advertising or bill inserts.

There is high satisfaction among partners with respect to their working relationships and communication between CEAs, SOs and Union. The HRR program offering relies on SOs and CEAs to facilitate the delivery of the program. Therefore, communication and collaboration among partners are essential. The CEAs surveyed were very satisfied with their relationship with Union (with the satisfaction levels ranging from 8 to 9 on a 10-point scale). Surveyed SOs were also very satisfied with their relationship with Union (with the satisfaction levels ranging from 8 to 10 on a 10-point scale). SOs appreciate Union’s openness, availability, efficiency at providing information and quick turnaround in answering questions or responding to issues.

The program relies heavily on furnace replacements and contractor referrals, which should be considered when measuring free-ridership. Contractor referrals (mostly from HVAC contractors) are a main driver for program participation. Since contractor referrals are a key driver for program participation, it is necessary to take contractors’ recommendations into account in the free-ridership measurement. Otherwise, the free-ridership level may be overestimated.

The program uses furnace replacement opportunities as an entry point into the program to engage homeowners and encourage participants to implement other measures to improve the efficiency of their home. The program data shows that 88% of HRR projects included a furnace upgrade and 79% included air sealing.

Recommendation No. 2: Investigate current practices among contractors for pairing air sealing with furnace replacements to assess what target of air sealing should remain incentivized by the program and counted in the minimum number of upgrades to be implemented.

Recommendation No. 3: When assessing free-ridership as part of the net impact evaluation, measure the influence of recommendations made by program partners (contractors and CEAs) on the types of upgrades installed by participants.

Union staff reported a low number of unconverted assessments. The program covers the cost of pre and the post-renovation energy assessments and reimburses participants upon completion of the post-renovation energy assessment, which is a good practice for maximizing the number of participants completing both the D and the E assessments. However, the number of unconverted assessments, while available in Parachute, was not tracked in the master database.

Recommendation No. 4: Track and monitor the number of unconverted assessments.

Opportunities remain for better communicating the benefits of potential upgrades. CEAs try to encourage participants to install more upgrades by educating them on potential energy and cost savings during the D assessment.

In total, 61% of participants installed the minimum number of upgrades required by the program. Participants identified financial constraints as the main barrier to not implementing the recommended measures, which was followed closely by a belief that their homes did not need the upgrades. Moreover, the only two aspects that received relatively lower satisfaction ratings from participants are related to the level of information shared about ways to reduce energy use.

The EnerGuide Homeowner Information sheet and the Renovation Upgrade Report are provided to homeowners to educate them on energy saving opportunities in their home. However, results indicate that further efforts could be made to better communicate energy assessment results in a simplified, easy to digest manner, including the benefits of potential upgrades, to minimize lost opportunities. This was also identified by the SOs and CEAs interviewed.

Recommendation No. 5: Provide CEAs with an additional tool(s) to better communicate the benefits of recommended measures, such as an online tool that allows participants to analyze the costs, rebates and benefits of the measures.

Insulation is the largest untapped opportunity for achieving gas savings in participating houses. All interviewed CEAs mentioned that insulation is one of the most frequently recommended upgrades. However, only 35% of participants installed insulation under HRR. The main recommendation from program partners on how to increase insulation uptake is to increase the rebate amount for this measure.

Recommendation No. 6: Consider ways to increase uptake in insulation upgrades, such as increasing the rebate amount or better communicating the benefits of installing insulation (as per Recommendation 5 above).

The HRR program offering provides a satisfying customer experience. Most participating customers were very satisfied with their overall experience with the HRR program offering, the ease of participating in the program and their interactions with the CEA during both assessments. Union's market research results show that overall satisfaction with the program varied somewhat among SOs. Union provides feedback to SOs on how they compare to their peers.

Recommendation No. 7: Continue to monitor participant satisfaction among SOs to respond quickly to any changes in satisfaction levels.

Length of time to receive payment impacts participant satisfaction. Union's market research findings show that overall satisfaction with the program declines when payment is received later than expected. Reducing the time for issuing the rebate, as suggested by 15% of surveyed participants, could therefore increase overall satisfaction with the HRR program offering. Several factors impact the time required for issuing the rebate and Union has taken steps to target a number of these factors. Union staff and SOs both indicated that delays occur when there is confusion in identifying the right person to receive program rebate.

Cheques are issued at the end of the participation process, after the project application has been fully approved. Union aims to have cheques mailed out to participants 120 days after submission of the E assessment. However, other steps to be completed before submitting the E assessment sometimes result in delays. Customers do not receive automatic updates on their application status. If customers are curious about the status of their cheque, they may contact Customer Care or their CEA.

Recommendation No. 8: Consider ways to identify the correct program participant to avoid delays in processing applications, for example, by validating participant information earlier in the participation process (i.e. during the D assessment).

Recommendation No. 9: Provide customers with notices when their project application is received and approved.

The program data tracking, monitoring and reporting process is complete and effective and follows best practices. The process is automated where possible and utilizes tools that provide automatic checks, error flags and warnings. Union has updated processes to adapt to increased project volume and continuously reviews and improves processes to accommodate program changes and implement any efficiencies to streamline processes.

The Parachute system meets the data needs of SOs and Union. Both CEAs and SOs are satisfied with the Parachute system and Union's data-tracking and reporting process. Union staff also reported satisfaction with the Parachute system because it improves data integrity and consistency, allows for efficient resolution of data discrepancies with SOs and CEAs and improves the ability to plan based on the volume of applications.

The data reporting process among SOs is inconsistent. The Evaluator found inconsistent practices among SOs. First, some SOs have project files approved by NRCan prior to inputting the data into Union's Parachute system while others do not. Second, there are inconsistencies among SOs in whether issues identified during the NRCan review are corrected in Parachute or not. Submitting files to Union prior to NRCan's review is seen as a way to reduce delays in the project approval process. However, the practices should be consistent among SOs.

Recommendation No. 10: Make SO practices for NRCan file approval consistent. If the program data is inputted into Union's Parachute system prior to NRCan approval, monitor a sample of project files and NRCan-approved files, sampled over at least a year, to confirm that the difference between the two groups of files is minor and no adjustment is needed.

The master database[3] is well organized and clear and contains the main information required for program management and evaluation purposes. Several pieces of information, although not essential, could be added to support program monitoring and track potential lost opportunities.

The process of adding projects to the master database involves copy-pasting project information into the file and might thus introduce errors.

Recommendation No. 11: Add information to the master database to support program monitoring and planning, as well as a future program strategy. More specifically:

- Include all the recommended measures and their savings potential shown in the D assessment to enable a better understanding of the measures that have not been implemented by participants to inform future program design and marketing strategies.
- Include the overall savings potential from the D assessment.

Recommendation No. 12: Add safeguards in the master database to reduce the risk of introducing errors. Consider locking formulas in the spreadsheet so that they cannot be tampered with accidentally (e.g. locking the savings formulas in Columns DV and DZ).

The HRR QA protocol is sufficient with some room to improve consistency among SOs. The HRR program offering largely relies on NRCan QA processes to ensure data quality and integrity. All SOs interviewed each have a designated QA specialist and reported following NRCan's protocol in conducting internal QA audits. All interviewed SOs followed the documentation retention protocols in Union's SO agreement. However, only one of the three SOs had a written QA process and there were some inconsistencies in how errors found in NRCan's QA audits were corrected in Union's system. A 2018 QA activity performed by Union found differences of less than 2% between NRCan's file data and Parachute.

Recommendation No. 13: Ensure that SOs consistently follow the QA guidelines in SO agreements and that practices for making corrections based on QA audits are consistent among SOs.

[3] 2018 RHRR MASTER FILE FINAL-For Econoler.xls.

INTRODUCTION

Enbridge Gas Inc., operating as Union Gas (Union),[4] has administered demand-side management (DSM) programs in the province of Ontario for the last 20 years. Union programs are meant to help Ontarians improve the energy efficiency of their homes and workplaces by installing high-efficiency equipment and changing their behaviours to become more energy efficient.

Econoler was engaged by Union to evaluate its residential program, the Home Reno Rebate (HRR) program offering.[5] Union works in collaboration with service organizations (SOs) and certified energy advisors (CEAs) across the province to deliver the program and offer rebates on energy-efficient measures and products such as insulation, air sealing, heating systems and windows. This evaluation focuses on assessing the HRR program offering and implementation, as well as determining if the processes for data tracking, reporting, and quality assurance are adequate and sufficient. This evaluation covers the 2018 year from January 1 to December 31 inclusively.

Econoler (hereinafter the Evaluator) was in charge of coordinating and supervising all evaluation activities, developing data-collection instruments, conducting in-depth interviews, as well as preparing the evaluation report.

[4] As of January 1, 2019, Union Gas and Enbridge Gas Distribution were merged into one utility under the legal name Enbridge Gas Inc.
[5] As of May 1, 2019, the Home Reno Rebate program was merged with Enbridge's Home Energy Conservation program into one program called the Home Efficiency Rebate program.

1 PROGRAM OVERVIEW

Program Goals and History

Launched by Union in 2012, the HRR program offering takes a holistic approach to achieving energy savings by helping homeowners understand improvement opportunities throughout their home and encouraging them to install upgrades that generate long-lived energy savings. To do so, the program offers financial incentives for pre-renovation energy assessments (D assessments), energy efficiency upgrades, and post-renovation energy assessments (E assessments).

The HRR program offering also provides energy information to customers through the energy assessment and is therefore a critical vehicle of energy literacy among Union residential customers. At the onset of the program in 2012, Union customers had to have a natural gas furnace or boiler to be eligible for the HRR program offering. In 2016 and 2017, Union coordinated with the Government of Ontario and the Independent Electricity System Operator (IESO) to respectively offer the Green Investment Fund (GIF) and the Whole Home Pilot in conjunction with the HRR program offering. These partnerships provided the opportunity for Union and its partners to enhance the existing HRR program offering, increase participation regardless of home heating fuel types, and support activities that also reduce electricity consumption in retrofitted homes. These partnerships expanded the reach of the program into the following markets:

- GIF extended eligibility to homes that use oil, propane or wood as their primary heating fuel and incremental natural gas customers.
- The Whole Home Pilot expanded the target market to include electrically heated homes.

In addition, through the Whole Home Pilot, all qualifying HRR participants could receive rebates on electric ENERGY STAR® appliances, including refrigerators, freezers, dehumidifiers, window air-conditioners, clothes washers and electrically commutated motors on central heating or air-conditioning systems. The GIF funding also allowed Union to launch a behavioural offering, as well as provided increased incentives on HRR eligible measures, a rebate of $100 on smart thermostats to all qualifying participants, and a rebate for air source heat pumps (ASHP). Since the Whole Home Pilot and GIF funding ended on October 1, 2018 and November 1, 2018 respectively, the HRR program offering has now gone back to the reduced incentive levels, for which only Union customers with natural gas heating systems are eligible.

Program Eligibility

The HRR program offering is available to Union residential customers living in detached and semi-detached, as well as townhouses and mobile homes with natural gas furnaces or boilers as the main heating source. To be eligible for the HRR program offering, participants must install at least two of the following energy upgrades or products:

- Attic insulation;
- Exterior wall insulation;
- Basement wall insulation;
- Air sealing;
- Window, door and skylight replacements with a certified ENERGY STAR model;
- High-efficiency natural gas furnace or boiler;
- High-efficiency natural gas water heater.

Program Incentives

The HRR program offering offers up to $550 to cover the cost of the pre and post-renovation energy assessments. The cost is reimbursed to participants upon completion of the post-renovation energy assessment and approval of the project application.

For all the eligible upgrades installed, prescriptive rebates are available, thus allowing participants to know exactly how much they will receive from the program. Union established the rebates by balancing the amounts in proportion to the incremental cost and the savings potential of the measures.

Since 2016, customers completing more than two upgrades also qualify for a $250 bonus for each additional upgrade installed to encourage them to achieve more energy savings. The bonus rebate did not apply to smart thermostats, air source heat pumps in non-electrically-heated home or the measures introduced through the Whole Home Pilot.

In 2016, the maximum rebate payment (the cap) for each home ranged from $2,500 to $5,000, which was the sum of all the assessment costs, measure rebates and the bonus rebate, where applicable. The $5,000 maximum did not apply to smart thermostats, air source heat pumps or the measures introduced through the Whole Home Pilot.

Program Delivery and Partners

Over the years, Union has developed a strong network of partners to deliver the HRR program offering. Union collaborates with 10 SOs, which work with participants through all stages of the program, educating them on the program, scheduling and delivering D and E assessments and providing results to Union. SOs work with their network of CEAs who conduct energy assessments, identify potential energy-saving measures and prepare a report for and deliver it to participants. SOs also collaborate with contractors, educating them on the program because contractors are a key generator of participant leads.

Homeowners can register by phone by contacting a SO in their area that pre-qualifies customers and provides additional program information. Once eligibility is confirmed, homeowners are scheduled for a pre-renovation assessment with a CEA who then visits the home to perform the pre-renovation assessment, including a blower door test.

During the pre-renovation assessment, the CEA collects information about the home to determine current home energy use and profile and develop a list of potential upgrades that could be eligible for incentives. Based on the pre-renovation energy assessment, the CEA prepares a report for the customer, recommending applicable energy upgrades. The customer then hires a contractor to implement at least two of the upgrades recommended. Customers may also complete the work themselves. Following completion of the upgrades, the customer contacts the SO that completed the pre-renovation assessment to conduct a post-renovation energy assessment. This second assessment must be completed within 120 days after the first assessment. The CEA calculates the new home energy rating, using Natural Resources Canada's EnerGuide Rating System, and then provides the data to their SO to be submitted to Union or directly submits the data to Union. Union verifies and reviews the application. Once the application is approved, the homeowner is mailed a rebate cheque for the qualifying upgrades implemented in the home.

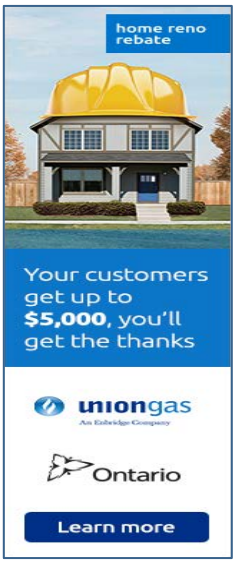
Program Marketing and Outreach

Over the years, Union has used traditional marketing tactics, such as mass media and targeted promotions, to create awareness among its customers and encourage program participation. Union has also provided SOs with promotional materials, training and ongoing engagement and coaching to help them deliver the HRR program offering and generate participant leads.

In the spring of 2018, Union focused on digital marketing as its primary marketing tactic. The objective was to raise customer awareness about undertaking a D assessment prior to starting any work to generate awareness about the offering and, in turn, more fulsome knowledge of the opportunities in the home to facilitate a holistic approach that includes energy efficiency; in the fall, the focus was to generate increased program take-up as the weather got colder.

Union used the following marketing tools and tactics:

- Newspaper and radio advertisements in major cities across Union's program delivery area;
- Digital tactics, including targeted Facebook posts, LinkedIn ads, YouTube ads and online banner advertisements on websites;
- Search engine marketing to ensure the HRR website was prominently displayed when key words were searched;
- Bill inserts;
- Flyers and door hangers, distributed by SOs and CEAs;
- Posters for use at various trade shows and events;
- Print advertisements in several industry-specific publications, such as Canadian Contractor, Contracting Canada, Contractor Advantage, and Renovation Contractor.



2 EVALUATION APPROACH

The main objectives of the HRR evaluation are as follows:

- Identify opportunities to improve the efficacy of the program offering and implementation efforts;
- Determine if the processes for data entry and quality assurance are sufficiently robust or whether efficiencies can be gained or enhancements need to be made.

The Evaluator identified key research questions aimed at achieving the aforementioned objectives. Table 1 below outlines the evaluation objectives and maps them to the research questions and methods. The evaluation focused on participants' perspectives and projects of Union customers only because, starting November 1, 2018, non-Union customers were no longer eligible for the HRR program offering.

