2015
Demand Side Management
Final Annual Report

December 15, 2017

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Executive Summary

2015 is the nineteenth year that Union Gas Limited ("Union") has delivered natural gas savings to its customers through cost effective Demand Side Management ("DSM") programs. Union's DSM programs support residential, low-income, commercial and industrial customers to realize energy savings and environmental benefits by providing energy efficiency education, awareness and incentives. To date, Union's commitment to DSM initiatives has achieved more than $2.947 billion in net Total Resource Cost ("TRC") benefits.

2015 marked a transition between the final year of the Union's multi-year 2012-2014 DSM Plan (EB-2011-0327) and the first year of its 2015-2020 DSM Plan (EB-2015-0029). In the new 2015-2020 DSM Framework, the Ontario Energy Board outlined that "the gas utilities should roll-forward their 2014 DSM plans, including all programs and parameters (i.e., budgets, targets, incentive structure) into 2015. Under the new Framework, the Ontario Energy Board (OEB or the "Board") will lead the process of evaluating Union's DSM program results.

Success in 2015 includes strong program performance within the Resource Acquisition, Low-Income and Market Transformation scorecards. The company is pleased to report that the 2015 DSM portfolio generated 1.751 billion m^3 of cumulative natural gas savings with a program spend that was $32.393 million, or 5% under the 2015 DSM budget of $33.988 million. This achievement earned Union a DSM Utility Incentive of $7.472 million.

Union celebrates the success of its 2015 DSM programs and the associated significant energy reductions that ratepayers have realized.

1. Introduction

This DSM Annual Report presents a summary of Union's energy efficiency initiatives and results in terms of scorecards, budget spend, DSM Utility Incentive, and Lost Revenue Adjustment Mechanism Variance Account ("LRAMVA") for 2015. It also provides an avenue for Union to benchmark the results in this first year under the 2015-2020 DSM plan, highlight successes and lessons learned.

Union's 2015 DSM portfolio included programs directed towards Residential, Commercial/Industrial, Low-Income, Market Transformation and Large Volume customers as listed below:

Residential Program

- Energy Savings Kit Offering
- Home Reno Rebate Offering

Commercial/Industrial Program

- Prescriptive and Quasi-Prescriptive Offering
    - Water Heating Initiatives
        - Condensing Gas Water Heaters
        - Ozone Laundry Equipment
    - Space Heating Initiatives
        - Air Curtain Technology
        - Condensing Boilers
        - Condensing Make-up Air Units
        - Destratification Fans
        - Energy Recovery Ventilators and Heat Recovery Ventilators
        - Infrared Heaters
        - Demand Control Ventilation
    - Commercial Kitchen Initiatives
        - Energy Star Fryers
        - Demand Control Kitchen Ventilation
        - Energy Star Dishwashers
- Custom Offering
    - Customer Engagement – Communication and Education
    - Engineering Feasibility and Process Improvement Studies
    - Operation and Maintenance
    - New Equipment and Processes
    - Energy Management

Low-Income Program

- Home Weatherization Program Offering
- Affordable Housing Conservation Offering

Large Volume Program

- Customer Engagement – Communication and Education
- New Equipment and Processes
- Operations and Maintenance
- Process Improvement Studies
- Engineering Feasibility Studies
- Steam Trap Surveys
- Boiler Tune-ups

Market Transformation Program

- Optimum Home

2. Demand Side Management Framework

2.1 2015 DSM Plan

2015 marked a transition between the final year of the Union's EB-2011-0327 multi-year 2012-2014 DSM Plan[1] and the first year of Union's 2015-2020 DSM Plan EB-2015-0029 filed on April 1, 2015.[2]

Union's 2015-2020 DSM Plan was filed in accordance with the 2015-2020 Demand Side Management Framework for Natural Gas Distributors (EB-2014-0134, or "Framework"), the 2015-2020 Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributions (EB-2014-0134, or the "Guidelines"). In Section 15.1 of the Framework, the Board outlined that "the gas utilities should roll-forward their 2014 DSM plans, including all programs and parameters (i.e., budget, targets, incentive structure) into 2015." Union followed the Board's direction and rolled over all elements of Union's 2014 DSM Plan into 2015.

On January 20, 2016, the Board released its Decision (EB-2015-0029, or "Decision") on Union's 2015-2020 DSM Plan. As part of its Decision, the Board approved Union's 2015 programs, scorecards, metrics, targets, incentives and budgets as filed.