Table 1: Evaluation Approach

Evaluation Objective	Research Question	Method
Program offering and implementation	Are there opportunities to improve the efficacy of the program offering, including eligibility requirements?	› Union staff interviews › SO interviews › CEA interviews › Program documentation review › Union Market Research survey results review
	Are there opportunities to improve program awareness and communications?	
	Using Union's Market Research results, what is participant satisfaction with the program, including impacts of the postal strike on customer satisfaction?	
	What, if any, are the difficulties or barriers to program delivery?	
	What is partner satisfaction with the program, including their interactions with Union and SOs?	
Data tracking, processes and quality assurance	Is the program administration and delivery approach, including activities of SOs, internal processes, and risk mitigation, effective and efficient?	› Union staff interviews › SO interviews › CEA interviews › Program documentation review › Union Market Research survey results review
	Is the program theory and logic model complete and relevant?	
	Is program tracking, monitoring, and reporting complete and effective?	
	Does the CEA-facing system meet the data needs of CEAs and Union?	
	Do the quality control and assurance measures in place ensure program data integrity?	
	Are program processes consistent with program intentions?	
	Do the SOs adhere to the documentation retention protocols outlined in Union's agreements with SOs?	

The Evaluator first held a kick-off meeting with Union staff and conducted a preliminary program documentation review to learn about the main program components and mechanisms and inform the data-collection instruments. Then, specific evaluation activities were undertaken as described in the following subsections.

Union Staff Interviews

The Evaluator conducted interviews with program staff responsible for program management, market research, data tracking, and reporting. The interviews provided insight into the program offering and delivery, marketing methods, participant and partner experiences, program processes, data tracking, as well as reporting and quality assurance.

The guides used for the interviews are outlined in Appendix I and Appendix II.

SO Interviews

Union provided the Evaluator with a list of SOs participating in the HRR program offering, from which the Evaluator selected the three organizations with the highest number of applications. All three responded to our request for an interview. Altogether, they accounted for over 60% of all 2018 applications.

The respondents were guaranteed confidentiality so that the information they provided does not identify themselves or their organizations. Responses are provided in the following section to show the opinions expressed through the interview process. These passages represent respondents' views only and it may not be accurate to draw population-wide conclusions considering the small sample size.

The guide used for conducting the interviews with SOs is outlined in Appendix III.

CEA Interviews

Union provided the Evaluator with a list of CEAs participating in the HRR program offering, among whom the Evaluator intended to select and interview five. The Evaluator randomly selected three CEAs from each of the largest SOs and two CEAs from every other SO, for a total of 18 CEAs. Then, this list was shortened to nine CEAs by removing those CEAs who no longer work for a SO. Five CEAs responded to our request for an interview. Altogether, they accounted for 5% of all the 2018 applications.

The respondents were guaranteed confidentiality so that the information they provided does not identify themselves or their organizations. Responses are provided in the following section to show the opinions expressed through the interview process. These passages represent the prevailing views held by the interview respondents only; it may not be accurate to draw population-wide conclusions considering the small sample size.

The guide used for conducting the interviews with CEAs is outlined in Appendix IV.

Program Documentation Review

The Evaluator reviewed the following program documents and sources of information as part of this assignment:

- Union website;
- Union DSM Annual Report;
- Union 2015-2020 DSM Plan;
- Program theory and logic model;
- Program data process;
- Program full process;
- Program database;
- NRCan EnerGuide quality assurance procedures;
- Program terms and conditions;
- Service organization agreement;
- Participant acknowledgement form;
- Program marketing material.

Union Market Research Survey Results Review

The Evaluator reviewed Union market research on the HRR program offering. From February 2018 to January 2019, NRG Research conducted a survey with 1,672 customers and 662 non-customers who participated in the HRR program offering. Participants were contacted by telephone in the calendar month after the month that their rebate cheque was mailed out to them by Union.

The data collected was reported monthly, based on the month the interview took place. The following chart illustrates the participation process steps before the interview date:

3 EVALUATION RESULTS

This section presents the results of the process evaluation, provides a review of the program theory and logic model, presents an analysis of 2018 program participation as well as the participants', SOs' and CEAs' perspectives, and reports on the findings on program processes.

3.1 Program Theory and Logic Model

A logic model is a diagram representation that illustrates the causal links between program activities and the likely outputs and outcomes in the market, while the program theory describes these causal links in words. The logic model should reflect the current program strategy and is therefore expected to evolve to reflect program changes and adapt to changes in external factors. Illustrating the program logic can reveal deficiencies in program focus or effort and help ensure that all those involved know what the program seeks to accomplish. In addition, the logic model for which performance indicators have been established is a relevant management tool for monitoring intended program outcomes.

The HRR program offering has a well-documented program theory and logic model that describes how the program is expected to work and how it contributes to the intended or observed outcomes. Developed at the program design stage, the theory and model illustrate the intended program strategy. To better illustrate the current program strategy, the Evaluator made a few adjustments to the program theory and logic model, including the following three most noteworthy changes:

- Better illustration of the role of contractors in generating participant leads. Initially, this responsibility was planned to be more on the SO side.
- Addition of the post-renovation assessment (the E assessment) as an intermediate outcome.
- Integration of the educational part of the program in the form of a long-term outcome.

The updated logic model is depicted in Figure 1 below.

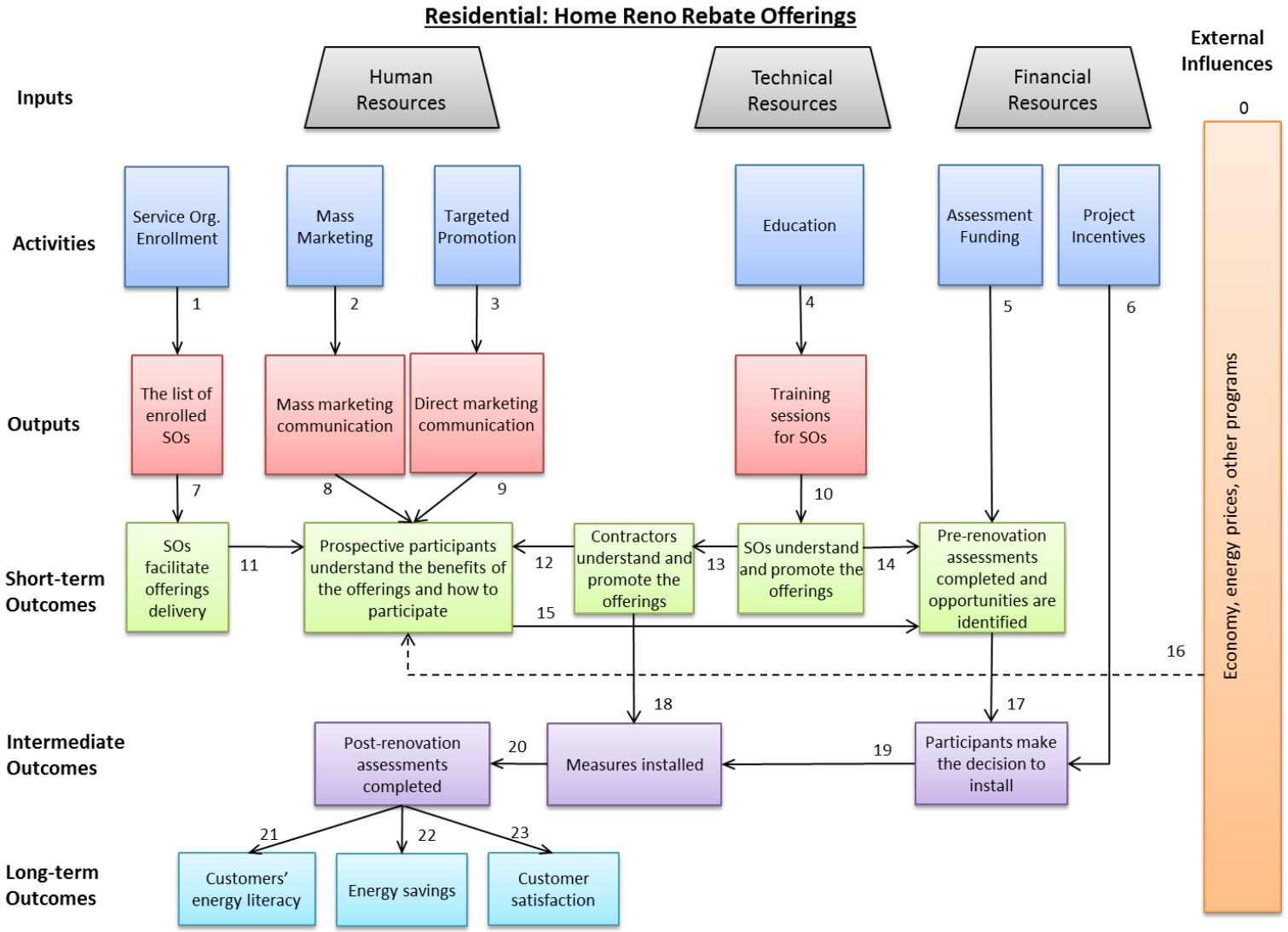
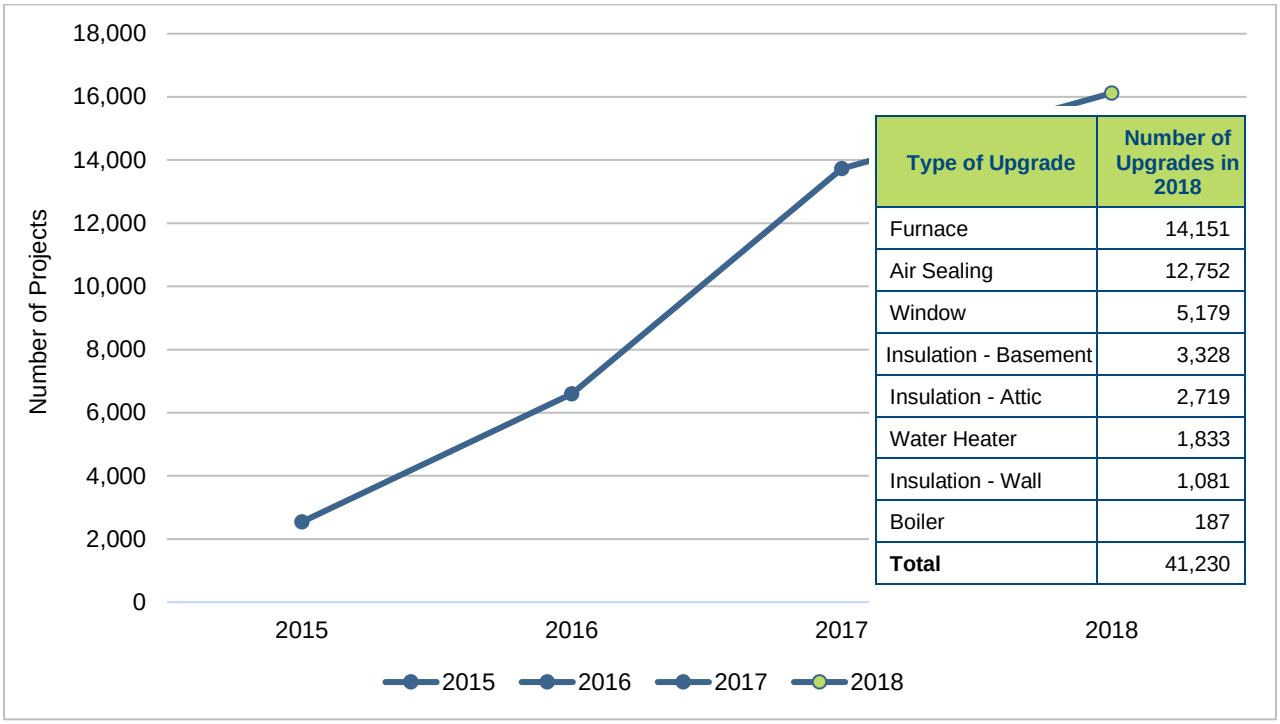


Figure 1: HRR Program Offering Logic Model

The program theory includes performance indicators for the long-term expected program outcomes, which is good practice. To improve program management, the Evaluator suggests adding other performance indicators to track and monitor expected program outcomes. These performance indicators are based on the outcomes outlined in the logic model and are expected to not only help quantify program objectives and outcomes, but also facilitate regular follow-up and monitoring. All the performance indicators and monitoring approaches should be included in the program documentation. Such indicators include the conversion rate between the D and E assessments, the number of energy efficiency measures installed per participant, the number of E assessments completed, and participant literacy about their homes' energy efficiency. Union currently tracks a number of these indicators; however, new indicators should be tracked and all indicators should be monitored for program management. The updated program theory is presented in Appendix V.

3.2 Program Participation

The HRR program offering has had significant uptake and has consistently met the cumulative natural gas savings targets set in Union's 2015-2020 DSM Plan. From January 2018 through December 2018, a total of 16,118 projects were completed by Union customers and their applications were submitted and approved in this period. These projects are those completed by Union customers with natural gas heating systems and do not include any additional projects attributed to GIF or the IESO Whole Home Pilot. As presented in Figure 2 below, Union Gas customer participation has grown significantly since 2015. The onset of additional incentives available for Union customers from the GIF program and IESO Whole Home Pilot was a key driver for increased participation in 2017 and 2018. Furnaces and air sealing were the top two types of upgrades installed in 2018.



Type of Upgrade	Number of Upgrades in 2018
Furnace	14,151
Air Sealing	12,752
Window	5,179
Insulation - Basement	3,328
Insulation - Attic	2,719
Water Heater	1,833
Insulation - Wall	1,081
Boiler	187
Total	41,230

Figure 2: Annual Participation of Union Gas Customers

Figure 3 below breaks down completed projects by the number of upgrades installed in each individual project. More than half of participants (61%) installed the minimum number of upgrades required by the program. On average, 2.6 upgrades were installed in each project.[6]

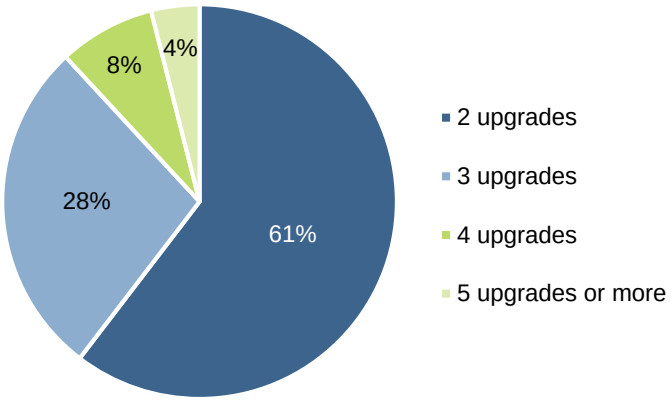


Figure 3: Breakdown of HRR Projects by the Number of Upgrades in Each Project

[6] This average does not include smart thermostats, which were solely GIF funded or IESO funded measures.

Overall, 88% of energy efficiency projects included a furnace upgrade and 79% included air sealing. The majority (69%) of projects included both furnace and air sealing. Insulation was implemented in 35% of projects. The average cost of upgrades (not including incentives) installed was $8,148.

3.3 Participant Perspectives

The following subsections present the main findings of the survey conducted and analyzed through Union's market research. In all, 1,672 Union customers who participated in the HRR program offering were surveyed.

Program Awareness and Outreach

Half of participants (50%) learned about the program from a contractor or professional, mostly HVAC contractors, indicating that the latter are a key entry point into the program. As outlined in Figure 4 below, Union also contributed to program awareness through its website, advertising, or bill inserts.

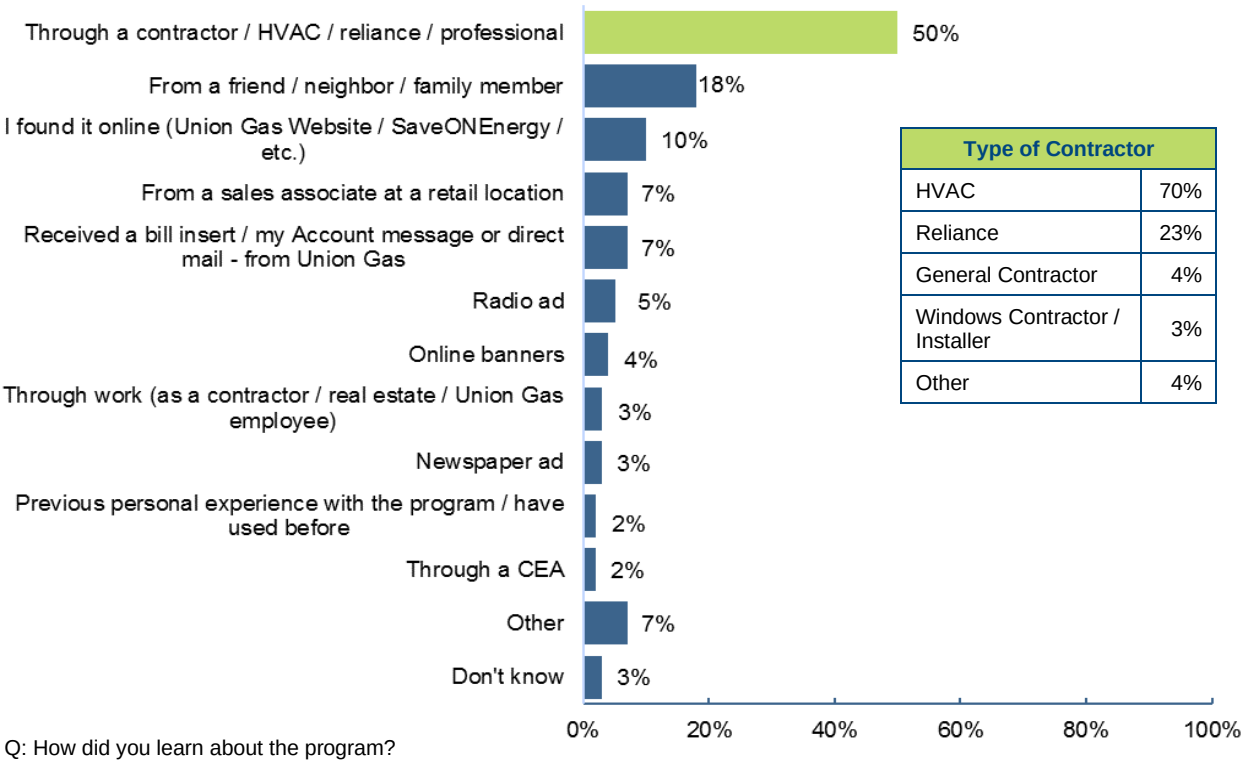
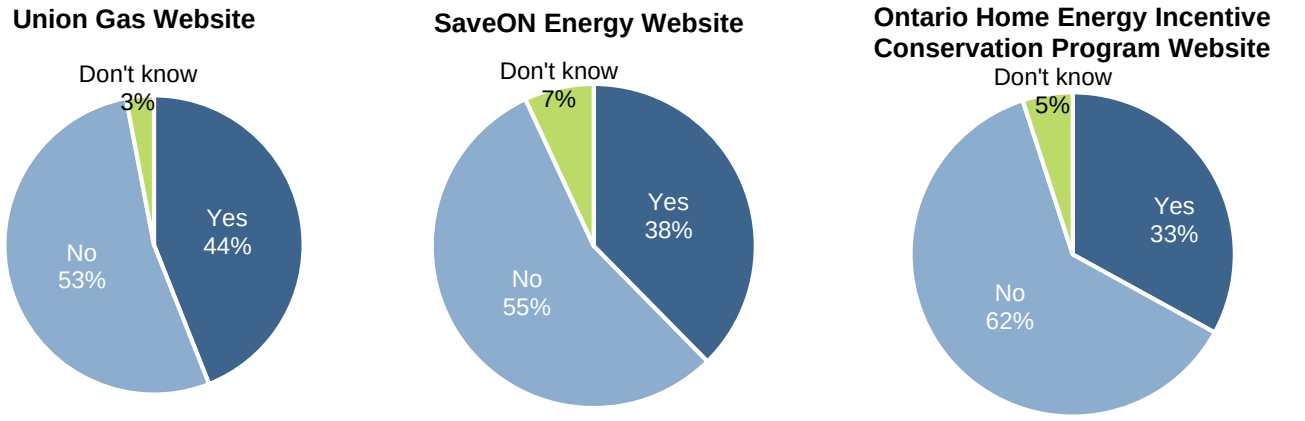


Figure 4: Sources of Program Awareness

Websites are a key source of information for participants; just over half of participants visited at least one of the three websites listed below prior to deciding to participate in the program. The Union website was visited by 44% of participating customers.



Q: Before deciding to participate in the HRR program offering, did you visit the SaveON Energy website for more information? Visit the Union Gas website for more information? Visit the Ontario Home Energy Incentive Conservation Program website for more information?

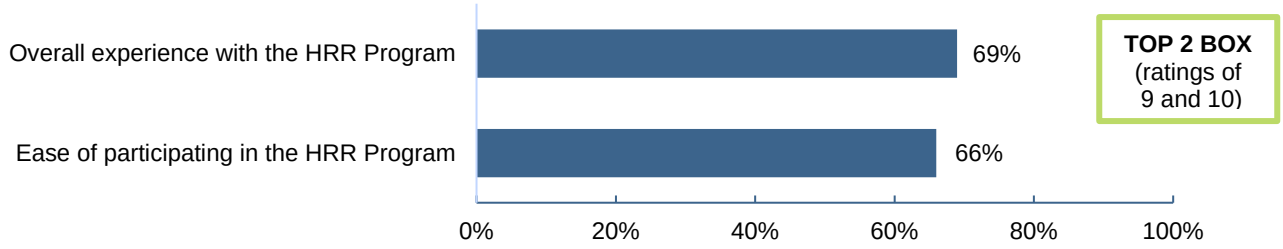
Base: Customer participants (n=1,672)

Figure 5: Percentages of Participants who Visited Websites before Deciding to Participate in the HRR program offering

Satisfaction

Participants were asked about their satisfaction with the overall program and specific aspects of the pre and post-renovation assessments. The following figures present only the top two boxes, or ratings of 9 and 10 on a 10-point scale where 1 means “very dissatisfied” and 10 means “very satisfied”.

The HRR program offering achieved a very high level of satisfaction. Indeed, 69% of participating customers were very satisfied with their overall experience with the HRR program offering. Two-thirds (66%) were also very satisfied with the ease of participating in the program. Union’s market research reports that satisfaction results vary somewhat by SO, which suggests that there may be opportunities to share best practices across organizations.



Q: Thinking about your overall experience, how satisfied were you with the following? Please use a scale from 1 to 10 where 1 means “Very Dissatisfied” and 10 means “Very Satisfied”.

Base: Customer participants (n=1,672)

Figure 6: Satisfaction with the HRR Program Offering

The survey results were analyzed by month to see if the 2018 Canada Post strike[7] had a negative impact on participant satisfaction. The Evaluator looked at participating customers who were interviewed in December 2018 and January 2019 (i.e. whose cheque had been sent in November and December 2018) because they would have been most likely to be affected by the strike. The results indicate that the postal workers' strike did not impact overall satisfaction with the HRR program offering. Figure 7 below indicates that most participants interviewed in December 2018 and January 2019 expressed a very high level of satisfaction with their overall experience with the HRR program offering. Figure 7 also reveals that participating customers who were interviewed in June 2018 and September 2018 (i.e. whose cheque had been sent in May and August 2018) were less likely to be very satisfied with their overall experience with the HRR program offering. Decreases in satisfaction observed in June and September 2018 likely related to certain cheques arriving later than expected.

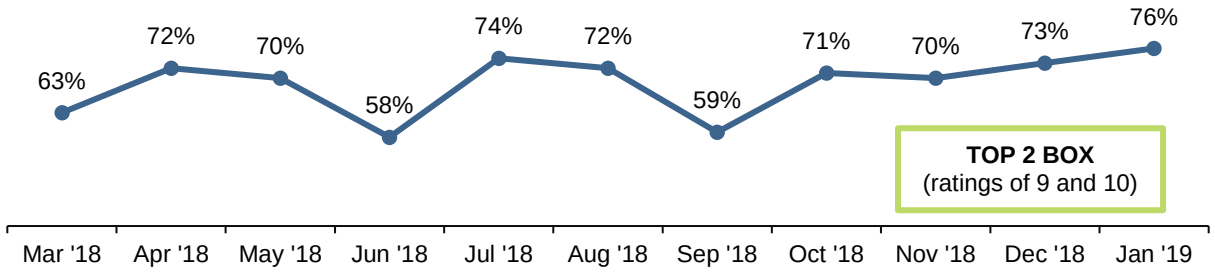
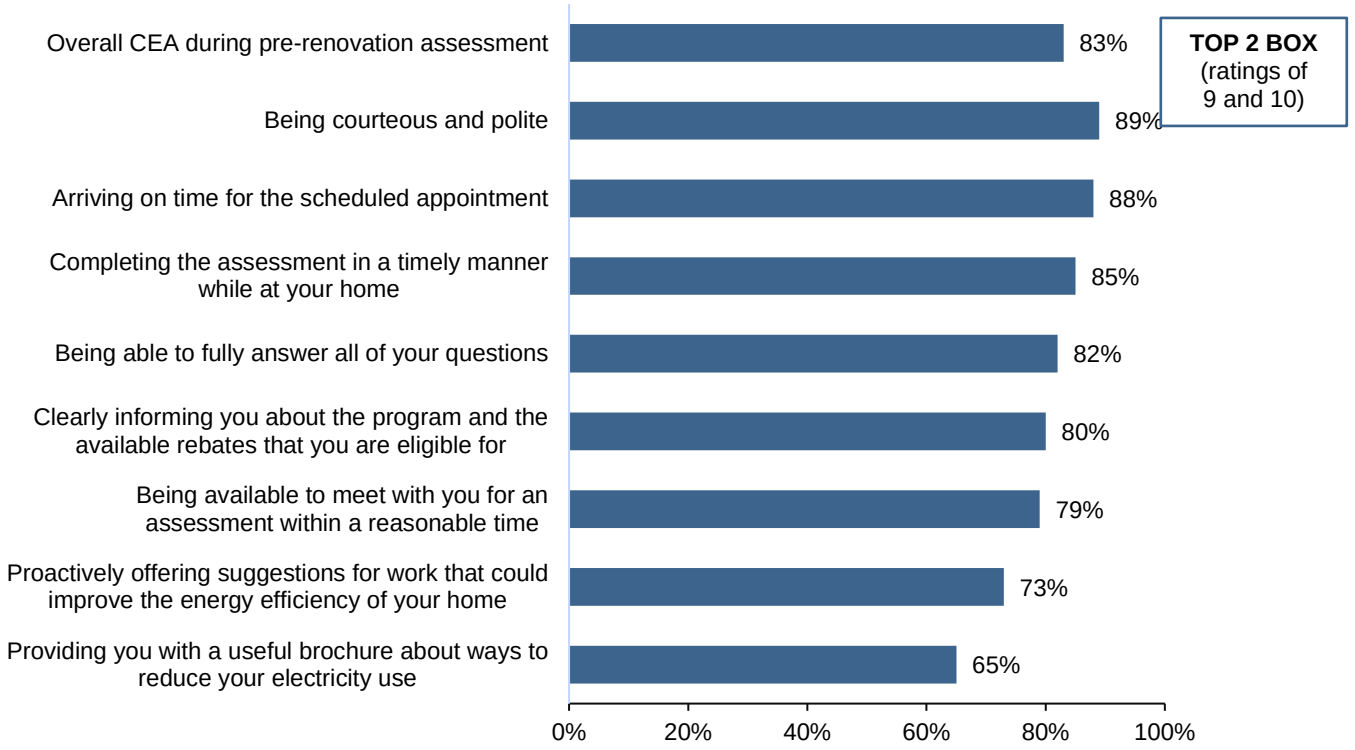


Figure 7: Overall Experience with the HRR Program Offering by Month

Participants were asked about their satisfaction with specific aspects of their interaction with the CEA during the pre-renovation assessment (D assessment). Overall, most customers (83%) were very satisfied with the CEA who came to their home to conduct the D assessment. Most were very satisfied with the courtesy demonstrated by the CEA (89%), the CEA's punctuality (88%), and completion of the assessment in a timely manner (85%). As shown in Figure 8 below, the two aspects that received relatively lower positive ratings relate to the level of information shared about ways to reduce electricity use.

[7] The Canada Post strike began on October 22, 2018 and ended on November 27, 2018.

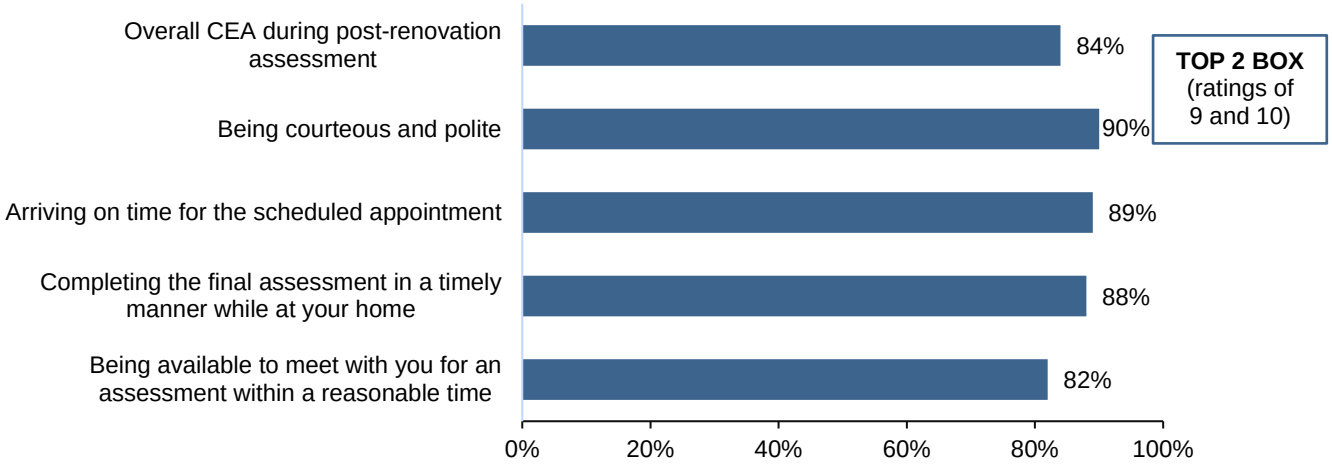


Q: Thinking about the CEA who came to the home for the pre-renovation assessment, how satisfied were you with the following aspects of service? Q: And just thinking about the pre-renovation assessment, done before the renovation work, how satisfied, overall, were you with the CEA?

Base: Customer participants who dealt with a CEA

Figure 8: Satisfaction with the Pre-Renovation Assessment (D Assessment)

Respondents were also asked about their satisfaction with specific aspects of their interaction with the CEA during the post-renovation assessment (E assessment). Again, customers were satisfied overall (84%) with the CEA who came to their home to conduct the E assessment. The survey results indicate a high level of satisfaction with the courtesy demonstrated by the CEA (90%), the CEA's punctuality (89%), and completion of the assessment in a timely manner (88%).



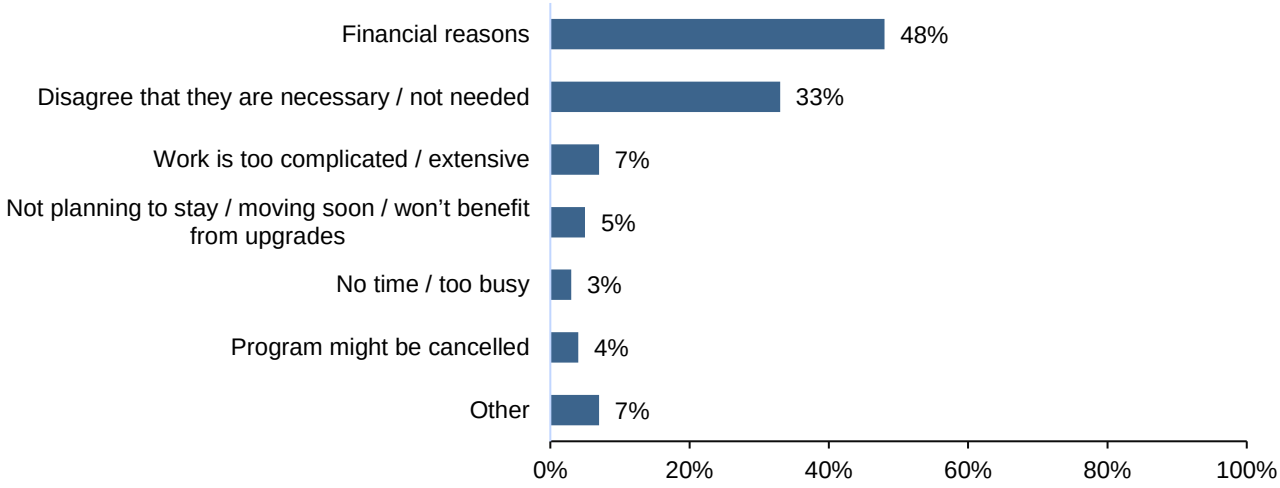
Q: Thinking about the CEA who came to the home for the post-renovation assessment, how satisfied were you with the following aspects of service? Q: And just thinking about the post-renovation assessment, how satisfied, overall, were you with the auditor?