Union's DSM activities are continuing to drive market change through focused efforts on delivering natural gas savings and related customer benefits. This annual report highlights Union's achievements in 2015.

2.2 Program and Portfolio Design

Union's 2015 DSM program activities fall within four program types:

- Resource Acquisition
- Large Volume
- Low-Income
- Market Transformation

The Resource Acquisition and Large Volume programs seek to achieve direct, measureable savings for an individual customer and involve the installation of energy efficient equipment.

Low-Income programs are similar in nature to Resource Acquisition programs, but are treated independently to recognize the unique needs of this customer base and that they may result in lower TRC net savings than non-low-income programs.

Market Transformation programs focus on facilitating fundamental changes that lead to greater market shares of energy efficient products and services. They influence consumer behaviour and attitudes in support of reducing natural gas consumption.

[1] Union's 2012-2014 DSM Plan was filed on September 23, 2011 in accordance with the Board's Demand Side Management Guidelines for Natural Gas Utilities EB-2008-0346.
[2] The plan was amended July 3, 2015 to capture minor corrections.

2.3 Cost Effectiveness Screening

The Board mandates cost effectiveness screening as the means for determining the economic value of a DSM program. The TRC test is used to screen for cost effectiveness at the program level. TRC benefits include the avoided costs associated with natural gas, electricity, and water savings over the life of the energy efficient equipment. TRC costs include the incremental equipment costs[3] associated with the energy efficient equipment in relation to its less-efficient equivalent, as well as any program, administrative, and evaluation costs attributed directly to the program.[4] Resource Acquisition programs are considered cost effective if the ratio of the *present value of the TRC benefits* to the *present value of the TRC costs* exceeds 1.0. To recognize that low-income programs result in significant benefits not captured by the TRC test, these programs are screened using a TRC threshold of 0.7. Market Transformation programs are assessed on their own merits based on the objectives of the program.

2.4 Program Evaluation

There are two broad categories of evaluations: impact evaluation and formative evaluation. Impact evaluations focus on participation and related savings resulting from DSM programs, while formative evaluations focus on the effectiveness of program design and delivery, and assess why program outcomes occur.

2015 marked a change in the process for conducting impact evaluations of Union's DSM programs. In a Board letter dated August 21, 2015 (EB-2015-0245), the Board noted that it will be taking a central role in the evaluation process of DSM program results. DSM programs will be evaluated on an annual basis, with results issued by the Board to be used by Union when it files applications for recovery of amounts related to DSM activities.

The Board's role includes the hiring of an independent third party auditor, or Evaluation Contractor ("EC"), to assess the results of the natural gas utilities' DSM programs. An Evaluation Advisory Committee ("EAC") will also be put in place to provide input to the EC and the Board on the evaluation and audit of DSM results. This EAC will replace the Technical Evaluation Committee ("TEC") and the Audit Committees that were in place for the 2012-2014 Framework.

2.5 Transition Plan of TEC Activities to the OEB

As outlined in the letter from the Board dated March 4, 2016 (EB-2015-0245), the TEC evaluation activities will be transitioned to the OEB under the new DSM evaluation governance structure. Further discussion with OEB Staff and the TEC has provided additional clarity and direction on the following specific projects:

- **Technical Reference Manual ("TRM") Development.** Development of the TRM with updated measures and input assumptions is mostly completed and the TEC will continue to finalize the TRM. The management of the online portion of the TRM has been transitioned to OEB Staff,

[3] Incremental costs include capital, cost of removal less salvage value, installation, operating and maintenance and/or fuel costs.

[4] By definition of the TRC test, incentive costs provided to program participants are benefits to participants and are not included as TRC costs.

who will post the final TRM online when it is available. The utilities will continue to manage any remaining contractual obligations and payments related to the TRM.

- **Custom Project Net-to-Gross Study.** Following input from the TEC on a draft work plan prepared by the project consultant currently under contract, this study will be transitioned to OEB Staff. The utilities will continue to manage contractual obligations and payments associated with this project. OEB Staff will assume oversight of the study and will confirm the completion of major milestones for the utilities to process payments of consultant's invoices.
- **Boiler Baseline Study.** The TEC will select the Boiler Baseline proponent with input from OEB Staff. This will be the last order of business for the TEC on this project. The utilities will take over administrative responsibility and accountability for the study following selection of proponent. The EAC will provide input to the utilities on the study, as appropriate.
- **Persistence Study.** OEB Staff will be responsible for the procurement process and management of the Persistence Study, including management of project deliverables and contractual obligations through to completion of the study, with input from the EAC.