Base: Customer participants who dealt with a CEA

Figure 9: Satisfaction with the Post-Renovation Assessment (E Assessment)

Barriers

Among the reasons cited by participants who chose not to complete all the recommended measures, 48% identified financial constraints as the major barrier and 33% believed that their home did not need the upgrades (see Figure 10 below). These results indicate that further efforts could be made to better inform participants about energy assessment results, including the benefits of potential upgrades, to minimize lost opportunities.



Q: What would you say is the reason that you do not intend to complete the remaining recommended measures in the next 12 months?

Base: Customer participants who received a report (n=248)

Figure 10: Reasons for Not Implementing the Remaining Recommended Measures

Participant Recommendations for Improvement

Nearly half of respondents (48%) made no recommendations on how to improve the program. Respondents who did make suggestions recommended receiving the rebate more quickly (15%), improving customer service (8%), increasing the rebates (8%) and advertising the program more or in a better way (7%).

Union's market research findings highlight that overall satisfaction with the program declines when payment arrives later than expected. Reducing the time for issuing the rebate, as suggested by 15% of surveyed respondents, could help increase overall satisfaction with the HRR program offering. However, the Evaluator notes that the satisfaction level with the HRR program offering is already high.

Table 2: Recommendations for Improvement

Recommendations	Proportion of Respondents
Receive the rebate more quickly / Less wait after work is completed	15%
Improve customer service (communication, service, knowledge, etc.)	8%
Larger rebates / Raise the maximum rebate / More eligible items	8%
Advertise more / Make it more visible	7%
Keep the program / Concerned provincial gov't will shut down the program	5%
More information regarding process/timelines	5%
Improve rebate process (mistakes, lost papers, etc.)	5%
Use better contractors / Not satisfied with work done/recommend contractors	3%
More detailed reports/assessments / More info regarding usage	2%
Free assessment / Less costly	2%
Improve website / Not user-friendly	1%
Longer time window to complete process / 3 months is not enough	1%
Faster assessment / Less wait for appointment	1%
Improve application process / Easier application	1%
Faster approval / Long wait after assessment	1%
Other	3%
No improvements / Everything was good / Satisfied with the program	48%
Q: Thinking about your entire experience with the Home Reno Rebate program, do you have any comments or suggestions for improvement of the program? Base: Customer participants (n=1,672)	

3.4 Service Organization and Certified Energy Advisor Perspectives

This section presents the findings from the in-depth interviews held with SOs (n=3) and CEAs (n=5) that were involved in implementing HRR projects in 2018. The interviews were conducted with managers from the SOs.

For CEAs, each interviewed CEA worked for a different SO, thus representing a broad range of experiences. All five CEAs reported that conducting energy assessments is their primary occupation and that they have been involved with the program for at least over one year.

Program Outreach

All interviewed SOs and CEAs reported that the vast majority of program participants learned about the program through contractors, notably when looking at the possibility of installing a new furnace. One SO promoted the program using other means (e.g. lawn signs, ads on Kijiji) but saw no impact from these efforts. All three SOs promoted the program to contractors. The SOs provided program information and training to contractors through face-to-face or telephone interactions, mail-outs, emails, and flyers. One SO reported promoting the program at trade conferences and workshops. One SO promoted the program among participants during home inspections.

The SOs reported that, even with promotion and contractor training, contractors did not always clearly communicate program details to participants. Frequent changes to the program offering and Ontario's energy policy over the last year have exacerbated this challenge. One SO reported some contractors had stopped promoting the program because they were frustrated by the changes. In addition, the changes and cuts made to other Ontario energy programs added to the confusion among contractors and participants who thought the program might be cut. One SO reported that there was also some confusion between the HRR program offering and Union's low-income program.

Program Communication

SOs were asked about their relationship with CEAs and Union. Interviewed SOs hire the CEAs with whom they work as subcontractors. The SOs consider their relationships with CEAs to be very good, as indicated by their responses ranging from 8 to 10 on a 10-point scale where 1 means "very dissatisfied" and 10 means "very satisfied". The SOs provide a range of support to CEAs. All SOs provide scheduling and booking services for CEAs, as well as training and support to CEAs for meeting NRCan and program requirements. Two of the three interviewed SOs also provide support for data entry into the NRCan and Union system.

SOs also reported high satisfaction in their relationship with Union (with satisfaction levels ranging from 8 to 10 on a 10-point scale). SOs appreciate Union's openness and availability, efficiency in providing information and quick turnaround in answering questions or responding to issues, particularly compared to other Ontario program administrators with whom they work.

CEAs reported high satisfaction in their relationship with SOs (with satisfaction levels ranging from 8 to 10 on a 10-point scale). CEAs reported communicating with SOs almost daily via text messages, email, or in person. CEAs appreciate any support provided by SOs to lessen their workloads (e.g. scheduling, booking, and modelling), thereby allowing CEAs to spend more time in the field.

The majority of interviewed CEAs interact with Union only through the Parachute portal. CEAs were very satisfied in their relationship with Union (with satisfaction levels ranging from 8 to 9 on a 10-point scale). When asked about opportunities to provide input on the program, three of the five interviewed CEAs indicated that they would welcome additional opportunities to provide input and feedback on the program to Union.

Both SOs and CEAs were also very satisfied with the training and information provided to them by Union, noting that there is no additional information, training, or technical information they would like to receive from Union.

Program Delivery and Barriers

SOs are in contact with participants prior to D assessments. SOs reported spending time with potential participants prior to scheduling D assessments to assess the potential for upgrades in their home and ensure that program requirements are well understood and participants qualify for the program.

SOs reported that at least three or four potential upgrades are recommended in the D assessment report; CEAs reported that three to 9 upgrades are typically recommended. The upgrades most frequently mentioned by interviewed CEAs were insulation (5 respondents), furnaces (3 respondents), air sealing (2 respondents) and windows (2 respondents).

All CEAs reported discussing potential upgrades with participants during the D assessments, with four of the five reporting that they urged participants to contact them by phone or email if they had questions or required clarifications. All CEAs reported educating participants on potential energy and cost savings during the D assessments to encourage participants to install more upgrades. One CEA mentioned that participants are especially receptive to the idea that they can have more rebates if they implement more upgrades. Aside from information passed on to participants by CEAs during the D assessments, interviewed SOs did not take any other specific actions to encourage customers to implement upgrades beyond what customers might have initially considered.

All three SOs and two CEAs reported that the least likely upgrade to be implemented by participants are tankless water heaters because of the costs, relatively low incentives, and homeowner skepticism about the technology. CEAs also mentioned that windows (3 respondents) are unlikely to be implemented as they are too costly compared to the incentive amount and there is a lower sense of urgency for such upgrades compared to replacing a broken or aging furnace.

SOs and CEAs were unanimous in noting that the largest untapped opportunity for gas savings in participating houses is insulation.

In 2018, participants implemented an average of 2.6 upgrades.[8] CEAs and SOs were asked about their recommendations for increasing the number of upgrades per participant. Their suggestions are summarized in Table 3 below.

Table 3: CEA and SO Suggestions for Increasing the Number of Upgrades per Participant

Suggestion	Number of CEA Respondents	Number of SO Respondents
Increase incentives overall	2	2
Increase incentives for windows and attic insulation	1	
Increase incentives for tankless water heaters		1
Increase participants' understanding of the benefits of the EE measures	1	
Increase CEA knowledge of potential opportunities in newer homes	1	
Improve contractor awareness through a contractor network		1
Provide financing to minimize upfront investment for participants		1

SOs and CEAs were also asked about how to increase uptake in the insulation measure. Two CEAs suggested allowing homeowners to install insulation themselves, which is actually permitted under the program. This result suggests that CEAs could be further educated on the fact that participants are permitted to do the work themselves as part of the HRR program offering. Their other ideas are summarized in Table 4 below.

Table 4: CEA and SO Suggestions on How to Increase Uptake in the Insulation Measure

Suggestion	Number of CEA Respondents	Number of SO Respondents
Increasing rebates for insulation	2	
Allowing header insulation to qualify for the program		1
Increasing the maximum pre-upgrade R-value to quality	1	
Determining the rebate amount based on the increase in the R-value rather than the achieved R-value	1	

Program Tracking and Reporting

SOs and CEAs were interviewed about the program data tracking and reporting processes.

[8] This average does not include smart thermostats, which were solely GIF funded or IESO funded measures.

After CEAs complete the D and E assessments, they typically submit detailed data about the participant and assessment results to the SO. As part of the SO agreement, SOs must verify the data provided by CEA and submit completed files to Parachute, Union's online data tracking tool, within 30 days following completion of the D or E assessment. SOs also submit these files to NRCan. All three interviewed SOs perform some form of internal verification and review of the data, prior to submitting it to Union, to identify typing errors, omissions and any missing required documents.

The internal data tracking and reporting processes vary across SOs. Two interviewed SOs enter all the data into Parachute for their CEAs and one SO delegates the responsibility for Parachute data entry to CEAs. One SO uses in-house CEAs to complete the modelling for CEAs who gather data in the field.

CEAs estimated that data tracking and reporting takes, on average, 30 minutes for the pre-assessment and 25 minutes for the post-assessment. All five CEAs reported that it typically takes 15 days or less to submit their final applications to Union after completing the E assessment. One CEA reported that a delay may occur if participants do not submit all the proper documentation and another noted occasional delays in waiting for NRCan to approve the file.

The time reported by SOs to process data once it is provided by CEAs varies: one SO reported one day, another under a week, and another up to one month. The SOs that enter data into Parachute for the CEAs reported longer processing times. The longest time was reported by the SO who also does in-house modelling for field CEAs. SOs reported that Union's process between the application and cheque payment has been streamlined and improved over time.

There are inconsistencies in the SOs' approaches to seeking NRCan's review prior to file submission to Union. One of the three SOs submits data to Union prior to NRCan approval. For the other two that wait for NRCan approval prior to submitting to Union, any issue identified during NRCan's approval process is corrected prior to submitting to Union. Union staff said that inputting program data into Parachute prior to NRCan review means less delay in the process for participants and shorter turnaround times to receive their payments after their project is completed.

All SOs reported having kept all their program documentation since their participation in the program, thus following the documentation retention guidelines set out in their SO agreement.

There was high satisfaction among partners with Union's data-tracking and reporting process. CEAs reported a satisfaction level ranging from 9 to 10 on a 10-point scale. SOs reported a satisfaction level ranging from 7 to 10; they again highlighted Union's responsiveness and professionalism with data tracking and reporting. One SO reported being significantly more satisfied with Union's processes than with other program administrators with whom they work.

One SO has developed a software system for CEAs to use on tablets to streamline data entry and minimize errors. In the future, this SO would like to integrate this software with Union's system to further increase data entry efficiency and quality.

On how to improve the data tracking and reporting process, one SO suggested there should be more clarity regarding the exact participant name to be entered in Parachute because there is confusion as to when the name shown on a property tax bill should be included. Such confusion slows down the process because it requires more back-and-forth verification among Union, SOs, CEAs, and potentially participants. This and other suggestions provided by SOs and CEAs on how to improve the data tracking and reporting process are summarized in Table 5 below.

Table 5: CEA and SO Suggestions on How to Improve Data Tracking and Reporting

Suggestion	Number of CEA Respondents	Number of SO Respondents
Providing tablets to CEAs to allow them to electronically record data when in the field	2	
Automating energy savings calculations (i.e. information not required by NRCan)	1	
Allowing Parachute users to correct errors on a previous page without erasing the data entered in subsequent pages	1	
Providing status updates on participant approvals and incentive payments to CEAs	1	
Clarifying the exact name of the participant to be provided in Parachute		1

Satisfaction

SO satisfaction with the program overall and various program elements was mixed (see Table 6 below). Although two SOs were satisfied with the program overall, one was less satisfied, noting decreases in incentives and the challenge of keeping EAs and contractors informed and trained on program changes.

SOs were less satisfied with Union program marketing and outreach activities, stating that more outreach by Union would be helpful, particularly to potential participants. One SO noted that there is some confusion in the market between the HRR program offering and the low-income program.

Two of the three interviewed SOs were satisfied with eligible measures, whereas one SO was less satisfied, stating that some requirements, particularly for insulation, could be further optimized to allow more participants to be eligible.

SO satisfaction with program incentive structures varied; one SO was very satisfied with the easy-to-follow incentive structures and two SOs were less satisfied. One SO would like incentives to be reallocated among measures, prioritizing furnaces and tankless water heaters. Another SO suggested that the program not include air sealing as an eligible measure in the two-measure requirement because it is often part of the furnace upgrade.

Table 6: SO Program Satisfaction

	Top 2 Box (9 to 10)	Middle 2 Box (7 to 8)	Bottom 6 Box (1 to 6)
Program overall	0	2	1
Union marketing and outreach	0	1	2
Eligible measures and equipment	0	2	1
Incentive structures	1	0	2

Rating on 1-10 scale: 1 = Not at all satisfied, 10 = Very satisfied

CEAs were more satisfied with the program overall. CEAs reported being very satisfied with the program incentive structures but were less satisfied with eligible measures, suggesting that other measures (e.g. insulation for basement headers and exposed floors) could be included in the offering. Three CEAs wanted to see increased efforts by Union to promote the program. CEA satisfaction with various program elements is presented in Table 7 below.

Table 7: CEA Program Satisfaction

	Top 2 Box (9 to 10)	Middle 2 Box (7 to 8)	Bottom 6 Box (1 to 6)
Program overall	2	2	1
Union marketing and outreach	1	2	2
Eligible measures and equipment	1	3	1
Incentive structures	2	3	0

Rating on 1-10 scale: 1 = Not at all satisfied, 10 = Very satisfied

Recommendations for Improvement

In addition to the ideas outlined in Table 4 and Table 5 above, CEAs and SOs were asked if they had any other suggestions on how to improve the program. Their suggestions are summarized in Table 8 below. Increasing contractor awareness and providing tools that communicate the benefits of the recommended measures to participants were the most commonly made suggestions.

Table 8: CEA and SO Suggestions on How to Improve the Program

Suggestion	Number of CEA Respondents	Number of SO Respondents
Increase contractor awareness.	2	
Engage participants and assist with their decision-making after the D assessment, provide an online tool (similar to Energy Efficiency Alberta) that allows participants to analyze the costs, rebates, and benefits of recommended measures.		1
Develop tools to help CEAs communicate potential for savings during the D assessment.	1	
Increase the length of time allowed for participants to complete their upgrades after the D assessment.		1
Allow participants to keep their files open, allowing them to receive rebates for additional upgrades after their first two measures are completed and assessed.		1
Increase participant awareness through marketing.	1	
Increase incentives for windows.	1	

3.5 Program Processes

The Evaluator reviewed the program processes for program delivery, data tracking and monitoring, as well as the program database and quality assurance activities.

3.5.1 Delivery Process

The delivery process for the HRR program offering includes screening participants for program eligibility, completion of a D assessment and report, completion of an E assessment after upgrades are completed, project submission by the SO, review and approval by Union, and finally participant payment. A SO agreement[9] signed between Union and all SOs outlines SOs' obligations in the HRR process. The process steps associated with SOs and CEAs are further discussed above in Subsection 3.4.

Program rules dictate that participants must complete their E assessment no later than 120 days after completing the D assessment. The Evaluator found that the average period between the D assessment and E assessment was 88 days. If circumstances do not allow participants to complete the D and E assessments within 120 days, CEAs can request an extension. These requests are approved on a case-by-case basis to provide some flexibility to customers. Overall, 20% of participants had over 120 days elapse between the D and E assessments. The average time taken to complete the process from D assessment to application submission was 133 days.

[9] Home Reno Rebate 2019 Participation Service Agreement – FINAL – January 2019.

After the D and E assessments are completed, CEAs or SOs enter the participant information and assessment results into Union's Parachute system.

Union staff reported that there had been some issues with the length of time taken between the E assessment and the time to submit a project in Parachute, and files surpassing a 30-day period caused frustration among customers. The average time between the E assessment and the project submission date was 45 days. In all, 48% of files had surpassed a 30-day period between the E assessment date and the application date.

Union has been working with SOs to reduce the time taken between the E assessment and project submission by tracking time taken for projects and sending monthly reports to SOs. Staff reported that with this tracking and reporting to SOs, the period between the E assessment and project submission has been reduced. Staff echoed what was reported by SOs: one reason for delays could be the confusion between Union and CEAs in identifying the right participants who are supposed to receive payment.

Once the data is entered into Parachute, Union's processes for reviewing the data, approving files, and issuing cheques are carried out. Union aims to have cheques mailed to participants 120 days after the E assessment is submitted in Parachute. If customers are curious about the status of their cheque, they may contact Customer Care or their CEA. Application approval and cheque payment dates were not available in the master database provided to the Evaluator.

The participant pays the cost of the D assessment and is only reimbursed for this expense when the E assessment is completed. The Evaluator finds that this is a good practice to minimize the number of customers dropping out of the program. Union staff estimate that about 10% of customers do not complete the E assessment after the D assessment; however, this data is not formally tracked. The Evaluator recommends tracking the data required to monitor the unconverted rate over time.

Figure 11 below summarizes the various HRR delivery steps and the key evaluation findings related to each.

Figure 11: HRR Delivery Process Steps

3.5.2 Data Tracking and Monitoring Process

The data tracking and monitoring process begins with SOs and CEAs submitting data into Parachute. As per the SO agreement, SOs are responsible for ensuring data accuracy. As noted in Subsection 3.4, all three interviewed SOs conducted some form of data quality control, e.g. reviewing for typos and ensuring all required documentation is included.

Once the data is entered into Parachute, Union's processes for reviewing the data, approving the file and reporting the data into Union's master database are carried out. The master database includes measure details for each participant, the adjusted savings of each participant, and inputs for cost-effectiveness analysis.

Union staff indicated that the Parachute system has many advantages in terms of efficacy and data integrity, including the following:

- Automatic checks: for example, if the two-measure minimum is not covered or some items are missing, CEAs receive an error message and cannot submit a project application.
- Features to ensure the integrity of data submitted by SOs/CEAs, such as filters for outliers of certain key measures (e.g. savings) and drop-down lists to ensure data consistency.
- The ability for back-and-forth communication among Union and SOs and CEAs through the system to efficiently resolve issues.
- A capacity that allows Union to see program volume and adjust staff allocations as needed.

As noted in Subsection 3.4, both SOs and CEAs were satisfied with Union's data-tracking and reporting process, including Parachute. One challenge with Parachute noted by Union staff was that changes to the software took many iterations and testing with the external developer.

Each project submitted into Parachute is reviewed by Union staff. If there are issues with the data, these are corrected by Union staff or sent back via Parachute to allow SOs or CEAs to make modifications. Union's project review begins by ensuring that the participant's application is linked to a Union account to ensure the applicant's eligibility and that the cheque is mailed to the correct address. Union uses an input tool that automatically uploads extract data from Parachute, thus allowing for one-by-one project reviews. The input tool comprises several automatic verification tools, including a check for duplicates. The tool also has flags and warnings for:

- Savings that are too low or too high;
- Whether the savings verification notes are reasonable and sufficiently detailed;
- Coherent dates: the D and E assessment dates must not be the same;
- Costs that are too low or too high;
- Incorrect assessment costs.

The criteria for triggering a warning have been established by Union data-tracking and reporting staff based on trial and error and observations about the database, but Union staff noted that these criteria could be refined with a technical review. Once a project is verified, the project information is automatically populated to Guardian, Union's record-keeping system.

Once one batch containing information about 300 projects is created in Guardian, it is sent to a supervisor for final review and approval. The Union data and tracking supervisor carries out spot checks on data to ensure flagged problems are properly addressed. Once approval is granted, payment cheques are sent to participants and the files are moved into Union's master database.

Projects are added to the master database by copying and pasting files. The master database contains formulas for calculating annual energy savings and other elements (e.g. incremental costs). The Evaluator notes that because entering data into the master database involves copy and paste by several staff members, there are possibilities for making errors or tampering with files (e.g. modifying a formula or failure to pull the formula down to cover all applicable fields).

Figure 12 below presents the key evaluation findings on the data tracking and monitoring process.

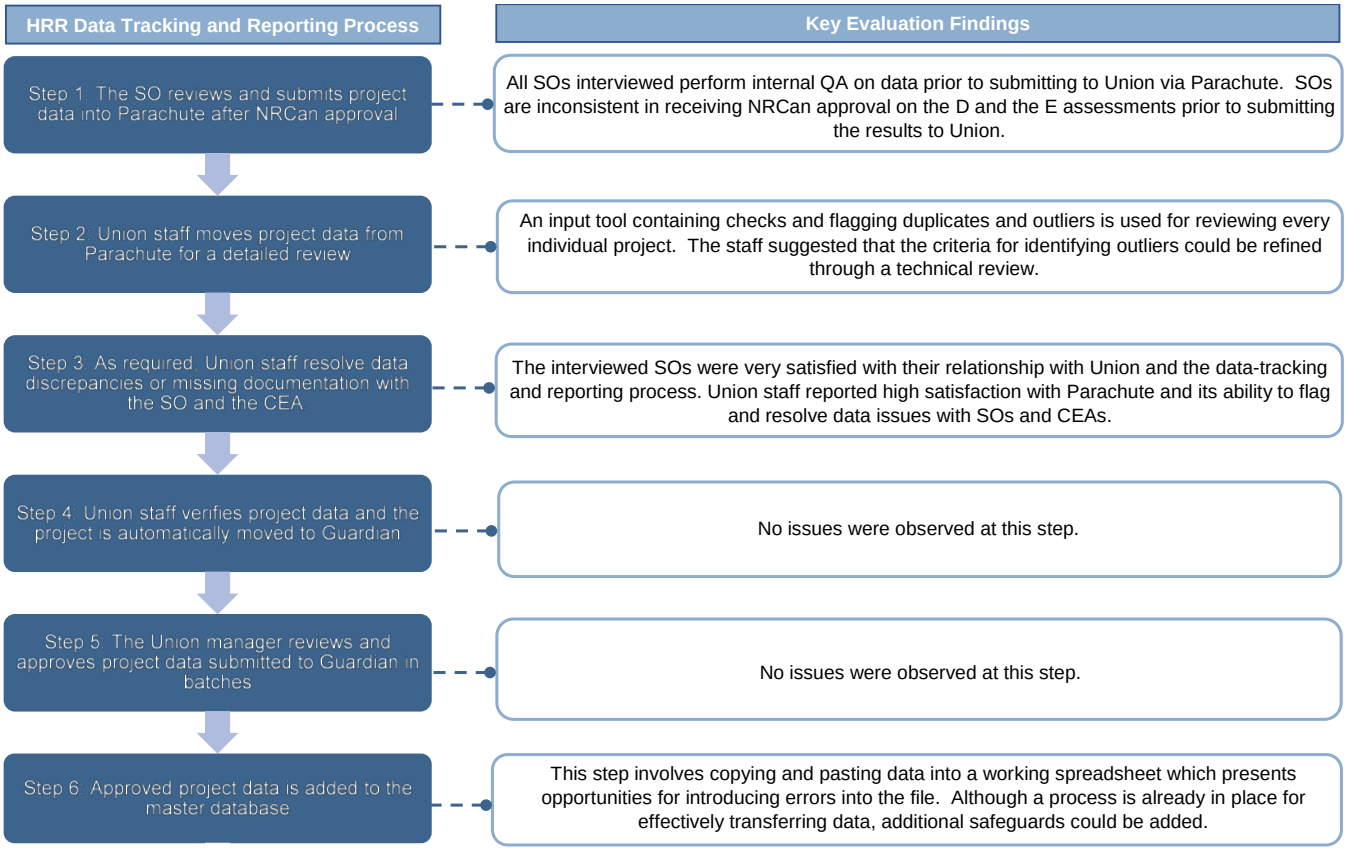


Figure 12: HRR Data Tracking and Reporting Process

3.5.3 Program Database

The Evaluator reviewed the master database by focusing on the following aspects:

- Clarity and organization;
- Availability of fields required for program management and evaluation;
- Methods in place allowing analysis and preventing data entry errors.

The review did not include an examination of data integrity in the master database.

As discussed above, the HRR program offering master database[10] is an Excel spreadsheet containing participant data for approved HRR program applications. The master database serves as a centralized repository of project information gathered from SOs using the Parachute system. The Evaluator did not review the Parachute fields; however, ideally, the Parachute fields should match the master database fields to facilitate Union's work in consolidating the information and avoiding data-handling errors.

The Evaluator reviewed the contents of the master database and found it well organized and clear overall. Except for a few acronyms and fields related to cheque payment, the master database was clear and easy to understand from a third-party perspective. The database included helpful comments to explain the database fields. The Evaluator noticed one comment related to Column DQ ("Total Adjusted TRC"), which did not appear to align with the formula in the column.

The Evaluator found that all the information required for evaluation and program monitoring was included in the database. The master database contained three principle worksheets. The "Pivot" worksheet summarizes the number of participants across the three sources of incentives (i.e. DSM, GIF and IESO) offered by the program in 2018. The "IESO Pivot" worksheet summarizes the projects receiving IESO incentives. The worksheet entitled "Deep Measures Collective Track" contains the details on each project, including participant contact information, the D and E assessment file numbers, Union account numbers, house details (year built and surface area), the type and number of energy efficiency upgrades implemented (furnace, air sealing, etc.), installation cost of each measure, the SO and CEA that completed the assessments, the dates when the D and E assessments were conducted, and the pre and post-renovation annual gas consumption savings values.

Several kinds of information, although not essential, could be added to support program monitoring and track potential lost opportunities:

- Include all recommended measures and their savings potential from the D assessment to enable better understanding of which measures have not been implemented by participants to inform future program design and marketing strategies;
- Include the overall savings potential in the D assessment;

[10] 2018 RHRR MASTER FILE FINAL-For Econoler.xls

› Track those participants who have completed the D assessments but have not implemented the recommended measures; this information is available in Parachute and could therefore be added to the master database.

The Evaluator found the format of the database cells to be consistent, for example the format for dates, which makes data analysis easier. The database also contains two validation columns to prevent data entry errors. The Evaluator recommends making the following modification to the database to identify and minimize data entry errors:

› Lock the formulas in the spreadsheet so that they cannot be tampered with accidentally (e.g. locking the savings formulas in Columns DV and DZ).

Overall, the HRR program offering master database is clear, well organized, and contains the necessary information for program monitoring and evaluation. With the additions and modifications recommended above, the database will provide even more useful information for program planning and further ensure the quality of reported data.

3.5.4 Quality Assurance

Quality assurance (QA) activities ensure that quality-related issues and problems are identified and resolved to ensure the quality and accuracy of program outcomes and results. A key aspect of the HRR program offering is the results of the D and E assessments performed by CEAs using NRCan's EnerGuide rating system. Through this system, NRCan mandates that both SOs and CEAs fulfill a number of quality control and quality assurance responsibilities.[11] Therefore, Union relies heavily on NRCan's quality control and assurance protocol to ensure the accuracy and integrity of program results. Some additional quality assurance activities have been undertaken or delegated by Union to SOs through the SO Service Agreement. The principal quality assurance activities for the HRR program offering are outlined below.

The QA obligations included as part of the SO agreement are:

› SOs are expected to have an internal quality assurance process to be applied to all HRR program offering related work;
› SOs are expected to conduct regular audits on completed assessments to ensure the accuracy of information submitted to NRCan and Union;
› SOs are to complete all the activities needed to meet all NRCan QA requirements.

[11] EnerGuide Rating System Quality Assurance Procedures Version 15.5, May 2018.

As part of the EnerGuide program, NRCan has specified the training requirements for CEAs, as well as the modelling and reporting requirements and the roles and responsibilities of CEAs and the SOs. NRCan mandates that SOs have a designated QA specialist responsible for overseeing and coordinating SO QA activities, including performing internal quality assurance and reporting activities. SOs must produce a quality assurance report every six months, including QA audit results.[12]

The NRCan QA protocol also includes elements for performing follow-up based on audit results to address issues found during QA activities. In addition, the NRCan QA protocol mandates that any errors found must be corrected in NRCan's system and updated reports and labels must be provided to homeowners if the corrections result in a rating change of 5% or more. NRCan also performs external QA audits at its discretion; SOs with high volumes and working in a region with an incentive program may be prioritized for QA review.

The Evaluator found that all interviewed SOs each had a designated QA specialist, but only one of the three interviewed SOs had a written internal QA process. SOs reported following NRCan quality assurance protocols, with some SOs reporting that their processes went beyond NRCan's requirements.

NRCan performed external QA audits in 2018 on files submitted by all interviewed SOs. SOs reported that NRCan audited 1.5% to 2% of their project files in 2018. Two of the three SOs reported making corrections in Union's system if errors were found. All SOs reported providing CEAs with a summary of NRCan's results to pinpoint the issues and suggest areas for improvement. Union does not receive QA reports from SOs or NRCan and does not require correcting errors in its system.

In 2018, Union undertook a QA activity to ensure that the shift to the 90% methodology[13] was successful and did not introduce errors in the data. This process involved matching the Parachute records with the NRCan home data using the file number to verify the savings data. The findings of this QA activity revealed that the savings discrepancy between the two systems was low at less than 2%. In addition, individual errors were sent back to SOs for correction and systematic errors were flagged to allow the SOs and CEAs concerned to deal with them.

[12] Please note that the term "audit" in this section means the QA audits conducted by SOs or CEAs and not assessments of participants' homes.
[13] The 90% methodology adjusts project savings to reflect a furnace baseline technology with an AFUE of 90% efficiency instead of the existing furnace that is modelled in the E assessment.

KEY FINDINGS AND RECOMMENDATIONS

The following presents an overview of the Evaluator's key findings and recommendations from the Home Reno Rebate program process evaluation.

The HRR program offering's logic model and program theory are well documented. This documentation enables the program administrator to carefully consider likely program outcomes and ensure that the strategic approaches lead to the desired results. The Evaluator made a few adjustments to the program theory and logic model to better reflect the current program strategy. The logic model should be continuously adapted to reflect any program changes and changes in external factors. The program theory includes a few performance indicators linked to the expected long-term program outcomes, which is a good practice.

Recommendation No. 1: Define additional performance indicators to correspond with the adjusted logic model and track all performance indicators linked to program objectives.

The program successfully engaged a large number of participants. The HRR program offering is designed to have a significant impact on the residential market by adhering to whole-house approach to achieving long-term energy savings. Although achieved energy savings are not covered by the scope of this evaluation, the high uptake of the program in the marketplace and the positive feedback from partners indicate the appeal of the program offering.

The HRR program offering effectively leverages its partner network for program promotion and delivery. Union has developed a strong network of partners to promote and deliver the program. Union collaborates with SOs that work with participants through all stages of the program. SOs' work with their networks of CEAs who perform the energy assessments and collaborate with contractors who play an important role in generating participant leads. Union also contributes to program awareness through its website, advertising or bill inserts.

There is high satisfaction among partners with respect to their working relationships and communication between CEAs, SOs and Union. The HRR program offering relies on SOs and CEAs to facilitate the delivery of the program. Therefore, communication and collaboration among partners are essential. The CEAs surveyed were very satisfied with their relationship with Union (with the satisfaction levels ranging from 8 to 9 on a 10-point scale). Surveyed SOs were also very satisfied with their relationship with Union (with the satisfaction levels ranging from 8 to 10 on a 10-point scale). SOs appreciate Union's openness, availability, efficiency at providing information and quick turnaround in answering questions or responding to issues.