2.6 Evaluation Advisory Committee

As detailed in the August 21, 2015 memo from the Board, the EAC provides input and advice as required throughout the DSM evaluation process. The EAC is 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 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 (MOE) and the Environmental Commissioner of Ontario ("ECO"), who will participate as observers.

The OEB has appointed the following non-utility stakeholders as members of the EAC:

- Chris Neme, Energy Futures Group
- Jay Shepherd, Jay Shepherd Professional Corporation
- Marion Fraser, Fraser & Company

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

2.7 Audit of the 2015 DSM Results

Union's 2015 DSM results, as summarized in the DSM Annual Report are subject to an independent external audit. The intention of the audit is to have the Evaluation Contractor provide an opinion on whether the claimed DSM Utility Incentive amount, Lost Revenue Adjustment Mechanism Variance

Account (LRAMVA), and Demand Side Management Variance Account (DSMVA) have been correctly calculated using reasonable assumptions. The EAC, which includes utility representation as described in Section 2.6, provides input and plays an advisory role throughout the audit to facilitate the achievement of the audit objectives.

2.8 Input Assumptions for 2015 Scorecard Targets and Results

On March 27, 2015, Union Gas Limited and Enbridge Gas Distribution Inc. submitted a joint application (EB-2014-0354) that sought approval from the Board for new and updated DSM measures and input assumptions. On July 23, 2015 Union and Enbridge were granted approval of the new and updated DSM measures and input assumptions as set out in the joint application.

The input assumptions outlined in that filing were used in calculating the savings claims that comprise the 2015 DSM scorecard targets and results. This is consistent with Union's letter dated February 3, 2016 (EB-2015-0029) that provided written comments related to the calculation of target metrics and allocation of DSM Utility Incentive amounts. This letter states that "Union's 2015 results for the purpose of determining the 2015 DSM Utility Incentive will be based on the same input assumptions and net-to-gross adjustment factors used for setting Union's 2015 targets. These inputs were finalized in Union's 2014 DSM audit." The Board confirmed this approach as per its revised Decision issued on February 24, 2016 (EB-2015-0029).

3. OEB Data Reporting Requirements

As per section 14.2 of the Guidelines, Union's Annual Report includes the following key elements:

Key element	Table number
Annual and long-term DSM budgets ($/year, and $/6 years)	Table 3.0
Actual annual total DSM costs (including DSM budget[5], overheads, evaluation, DSM Utility Incentive, lost revenues) for each rate class dating back to 2007	Table 3.1
Historic actual annual DSM spending ($/year) dating back to 2007	Table 3.2
DSM spending as a percent (%) of distribution revenue	Table 3.3
Historic annual DSM Utility Incentives amounts available and earned ($/year) dating back to 2007	Table 3.4
DSM Utility Incentive earned as a percent (%) of DSM budget[6]	Table 3.5
Annual and long-term natural gas savings targets (m^3/year, and m^3/6 years)	Table 3.6
Total annual and cumulative gross and net natural gas savings (m^3) for each year of the DSM framework (2015 to 2020)	Table 3.7
Total historic annual and cumulative gross and net natural gas savings (m^3) dating back to 2007	Table 3.8 – Table 3.9
Total annual and cumulative gross and net natural gas savings (m^3) from 2007 to the reporting year as a percent of total annual natural gas sales	Table 3.10 – Table 3.11
Actual annual gas operating revenue ($/year)	Table 3.12
Actual annual operating revenue less cost of natural gas commodity ($/year)	Table 3.12
Total cost of gas ($ million/year)	Table 3.12
Total natural gas sales (m^3/year)	Table 3.13
Number of customers, broken out by rate class and by customer type (i.e., residential, low-income, commercial and industrial, relative to the DSM programs offered by the gas utility) per year	Table 3.14 and Table 3.15

[5] As the request is for actual costs, Union interprets this request to be 'DSM Spending' rather than 'DSM budget'.
[6] Union interprets this request as requesting values as a percentage of 'DSM Spending' rather than 'DSM budget'.