The program relies heavily on furnace replacements and contractor referrals, which should be considered when measuring free-ridership. Contractor referrals (mostly from HVAC contractors) are a main driver for program participation. Since contractor referrals are a key driver for program participation, it is necessary to take contractors' recommendations into account in the free-ridership measurement. Otherwise, the free-ridership level may be overestimated.

The program uses furnace replacement opportunities as an entry point into the program to engage homeowners and encourage participants to implement other measures to improve the efficiency of their home. The program data shows that 88% of HRR projects included a furnace upgrade and 79% included air sealing.

Recommendation No. 2: Investigate current practices among contractors for pairing air sealing with furnace replacements to assess what target of air sealing should remain incentivized by the program and counted in the minimum number of upgrades to be implemented.

Recommendation No. 3: When assessing free-ridership as part of the net impact evaluation, measure the influence of recommendations made by program partners (contractors and CEAs) on the types of upgrades installed by participants.

Union staff reported a low number of unconverted assessments. The program covers the cost of pre and the post-renovation energy assessments and reimburses participants upon completion of the post-renovation energy assessment, which is a good practice for maximizing the number of participants completing both the D and the E assessments. However, the number of unconverted assessments, while available in Parachute, was not tracked in the master database.

Recommendation No. 4: Track and monitor the number of unconverted assessments.

Opportunities remain for better communicating the benefits of potential upgrades. CEAs try to encourage participants to install more upgrades by educating them on potential energy and cost savings during the D assessment.

In total, 61% of participants installed the minimum number of upgrades required by the program. Participants identified financial constraints as the main barrier to not implementing the recommended measures, which was followed closely by a belief that their homes did not need the upgrades. Moreover, the only two aspects that received relatively lower satisfaction ratings from participants are related to the level of information shared about ways to reduce energy use.

The EnerGuide Homeowner Information sheet and the Renovation Upgrade Report are provided to homeowners to educate them on energy saving opportunities in their home. However, results indicate that further efforts could be made to better communicate energy assessment results in a simplified, easy to digest manner, including the benefits of potential upgrades, to minimize lost opportunities. This was also identified by the SOs and CEAs interviewed.

Recommendation No. 5: Provide CEAs with an additional tool(s) to better communicate the benefits of recommended measures, such as an online tool that allows participants to analyze the costs, rebates and benefits of the measures.

Insulation is the largest untapped opportunity for achieving gas savings in participating houses. All interviewed CEAs mentioned that insulation is one of the most frequently recommended upgrades. However, only 35% of participants installed insulation under HRR. The main recommendation from program partners on how to increase insulation uptake is to increase the rebate amount for this measure.

Recommendation No. 6: Consider ways to increase uptake in insulation upgrades, such as increasing the rebate amount or better communicating the benefits of installing insulation (as per Recommendation 5 above).

The HRR program offering provides a satisfying customer experience. Most participating customers were very satisfied with their overall experience with the HRR program offering, the ease of participating in the program and their interactions with the CEA during both assessments. Union's market research results show that overall satisfaction with the program varied somewhat among SOs. Union provides feedback to SOs on how they compare to their peers.

Recommendation No. 7: Continue to monitor participant satisfaction among SOs to respond quickly to any changes in satisfaction levels.

Length of time to receive payment impacts participant satisfaction. Union's market research findings show that overall satisfaction with the program declines when payment is received later than expected. Reducing the time for issuing the rebate, as suggested by 15% of surveyed participants, could therefore increase overall satisfaction with the HRR program offering. Several factors impact the time required for issuing the rebate and Union has taken steps to target a number of these factors. Union staff and SOs both indicated that delays occur when there is confusion in identifying the right person to receive program rebate.

Cheques are issued at the end of the participation process, after the project application has been fully approved. Union aims to have cheques mailed out to participants 120 days after submission of the E assessment. However, other steps to be completed before submitting the E assessment sometimes result in delays. Customers do not receive automatic updates on their application status. If customers are curious about the status of their cheque, they may contact Customer Care or their CEA.

Recommendation No. 8: Consider ways to identify the correct program participant to avoid delays in processing applications, for example, by validating participant information earlier in the participation process (i.e. during the D assessment).

Recommendation No. 9: Provide customers with notices when their project application is received and approved.

The program data tracking, monitoring and reporting process is complete and effective and follows best practices. The process is automated where possible and utilizes tools that provide automatic checks, error flags and warnings. Union has updated processes to adapt to increased project volume and continuously reviews and improves processes to accommodate program changes and implement any efficiencies to streamline processes.

The Parachute system meets the data needs of SOs and Union. Both CEAs and SOs are satisfied with the Parachute system and Union's data-tracking and reporting process. Union staff also reported satisfaction with the Parachute system because it improves data integrity and consistency, allows for efficient resolution of data discrepancies with SOs and CEAs and improves the ability to plan based on the volume of applications.

The data reporting process among SOs is inconsistent. The Evaluator found inconsistent practices among SOs. First, some SOs have project files approved by NRCan prior to inputting the data into Union's Parachute system while others do not. Second, there are inconsistencies among SOs in whether issues identified during the NRCan review are corrected in Parachute or not. Submitting files to Union prior to NRCan's review is seen as a way to reduce delays in the project approval process. However, the practices should be consistent among SOs.

Recommendation No. 10: Make SO practices for NRCan file approval consistent. If the program data is inputted into Union's Parachute system prior to NRCan approval, monitor a sample of project files and NRCan-approved files, sampled over at least a year, to confirm that the difference between the two groups of files is minor and no adjustment is needed.

The master database[14] is well organized and clear and contains the main information required for program management and evaluation purposes. Several pieces of information, although not essential, could be added to support program monitoring and track potential lost opportunities.

The process of adding projects to the master database involves copy-pasting project information into the file and might thus introduce errors.

Recommendation No. 11: Add information to the master database to support program monitoring and planning, as well as a future program strategy. More specifically:

- Include all the recommended measures and their savings potential shown in the D assessment to enable a better understanding of the measures that have not been implemented by participants to inform future program design and marketing strategies.
- Include the overall savings potential from the D assessment.

[14] 2018 RHRR MASTER FILE FINAL-For Econoler.xls.

Recommendation No. 12: Add safeguards in the master database to reduce the risk of introducing errors. Consider locking formulas in the spreadsheet so that they cannot be tampered with accidentally (e.g. locking the savings formulas in Columns DV and DZ).

The HRR QA protocol is sufficient with some room to improve consistency among SOs. The HRR program offering largely relies on NRCan QA processes to ensure data quality and integrity. All SOs interviewed each have a designated QA specialist and reported following NRCan's protocol in conducting internal QA audits. All interviewed SOs followed the documentation retention protocols in Union's SO agreement. However, only one of the three SOs had a written QA process and there were some inconsistencies in how errors found in NRCan's QA audits were corrected in Union's system. A 2018 QA activity performed by Union found differences of less than 2% between NRCan's file data and Parachute.

Recommendation No. 13: Ensure that SOs consistently follow the QA guidelines in SO agreements and that practices for making corrections based on QA audits are consistent among SOs.

Recommendation Summary

Table 9 below provides a summary of the recommendations and a high-level analysis of the benefits and costs of implementing recommendations. The table is colour-coded. In the Benefit column, green indicates that a recommendation has higher importance for ensuring and improving the effectiveness of program offering, delivery or processes; yellow indicates relatively lower importance. In the Cost column, green indicates lower cost and yellow represents higher cost.

Table 9: Cost-Benefit Analysis of Recommendations

	Recommendation	Benefit	Cost
1	Define additional performance indicators to correspond with the adjusted logic model and track all performance indicators linked to program objectives.	◆	◆
2	Investigate current practices among contractors for pairing air sealing with furnace replacements to assess what target of air sealing should remain incentivized by the program and counted in the minimum number of upgrades to be implemented.	●	●
3	When assessing free-ridership as part of the net impact evaluation, measure the influence of recommendations made by program partners (contractors and CEAs) on the types of upgrades installed by participants.	●	◆
4	Track and monitor the number of unconverted assessments.	◆	●
5	Provide CEAs with an additional tool(s) to better communicate the benefits of the recommended measures, such as an online tool that allows participants to analyze the costs, rebates, and benefits of the measures.	●	◆
6	Consider ways to increase uptake in insulation upgrades, such as increasing the rebate amount or better communicating the benefits of installing insulation (as per Recommendation 5 above).	●	◆
7	Continue to monitor participant satisfaction among SOs to respond quickly to any changes in satisfaction levels.	◆	●
8	Consider ways to identify the correct program participant to avoid delays in processing applications, for example, by validating participant information earlier in the participation process (i.e. during the D assessment).	●	●
9	Provide customers with notices when their project application is received and approved.	◆	◆
10	Make SO practices for NRCan file approval consistent. If the program data is inputted into Union's Parachute system prior to NRCan approval, monitor a sample of project files and NRCan-approved files, sampled over at least a year, to confirm that the difference between the two groups of files is minor and no adjustment is needed.	●	◆
11	Add information to the master database to support program monitoring and a future program strategy.	◆	◆
12	Add safeguards in the master database to reduce the risk of introducing errors.	◆	●
13	Ensure that SOs consistently follow the QA guidelines outlined in SO agreements and that practices for making corrections based on QA audits are consistent among SOs.	◆	●

APPENDIX I
PROGRAM MANAGEMENT AND MARKETING STAFF INTERVIEW GUIDE

Date:

Interviewee Name:

Interviewer:

Table 1: Research Objectives and Associated Questions

Research Issue	Associated Questions
Respondent Roles and Responsibilities	Q1
Program Offering and Implementation	
Are there opportunities to improve the efficacy of the program offering, including eligibility requirements?	Q2-Q15
Are there opportunities to improve program awareness and communications?	Q38-Q44
Using Union's Market Research results, what is participant satisfaction with the program, including impact of postal strike on customer satisfaction?	Q45
What is partner (CEAs) satisfaction with the program, including their interactions with Union and service organizations?	Q21-Q26, Q27
Processes and Program Delivery	
Is the program administration and delivery approach, including activities of SOs, internal processes and risk mitigation, effective and efficient?	Q16-Q28
Is the program theory and logic model complete and relevant?	Q7, Q16
What, if any, are the difficulties or barriers to program delivery?	Q16-Q28, Q44
Data tracking and Quality Assurance	
Is program tracking, monitoring and reporting complete and effective?	Q29-Q32
Is the CEA facing system meeting the data needs of CEA and Union?	Q23,Q27,Q31
Are the quality control and assurance measures in place ensuring program data integrity?	Q33-Q37
Are program processes consistent with program intentions?	Q16,Q17
Are the SOs adhering to the documentation retention protocols outlined in Unions' agreements with SOs?	Q20,Q35
Successes, Challenges and Opportunities	Q46-Q50
Documentation Request	Q52

Green text: instructions for interviewer

INTRODUCTION

As you know, we are undertaking a process evaluation of the Home Reno Rebate (HRR) program. As part of this evaluation, we are collecting information from program staff about the program's overall offering, implementation, management, processes, successes, challenges and areas for improvement.

Is it okay if I record our discussion to make sure that I capture everything?

Respondent's Roles and Responsibilities

Q1. Please describe your role in the **HRR program offering** and main responsibilities working on the HRR program offering and how long you have been working in this role? [For each individual present]

Program Offering and Implementation

Program Goals and Objectives

Q2. Based on our review of the documentation, we understand that the **HRR program offering** was introduced in 2012 and developed to help homeowners understand opportunities for energy savings throughout their home and encourage them to install multiple deep, long-lasting measures, such as insulation, high-efficiency windows, tankless water heaters, furnaces and boilers. Could you provide additional insight into your perspective on the program's primary purpose?

Q3. We understand that in 2018 your target metric was 8,010 homes and your draft result achieved is 16,118 homes, over 200% of the metric. Is this metric based on homes that have installed measures and completed a post-assessment?

Q4. Why do you think you achieved over-target in 2018?

Q5. We understand that 2018 reached the maximum achievement, which is capped at 200%. Is the cap based on budget constraints? Was there any change in program when the cap was close to being reached or achieved? [Probe: program no longer accepts new participants, shift in marketing]

Q6. The DSM Plan mentions the following objectives and goals. How do you track and monitor how the program is doing relative to these goals? [Probe: any targets?]

Quantitative objectives:

- Generate long term savings
- Avoid lost opportunities

Qualitative objective:

- Encourage a holistic approach to energy efficiency

Q7. We understand from the logic model that we were provided that customer satisfaction is a long-term outcome for the program. Is this correct? Is there a quantitative goal for customer satisfaction?

Coordination with Other Offers

Q8. We understand that Union also has a Behavioural offering funded by the Green Investment Fund (GIF) which launched in 2017. Can you describe how the Behaviour program intersects with the HRR program offering? [PROBE: cross-promotion, targets]. Has this connection had a positive impact for HRR program offering? If yes, how?

Q9. We understand the program coordinated with IESO for the Whole Home pilot in 2017 and that this pilot ended in November 1, 2018. We understand that through the pilot, gas participants would also be eligible for rebates on electric appliances and that additional funds were provided for the pre and post assessments to cover assessment of electric measures. The following questions are to understand how this pilot may have impacted gas participants, program processes and partners in 2018.

- Did this pilot have an impact on gas participants while it was in place? [PROBE: increased awareness of program, increased interest]
- What was the impact of the pilot on CEAs or SOs while it was in place? [PROBE: volume of work, reporting]

Q10. We understand that in 2016 Union was provided additional funding from the government of Ontario's Green Investment Fund (GIF) to enhance the HRR offering. This funding was used to expand the target market for HRR to include gas heated homes outside of Union's franchise area as well as homes in Union's franchise that use oil, propane or wood as their primary heating fuel, with some additional measures added. The funding also allowed rebates to be increased for all existing HRR measures to drive higher participation and provide smart thermostat to all qualifying homes. This evaluation focuses on Union gas participants with gas heaters or boilers, so we have some questions to understand how the GIF and the enhanced offering may have impacted gas participants or program processes and partners in 2018.

- What was impact of the enhanced offering on CEAs and/or SOs? [PROBE: Volume of work, reporting]
- How did the increased incentives for Union gas participants impact participation?

Program Offer

Q11. Aside from ending of Whole Home Pilot and GIF funding have there been any other changes to the program in 2018?

Q12. Do you have any plans to make changes to the program? [IF SO] Which ones?

Q13. We understand that a bonus rebate of $250 is offered to encourage participants to install more than two measures. What is the uptake of the bonus rebate? Has it been successful in encouraging additional measures?

Q14. The program summary data we received shows air sealing and furnaces as by far the most popular measures installed as part of the program. Why do you think that is? [PROBE: In 2017: Air Sealing =11,725, Furnaces= 11,758, Windows = 4445; cost-effectiveness, energy savings, synergies between measures]

Q15. What is the rate of participants that complete a pre-assessment but do not install measures as part of the program? What, if anything, is done to recruit these participants?

Program Delivery

Q16. Please guide me through the process that a participant goes through to take part in **HRR** from initial contact to final contact between **SOs, Union Gas** and the participant?

Partners and Market Actors (SOs, CEAs and contractors)

Now, I would like to talk to you about the role of Service Organizations (SOs), Certified Energy Advisors (CEAs) and contractors in implementing and delivering the program.

Q17. We understand the SOs are responsible for scheduling pre-and post-energy assessments with participants, employing CEAs to perform the assessments and recommending eligible upgrades and submitting all required paperwork to Union on behalf of the participant. Is this correct? Am I missing any other SO responsibilities?

Q18. How do you find and recruit SOs to work with the program?

Q19. How do you communicate with SOs about the program?

Q20. What is required of SOs in terms of providing documents, data tracking and reporting?

Q21. Please describe the role of the participating CEAs?

Q22. How do CEAs qualify for the program?

Q23. What is required of CEAs in terms of documents, data tracking, reporting, etc.?

Q24. Do you communicate with CEAs about the program?

Q25. Do you communicate with contractors about the program?

Q26. What tools and training, if any, have you provided to…

a. SOs?

b. CEAs?

c. Contractors?

Q27. Did you experience any challenges with SOs, CEAs or contractors? [PROBE: recruitment, qualifications, quality]

Q28. Have there been any problems or complaints from customers about the program?

a. **[IF SO]** What are the problems/complaints? Are there trends?

b. **[IF SO]** Have these been addressed? How?

Data Tracking and Quality Assurance

Q29. How does your team monitor program performance including tracking participants and projects for HRR?

Q30. How well is the current tracking process meeting your needs? [Probe: data availability, timing of reporting]

Q31. I understand that Parachute is the system used by SOs to input participant data, including data from the pre and post assessment. Is the Parachute system meeting Union's needs?

Q32. What changes would you like to see, if any, to the current tracking process?

Q33. We understand that the program relies on, in part, NRCan QA processes completed as part of certification and use of EnerGuide and HOT2000 for quality assurance. What, if any, additional QA activities are undertaken by Union for this program? Any documentation? [Probe: Internal QA checks, DSM audit, Project verification, site inspections]

Q34. [IF Q33 = Site Inspection, project verification]. Please describe your project verification/site inspection protocols. [Probe: documentation, sampling]

Q35. What QA activities are expected of the SOs? [Probe: Data integrity]

Q36. Is there a process in place to track performance of contractors? What happens if there is a problem with a contractor (e.g. poor installation)?

Q37. Are there any current challenges with QA/QC or data reporting with the program? If yes, do you have suggestions on how these challenges could be addressed?

Marketing and Awareness

Q38. Based on our review of the documentation, we understand that Union Gas and SOs both have responsibilities for implementing the HRR program offering. Who is responsible for marketing the program?

Q39. The DSM report states that many tactics are used to market this program: mass-media, digital tactics, TV, bill inserts, flyer and door hangers distributed by CEAs and posters at trade shows and events. Which ones would you say are the primary ones?

Q40. Are you aware of any other advertising or marketing activities done by the SOs and CEAs to promote the program?

Q41. Do contractors promote the program? If so, how?

Q42. How, if any, did the program cross-promote other Union programs to participants?

Q43. Are the SOs responsible for recruiting participants? If so, how do the SOs identify participants?

Q44. What do you think are the key barriers to customer participation in the program?

Q45. We understand that Union Market Research fields an ongoing survey to a sample of HRR participants to measure satisfaction with the program. How do you use the results of these surveys? [Probe: program improvements, targeted marketing, CEA feedback, validation of type of project]

Successes, challenges, and opportunities

Q46. What do you see as key successes of the program?

Q47. What are key challenges for the program?

Q48. What opportunities do you see for the program going forward?

Q49. What would you like to learn from this process evaluation?

Q50. Is there anything else about the program that we have not discussed that you feel should be mentioned?

Thank you very much for your valuable feedback.

APPENDIX II
DATA TRACKING AND REPORTING AND MARKET RESEARCH STAFF INTERVIEW GUIDE

Date:

Interviewee

Interviewer:

Table 1: Research Objectives and Associated Questions

Research Issue	Associated Questions
Respondent Roles and Responsibilities	Q1
Program Offering and Implementation	
Are there opportunities to improve the efficacy of the program offering, including eligibility requirements?	N/A
Are there opportunities to improve program awareness and communications?	N/A
Using Union's Market Research results, what is participant satisfaction with the program, including impact of postal strike on customer satisfaction?	Q2-Q14
What is partner (CEAs) satisfaction with program, including their interactions with Union and service organizations?	N/A
Processes (Program Delivery)	
Is the program administration and delivery approach, including activities of SOs, internal processes and risk mitigation, effective and efficient?	Q7-Q8
Is the program theory and logic model complete and relevant?	N/A
What, if any, are the difficulties or barriers to program delivery?	N/A
Data tracking and Quality Assurance	
Is program tracking, monitoring and reporting complete and effective?	Q15-Q20, Q36-Q40
Is the CEA facing system meeting the data needs of CEA and Union?	Q18
Are the quality control and assurance measures in place ensuring program data integrity?	Q28-Q35
Are program processes consistent with program intentions?	Q28
Are the SOs adhering to the documentation retention protocols outlined in Unions' agreements with SOs?	N/A
Successes, Challenges and Opportunities	Q10-Q11,Q36-Q39

Green text: instructions for interviewer

INTRODUCTION

As you know, we are undertaking a process evaluation of the Home Reno Rebate (HRR) program. As part of this evaluation, we are collecting information from program staff about the program's overall offering, implementation, management, processes, successes, challenges and areas for improvement.

Is it okay if I record our discussion to make sure that I capture everything?

Respondent's Roles and Responsibilities

[FOR MARKET RESEARCH AND DATA TRACKING AND REPORTING]

Q1. Please describe your role in the **HRR program offering** and main responsibilities working on the HRR program offering and how long you have been working in this role? [For each individual present]

Market Research

[SECTION FOR MARKET RESEARCH STAFF]

Q2. We understand that Union Market Research fields an ongoing survey to a sample of HRR participants to measure satisfaction with the program. The objectives of the participant survey are to:

- Measure overall satisfaction with the program
- Measure overall satisfaction with the energy advisor that completed the pre-and post-renovation assessments
- Identify opportunities for improvement in the participant experience
- Validate the type of renovation projects that the participant has completed
- Reinforce that this is a Union Gas/Gov't of Ontario/IESO program for attribution purposes
- Improve understanding of the participants (e.g. demographics) of the program to support future marketing efforts; and
- Measure perceptions of Union's brand and reputation

Am I missing or mischaracterizing any objectives of the participant research?

Q3. Can you describe the sampling method?

Q4. What is the methodology of this participant survey? [PROBE: Survey conducted in house? Phone or online? Frequency?]

Q5. What is your response rate? Any challenges in getting your targeted response?

Q6. How did you select survey questions?

Q7. Who utilizes the results of this research?

Q8. How do you share the results of the research?

Q9. How often do you adjust the questions of the survey?

Q10. What are the most challenging objectives of the survey to meet? Why?

Q11. Do you have any ideas on how these challenges could be addressed?

Q12. Now a few questions about the impact of postal strike on customer satisfaction. Do you have any data indicating changes in customer satisfaction? Does the participant survey database include the date of the mailed cheque?

Q13. Have you conducted any other market study to support the HRR program offering?

Q14. Is there anything else about the program that we have not discussed that you feel should be mentioned?

Thank-you very much for your time.

Data Tracking and Reporting

[SECTION FOR DATA TRACKING AND REPORTING STAFF]

Q15. What HRR program offering data needs are your team responsible for and who are the users?

Q16. I understand that data tracking and reporting for HRR is done through three tools: (1) Parachute, the system used by SOs to input program data, including data from the pre and post assessment; (2) a master excel spreadsheet that uses data from Parachute to calculate program savings by home; and (3) Guardian, a tracking database used to track program at a participant-level. In a few moments, I would like to discuss each of these systems in turn, but first, am I missing or misunderstanding any key components of program data tracking and reporting?

Q17. Can you walk me through how these three data systems are used and linked in the HRR data tracking and reporting process? [PROBE: Are common fields automatically updated?]

Q18. We understand that the master list calculates savings to be claimed through DSM, applying the 90% methodology and calculating TRC. What is the 90% methodology?

Partners and Market Actors (SOs, CEAs and contractors)

Now, I would like to discuss the role of SOs and CEAs in data tracking and reporting and QA.

Q19. We understand the SOs are responsible for scheduling pre- and post-energy assessments with participants, employing CEAs to perform the assessments and recommending eligible upgrades and submitting all required paperwork to Union on behalf of the participant. Is this correct? Am I missing any other SO responsibilities?

Q20. How do you communicate with SOs about the program?

Q21. What is required of SOs in terms of documents, data tracking, reporting etc.?

Q22. What is required of CEAs in terms of documents, data tracking, reporting etc.?

Q23. Do you communicate with CEAs about the program? If yes, how?

Q24. What tools or training, if any, have you provided to…

a. SOs?

b. CEAs?

Q25. How well is the Parachute system meeting Union's needs? [Probe: data available, data integrity, timing of reporting]

Q26. Do you experience any challenges with SOs or CEAs? [Probe: responsiveness, volume and timeliness of corrections]

Q27. Do you have any ideas on how these challenges could be addressed?

Data Review and Quality Assurance

Q28. Please describe your data review process? Any documentation? [Probe: internal audits by senior staff, frequency]

Q29. Who is responsible for preventing duplicates in data and reviewing application data comprehensiveness?

Q30. [If Q23 = Union] How are duplicates prevented? Documentation?

Q31. [If Q23 = Union] How are inaccurate or incomplete applications dealt with? Documentation?

Q32. How is data integrity safeguarded? [Probe: input masks, reasonableness checks on data entry]

Q33. Are there any other QA/QC activities related to data tracking and reporting that we haven't already discussed?

Q34. Is there any reporting on QA activities done for the program? [Probe: SO reporting on QA activities, internal QA reporting] If yes, can these be shared?

Q35. How would you improve the QA/QC process?

Q36. What do you see as the key strengths of the program data tracking and reporting?

Q37. At a high-level, what impact, if any did the Whole Home Pilot and enhanced GIF offering have on data tracking and reporting?

Q38. Has there been any challenges data tracking and reporting with the program that we have not discussed?

Q39. Do you have suggestions on how these challenges could be addressed?

Rebate Processing

Q40. The next set of questions relates to rebate processing. We understand that your team is responsible for rebate processing to ensure customers receive their rebate cheques. Please guide me through the process from where your team steps in to when the customer receives a rebate cheque. Any documentation?

Q41. Are there any metrics associated with tracking this the rebate process? [Probe: length of time from submission of file to cheque being cut, customer satisfaction] If yes, what is performance against targets? Why?

Q42. Are there any current challenges with rebate processing? [Probe: length of time from submission of file to cheque being cut, volume]

Q43. Do you have any ideas on how these challenges could be addressed?

We are almost finished.

Q44. Have there been any problems or complaints from customers about the program?

a. [IF SO] What are the programs/complaints? Are there trends?

b. Have these been addressed? How?

Q45. Is there anything about the program that we have not discussed that you feel should be mentioned?

Thank-you for your time.

APPENDIX III
SERVICE ORGANIZATION INTERVIEW GUIDE

Date & Time:

Interviewee Name:

Company Name:

Interviewer:

Table 1: Overview of Data Collection Activity

Descriptor	This Instrument
Instrument Type	Telephone Interview
Estimated Time to Complete	20-30 minutes
Population Description	Service Organizations
Contact List Size	
Completion Goal	3
Contact List Source	Enbridge Gas operating as Union Gas
Fielding Firm	Econoler

Table 2: Research Issue and Associated Questions

Research Issue	Associated Questions
Respondent Roles and Responsibilities	A1-A3
Program Offering and Implementation	
Are there opportunities to improve the efficacy of the program offering, including eligibility requirements?	C1-C10, E1
Are there opportunities to improve program awareness and communications?	B1-B3
Using Union's Market Research results, what is participant satisfaction with the program, including impact of postal strike on customer satisfaction?	NA
What is partner (CEAs) satisfaction with program, including their interactions with Union and service organizations?	D3, D5, E1, E3, F7
Processes and Program Delivery	
Is the program administration and delivery approach, including activities of SOs, internal processes and risk mitigation, effective and efficient?	C1-C10, D1-D6
Is the program theory and logic model complete and relevant?	NA
What, if any, are the difficulties or barriers to program delivery?	A4, C3

Research Issue	Associated Questions
Data tracking and Quality Assurance	
Is program tracking, monitoring and reporting complete and effective?	F1-F8
Is the CEA facing system meeting the data needs of CEA and Union?	F1-F8
Are the quality control and assurance measures in place ensuring program data integrity?	G1-G9
Are program processes consistent with program intentions?	A4, C1-C10
Are the SOs adhering to the documentation retention protocols outlined in Unions' agreements with SOs?	G3
Successes, Challenges and Opportunities	H1-H2

INTRODUCTION

Hello, may I speak with **[Contact name]**?

My name is **[Interviewer name]** and I'm calling from Econoler on behalf of Union Gas. Union Gas has contracted Econoler to evaluate the Home Reno Rebate program.

- Person responsible available [CONTINUE]
- Person responsible currently unavailable [ARRANGE CALL BACK WITH THE RIGHT PERSON]
- Refused [THANK AND TERMINATE]

Your responses will be kept confidential and we will not share the information you provided in a way that could identify your individual or corporate responses. [READ IF NECESSARY: The results of this evaluation will only be used to improve the program and will not affect your involvement in the program.]

Context

One of the main goals of this interview is to collect information to assess program outreach and delivery, barriers to participation, program communication, program data tracking and reporting, quality assurance and possible program improvements.

Our discussion should take about 20-30 minutes.

Do you have any questions before we begin?

Respondent's Role and Involvement

The first questions will be about your business and your involvement with the Union Home Reno Rebate program.

A1. What is your title and role?

A2. How would you describe your involvement within the Home Reno Rebate program?

A3. How long have you been involved with the program?

A4a. Do you consider your involvement in the program as straight forward or complicated?

- ☐ Straight forward
- ☐ Complicated

A4b. If "Complicated", please indicate what makes your involvement in the program complicated?

Program Outreach

I would now like to discuss program outreach.

B1. Do you promote the Home Reno Rebate program to potential participants? If so, how?

B2. Besides that, how do potential participants learn about the Home Reno Rebate program?

B3. Are there elements of the program that you find are generally not well-understood by participants? If so, which ones?

Program Delivery and Barriers

C1. What is your level of contact with the customer prior to their D-assessment audit? [Probe: Scheduling audit, pre-qualification].

[IF C1 includes Pre-qualification, ASK C2 – C3]

C2. Can you describe how you screen potential participants prior to their D assessment? [Probe: Union customer with active account, owns a detached, semi-detached, townhouse or mobile home, has a natural gas furnace/boiler as heating source]

C3. How do you ensure that participant applying for Home Reno Rebate is the bill-payer?

C4. Do you review the content of the pre-assessment and post-assessment report submitted by the CEAs?

IF SO:

a. What do you look at?

b. How many energy-efficient upgrades would you say are typically recommended in the pre-assessment report and what are they?

c. Which upgrades recommended in the assessment report are not typically implemented by participants? Why?

C5. Do you do any follow-up with participants as part of their participation in the program? [Probe: after D assessment]

C6. [ASK IF C5= YES] How, if at all, do you attempt to encourage customers to implement upgrades beyond what they may have initially considered?

C7. The program data indicates that participants implement on average 2.8 measures per home. What can be done to encourage participants to implement more upgrades?

C8. And specifically, for insulation, what do you think can improve the participant uptake of this measure?

C9. From your perspective, what is the largest untapped opportunity for gas energy savings in participating houses?

C10. Who do you feel has the most influence in deciding the type of upgrades to be implemented in participating homes?

☐ Homeowner

☐ Certified Energy Auditor

☐ Contractor

☐ Other, specify: _____

Communication with Certified Energy Auditors and Union

D1a. Now talking about your working relationship with Certified Energy Auditors. How many Certified Energy Auditors do you work with?

D1b. Are the CEAs you work with employees of your company or independent contractors?

D2. What support do you provide to the CEAs? [Probe: training, administrative support]

D3. How do you usually communicate with the Certified Energy Auditors?

D4. Using a scale from 1 to 10 where 1 means “very dissatisfied” and 10 means “very satisfied”, overall, how satisfied are you with the working relationship you have with the Certified Energy Auditors? Why?

D5. Now talking about your relationship with Union. How do you usually communicate with Union?

D6. Still on a scale of 1 to 10, overall, how satisfied are you with the relationship you have with Union? Why?

D7a. Do you believe that Union gives you sufficient opportunity to provide input on the program?

☐ Yes
☐ No

D7b. If no, what else can Union do to involve Service Organizations?

Satisfaction

E1. I have some questions about your satisfaction towards the program. Using a scale from 1 to 10 where 1 means “very dissatisfied” and 10 means “very satisfied”, how satisfied are you with…?

Aspects of the program	Satisfaction Level (1 to 10)	If less than 8, please share the reason(s)
a) The overall program		
b) Program marketing and outreach activities initiated by Union		
c) Eligible measures and equipment		
d) Program incentive structures		

E2. Did you or anyone in your company receive training or information from Union about the program? If so, on which topic?

E3. If so, how satisfied are you with the information and/or training provided on a scale of 1 to 10 where 1 means “very dissatisfied” and 10 means “very satisfied” ? Why?

If less than 8 ➔ Why are you not more satisfied?

E4. Is there any additional information, training or technical support you would like to receive?

Program Processes

Now, here are some questions regarding the program processes and quality assurance.

F1. We understand that Certified Energy Auditors track and report the data captured in the energy assessment. Do they submit the data to you or directly into the Parachute system? [PROBE: If they submit to SO: Do you receive application files by batch? What frequency?]

[ASK F2 – F5 IF CEAs submit data to SO]

F2. Do the Certified Energy Auditors send pre-assessment data, and then post-assessment data, or do they send application upon final completion only?

F3. Can you walk me through your administrative process when receiving application data from the Certified Energy Auditors?

F4. How do you report the program data to Union? At what frequency?

F5. Approximately how many days does it take between receiving HRR application data from CEA and completing the administrative process for the pre-assessment? And for the post-assessment?

Pre-Assessment:

Post-assessment:

F6. What can be done to reduce the time between the post-assessment audit and Union's approval of the project for payment? [Probe: CEA side, SO side]

F7. Using a scale from 1 to 10 where 1 means "very dissatisfied" and 10 means "very satisfied", how satisfied are you with the overall program tracking and reporting? Why?

F8. What aspects of the data tracking and reporting system or process, if any, would you like to see changed or improved? How?

Quality Assurance

G1. What verification activities, if any, do you undertake to ensure the quality control and accuracy of the data submitted to Union? Any other verification activities?

G2. At what point in the process are the assessment files submitted to NRCan for approval? Are there any adjustments to data if errors or issues are identified during the NRCan approval process? [IF YES: Who is responsible for making the adjustments?]

G3. How do you store and maintain files and documentation related to Union audits? [Probe: Length of time documentation is kept]

G4. According to our information, you have processed 5,502 projects (or files) in 2018 as part of the Home Reno Rebate program. Is that right? If not, how many projects?

G5. How many of these projects, if any, have gone through an internal quality assurance audit from you? [Probe: Level 1, Level 2, Level 3, Level 3 (new advisors), Level 4]

G6. Do you have a quality assurance protocol? If so, can you send me a copy?

G7. As a Service Organization, you may also have been audited by a Natural Resources Canada staff for quality assurance purposes. Besides usual processing done by NRCan, how many of your 2018 projects, if any, have gone through a quality assurance audit by NRCan?

G8. Do you make any adjustments in the Parachute system if an issue is found in audits? [IF YES: On what basis do you make these adjustments? IF NO: Who is responsible for making the adjustments?]

G9. Do you have a quality assurance report? If so, can you send me a copy?

Recommendations

We are almost done.

H1. Do you have any concerns that we have not discussed with the way the program has been managed or delivered?

H2. Do you have any suggestions on how to improve the Home Reno Rebate program?

END: Those are all the questions I have for you today.

I thank you very much for your collaboration and the time you took to answer our questions.

APPENDIX IV
CERTIFIED ENERGY AUDITOR INTERVIEW GUIDE

Date & Time:

Interviewee Name:

Company Name:

Interviewer:

Table 1: Overview of Data Collection Activity

Descriptor	This Instrument
Instrument Type	Telephone Interview
Estimated Time to Complete	20-30 minutes
Population Description	Certified Energy Auditors
Contact List Size	
Completion Goal	5
Contact List Source	Enbridge Gas operating as Union Gas
Fielding Firm	Econoler

Table 2: Research Issue and Associated Questions

Research Issue	Associated Questions
Respondent Roles and Responsibilities	A1-A3
Program Offering and Implementation	
Are there opportunities to improve the efficacy of the program offering, including eligibility requirements?	C1-C9, E1
Are there opportunities to improve program awareness and communications?	B1-B3
Using Union's Market Research results, what is participant satisfaction with the program, including impact of postal strike on customer satisfaction?	NA
What is partner (CEAs) satisfaction with program, including their interactions with Union and service organizations?	D3, D5, E1, E5, F7

Research Issue	Associated Questions
Processes and Program Delivery	
Is the program administration and delivery approach, including activities of SOs, internal processes and risk mitigation, effective and efficient?	C1-C10, D1-D6
Is the program theory and logic model complete and relevant?	NA
What, if any, are the difficulties or barriers to program delivery?	A4, C3, C4
Data tracking and Quality Assurance	
Is program tracking, monitoring and reporting complete and effective?	F1-F8
Is the CEA facing system meeting the data needs of CEA and Union?	F1-F8
Are the quality control and assurance measures in place ensuring program data integrity?	G1-G7
Are program processes consistent with program intentions?	A4, C1-C10
Are the SOs adhering to the documentation retention protocols outlined in Unions' agreements with SOs?	G3
Successes, Challenges and Opportunities	H1-H2

INTRODUCTION

Hello, may I speak with **[Contact name]**?

My name is **[Interviewer name]** and I'm calling from Econoler on behalf of Union Gas. Union Gas has contracted Econoler to evaluate the Home Reno Rebate program.

- Person responsible available [CONTINUE]
- Person responsible currently unavailable [ARRANGE CALL BACK WITH THE RIGHT PERSON]
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Your responses will be kept confidential and we will not share the information you provided in a way that could identify your individual or corporate responses. [READ IF NECESSARY: The results of this evaluation will only be used to improve the program and will not affect your involvement in the program.]

Context

One of the main goals of this interview is to collect information to assess program outreach and delivery, barriers to participation, program communication, program data tracking and reporting, and possible program improvements.

Our discussion should take about 20-30 minutes.

Do you have any questions before we begin?

Respondent's Role and Involvement

The first questions will be about your business and your involvement with the Union Home Reno Rebate program.

A1. Are you part of a company or self-employed? What are your main functions? [PROBE: If company: Are you an employee of a Service Organization?]

A2. Besides doing energy audits, do [you /your company] also work as a contractor?

A3. How long have you been involved with the Home Reno Rebate program?

A4a. Do you consider your involvement in the Home Reno Rebate program as straight forward or complicated?

☐ Straight forward

☐ Complicated

A4b. If "Complicated", please indicate what makes your involvement in the program complicated?

Program Outreach

I would now like to discuss program outreach.

B1. Do you promote the Home Reno Rebate program to potential participants? If so, how?

B2. Besides that, how do potential participants learn about the Home Reno Rebate program? [PROBE: Do others recommend your services to potential participants?]

B3. Are there elements of the program that you find are generally not well-understood by participants? If so, which ones?

Program Delivery and Barriers

C1. How many energy-efficient upgrades are typically recommended in your pre-assessment report and what are they?

C2. How do you communicate the recommended energy-efficient upgrades to the participant? Anything else?

- ☐ Pre-assessment report
- ☐ Discussion during pre-assessment
- ☐ Follow-up after pre-assessment
- ☐ Other, specify: _____

C3. In general, are participants receptive to your suggestions of energy upgrades?

C4. Which upgrades recommended in the assessment report are not typically implemented by participants? Why?

C5. How, if at all, do you attempt to encourage customers to implement upgrades beyond what they may have initially considered?

C6. Do you do any follow-up with participants after their pre-assessment audit?

C7. The program data indicates that participants implement on average 2.8 measures per home. What can be done to encourage participants to implement more upgrades?

C8. And specifically, for insulation, what do you think can improve the participant uptake of this measure?

C9. From your perspective, what is the largest untapped opportunity for gas energy savings in participating houses?

C10. Who do you feel has the most influence in the type of upgrades to be implemented in participating homes?

- ☐ Homeowner
- ☐ Certified Energy Auditor
- ☐ Contractor
- ☐ Other, specify: _____

Communication with Service Organization and Union

D1. Now I would like to discuss your working relationship with Service Organizations. How many Service Organizations do you work with?

D2. How and how often do you usually communicate with the Service Organizations?

D3. Using a scale from 1 to 10 where 1 means “very dissatisfied” and 10 means “very satisfied”, overall, how satisfied are you with the relationship you have with the Service Organizations? Why?

D4. Now thinking about your relationship with Union. How do you usually communicate with Union?

D5. Still on a scale of 1 to 10, overall, how satisfied are you with the relationship you have with Union? Why?

D6a. Do you believe that Union gives you sufficient opportunity to provide input on the program?

- ☐ Yes
- ☐ No

D6b. If no, what else can Union do to involve Energy Auditors?

Satisfaction

E1. Now I have some questions about your satisfaction towards the program. Using a scale from 1 to 10 where 1 means “very dissatisfied” and 10 means “very satisfied”, how satisfied are you with…?

Aspects of the program	Satisfaction Level (1 to 10)	If less than 8, please share the reason(s)
a) The overall program		
b) Program marketing and outreach activities initiated by Union		
c) Eligible measures and equipment		
d) Program incentive structures		

E2. Did you or anyone in your company receive training or information from Union about the program? If so, on which topic?

E3. If so, how satisfied are you with the information and/or training provided on a scale of 1 to 10 where 1 means “very dissatisfied” and 10 means “very satisfied” ? Why?

If less than 8 ➔ Why are you not more satisfied?

E4. Did you or anyone in your company receive training or information from a SO about the program? If so, on which topic?

E5. If so, how satisfied are you with the information and/or training provided by the SO on a scale of 1 to 10 where 1 means “very dissatisfied” and 10 means “very satisfied” ? Why?

If less than 8 ➔ Why are you not more satisfied?

E6. Is there any additional information, training or technical support you would like to receive?

Program Processes

Now, here are some questions regarding the program processes.

F1. We understand that as a Certified Energy Auditors, you track and report the data captured in the pre-assessment and also track and report annual gas savings on the post assessment. Is this correct? Do you submit this information to your SO or directly to Union using the Parachute system?

F2. Can you walk me through your process for tracking and reporting pre-assessment and post-assessment data into the Union system? [PROBE: Any other administrative support? Frequency of reporting activity (e.g. daily, weekly)?]

F3. Approximately how much time does data entry and reporting take for a pre-assessment audit? And for a post-assessment audit?

Pre-Assessment:

Post-assessment:

F4. What are the administrative steps taken upon completion of the post-assessment audit to finally submit file to [IF F1 = SUBMIT TO SO, READ = SO; IF F1 = SUBMITS TO UNION, READ = Union]? Approximately how many days does it take between completion of post-assessment audit and submitting final application to the [IF F1 = SUBMIT TO SO, READ = SO; IF F1 = SUBMITS TO UNION, READ = Union]?

F5. What additional support could Union or your SO provide to reduce the time between the completion of post-assessment and reporting to [IF F1 = SUBMIT TO SO, READ = SO; IF F1 = SUBMITS TO UNION, READ = Union]?

F6. How do you ensure that participant applying for Home Reno Rebate is the bill-payer?

F7. Using a scale from 1 to 10 where 1 means “very dissatisfied” and 10 means “very satisfied”, how satisfied are you with the program tracking and reporting? Why?

F8. What aspects of the data tracking and reporting system or process, if any, would you like to see changed or improved? How?

Quality Assurance

G1. Does NRCan approve your modelled post-assessment file (E file)? What happens if NRCan identifies errors or issues in a file during their review process?

G2. What verification activities, if any, do you undertake to ensure the quality control of the data entered into Parachute? Any other verification activities? [Probe: review by others, admin support]

G3. How do you store and maintain files and documentation related to Union audits? [Probe: Length of time documentation is kept]

G4. According to our information, you have done [X] projects in 2018 as part of the Home Reno Rebate program. Is that right? If not, how many projects?

G5. How many of your projects, if any, have gone through a quality assurance audit by your Service Organization?

G6. As a Certified Energy Auditor, you may also have been audited by a Natural Resources Canada staff for quality assurance purposes. Besides usual processing done by NRCan, how many of your 2018 projects, if any, have gone through a quality assurance audit by NRCan?

G7. Do you make any adjustments in the Parachute system if an issue is found in audits by either Service Organization or NRCan? [IF YES: How do you make these adjustments?]

Recommendations

We are almost done.

H1. Do you have any concerns that we have not discussed with the way the program has been managed or delivered?

H2. Do you have any suggestions on how to improve the Home Reno Rebate program?

END: Those are all the questions I have for you today.

I thank you very much for your collaboration and the time you took to answer our questions.

APPENDIX V
HRR PROGRAM OFFERING THEORY

Link	Offering Theory Description	Performance Indicator(s)	Data Sources
0	**UGL Residential Home Reno Rebate offering will be affected by external factors.** These external factors include but are not limited to: cost of natural gas and electricity, other utility offerings, and the economy.	This link is not included within the scope of the defined evaluation approach.	-
1	**UGL enrolls Service organizations (SOs).** UGL develops a network of SOs that can guide customers through each stage of the offering. This activity involves identifying, pursuing and screening SOs for participation in the offering.	This link is not included within the scope of the defined evaluation approach.	-
2	**UGL implements mass marketing and communication activities (e.g. radio, newspapers, billboard ads, outdoor signs, and digital media) to foster widespread awareness of the Home Reno Rebate offering.** Information about the offering is provided to customers to foster participation in the Home Reno Rebate.	This link is not included within the scope of the defined evaluation approach.	-
3	**UGL provides the SOs with targeted marketing materials (e.g. flyers for direct mail and door hangers) to homes that are likely to benefit from the offering.**	This link is not included within the scope of the defined evaluation approach.	-
4	**UGL provides training sessions to SOs.** UGL provides training and coaching to help the SOs understand the structure of the HRR offering, how to sell energy efficiency, and how to provide a positive customer experience.	This link is not included within the scope of the defined evaluation approach.	-
5	**UGL provides funding of up to $550 for the cost of the pre and post-renovation assessments.**	This link is not included within the scope of the defined evaluation approach.	-
6	**UGL provides incentives to participants who install at least two of the recommended measures to offset the cost of energy efficient measures.**	This link is not included within the scope of the defined evaluation approach.	-
7	**SOs facilitate offering delivery.** SOs guide customers through each stage of the offering, manage participant applications and hire certified energy advisors (CEAs) to conduct pre and post-renovation energy assessments.	This link is not included within the scope of the defined evaluation approach.	-
8,9,11,12	**Informed customers understand benefits of the Home Reno Rebate offering and how to schedule a pre-renovation assessment**.	This link is not included within the scope of the defined evaluation approach.	-

Link	Offering Theory Description	Performance Indicator(s)	Data Sources
10	**SOs understand the offering and promote it to their contractor network.**	This link is not included within the scope of the defined evaluation approach.	-
13	**Contractors understand the offering and promote it to prospective participants.**	This link is not included within the scope of the defined evaluation approach.	-
14, 15	**SOs hire CEAs to conduct pre-renovation assessments and identify renovation options.** The customer selects a SO that, in turn, hires a CEA to conduct a pre-renovation assessment. The CEA performs a site visit to establish a home energy consumption baseline and identify potential renovation options. The CEA reviews the results of the pre-renovation assessment with the participant and discusses renovation options.	This link is not included within the scope of the defined evaluation approach.	-
16	**External factors such as energy prices and other program influences on prospective participants.** Through other offerings or cross-promotional activities, participants learn about the HRR program offering and understand the benefits.	This link is not included within the scope of the defined evaluation approach.	
17	**Participants decide to install measures.** Participants review opportunities identified by CEAs and decide to carry out renovations. Participants solicit contractor bids and select a contractor to install at least two of the measures recommended.	The conversion rate between the D and E assessments.	DSMT
18, 19	**Measures are installed by contractors.**	The number of measures installed by each participant.	DSMT
20	**SOs hire CEAs to conduct a post-renovation assessment.** The CEAs conduct post-renovation assessments by conducting site visits to establish home energy consumption after measure installation.	The number of E assessments completed.	DSMT
21	**Participants have increased their level of energy efficiency awareness and energy literacy as a result of participating in the offering.**	The proportion of participants who remember having received information about the energy efficiency of their home as part of their participation in the HRR program offering.	Participant surveys
22	**Installed measures result in measured energy savings.**	Net gas savings achieved by the offering.	Impact evaluation analysis
23	**Participants are satisfied as a result of participating in the offering.**	Satisfaction with the HRR program offering.	Participant surveys
		Satisfaction with SO and CEA interactions.	Participant surveys

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