Table 3.0 - Annual and long-term DSM budgets ($000/year, and $000/6 years)

$000/yr.	2015	2016	2017	2018	2019	2020	Total ($/6 years)
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 Conservation	$ 0	$ 548	$ 843	$ 1,088	$ 833	$ 1,053	$ 4,365
Portfolio Level Research, Evaluation and Administration[1,2]	$ 4,717	$ 11,235	$ 5,642	$ 5,642	$ 5,642	$ 5,642	$ 38,520
Inflation	$ 2,497						$ 2,497
Total	**$ 33,988**	**$ 56,821**	**$ 58,570**	**$ 63,272**	**$ 63,269**	**$ 64,350**	**$ 340,270**

1 – 2015 value also includes budgets for the Achievable Potential Study, Future Infrastructure Planning Study and DSM Tracking and Reporting System Upgrades.

2 – 2016-2020 values also include budgets for pilots and DSM Tracking and Reporting System Upgrades.

Table 3.1 - Actual annual total DSM costs (including DSM spend, overheads, evaluation, DSM Utility Incentive, lost revenues) for each rate class dating back to 2007 ($000/year)

$000/yr.	2007	2008	2009	2010	2011	2012	2013	2014	2015
M1	NA	$ 12,107	$ 12,743	$ 11,348	$ 11,498	$ 13,502	$ 13,657	$ 15,415	$ 16,752
M2	$ 11,619	$ 2,487	$ 2,022	$ 2,118	$ 4,097	$ 4,968	$ 5,818	$ 6,728	$ 4,958
M4	$ 1,488	$ 1,353	$ 828	$1 ,098	$ 1,817	$ 3,319	$ 3,244	$ 3,296	$ 3,648
M5	$ 295	$ 1,044	$ 1,226	$ 1,086	$ 3,150	$ 2,660	$ 3,484	$ 2,394	$ 1,421
M7	$ 886	$ 116	$ 256	$ 1,474	$ 1,304	$ 538	$ 571	$ 2,143	$ 3,371
T1	$ 3,147	$ 3,988	$ 5,596	$ 3,964	$ 7,749	$ 6,111	$ 2,265	$ 1,078	$ 892
T2	NA	NA	NA	NA	NA	NA	$ 3,365	$ 2,875	$ 2,674
Rate 01	$ 2,229	$ 2,162	$ 2,093	$ 1,869	$ 3,050	$ 3,532	$ 3,560	$ 4,161	$ 3,555
Rate 10	$ 1,612	$ 1,371	$ 2,293	$ 510	$ 1,109	$ 1,939	$ 1,637	$ 1,613	$ 953
Rate 20	$ 323	$ 496	$ 771	$ 881	$ 1,030	$ 1,607	$ 1,573	$ 1,791	$ 1,006
Rate 100	$ 1,535	$ 4,542	$ 3,950	$ 4,471	$ 1,614	$ 2,305	$ 1,828	$ 1,517	$ 804
Total	**$ 23,134**	**$ 29,666**	**$ 31,778**	**$ 28,818**	**$ 36,417**	**$ 40,481**	**$ 41,001**	**$ 43,011**	**$ 40,035**

Table 3.2 - Historic actual annual DSM spending[1] ($000/year) dating back to 2007

$000/yr.	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total	$ 16,132	$ 20,259	$ 22,038	$ 21,607	$ 27,971	$ 31,322	$ 32,839	$ 33,714	$ 32,393

1 – Includes direct, indirect and DSMVA.

Table 3.3 - DSM spending as a percent (%) of distribution revenue[1]

%	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total	2%	3%	3%	3%	4%	4%	4%	4%	4%

1 – Distribution revenue is equal to the gas distribution margin, and is the gas sales and distribution revenue less the cost of gas where gas sales and distribution revenue is the sum of the delivery revenue and gas supply revenue and earning sharing, if applicable.

Table 3.4 - Historic annual DSM Utility Incentives amounts available and earned dating back to 2007 ($000/year)

$000/yr.	2007	2008	2009	2010	2011	2012	2013	2014	2015
DSM Utility Incentive Earned	$ 6,234	$ 8,696	$ 8,751	$ 6,576	$ 7,634	$ 8,210	$ 7,784	$ 8,988	$ 7,472
DSM Utility Incentive Available	$ 8,500	$ 8,696	$ 8,922	$ 8,939	$ 9,243	$ 10,450	$ 10,682	$ 10,820	$ 11,002

Table 3.5 - DSM Utility Incentive earned as a percent (%) of DSM spend[1]

%	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total	39%	43%	40%	30%	27%	26%	24%	27%	23%

1 – Includes direct, indirect and DSMVA.

Table 3.6 - Annual and long-term natural gas savings targets (m^3/year, and m^3/6 years) [1]

Scorecard	2015	2016	2017	2018	2019	2020
Resource Acquisition	816,561,818	1,214,104,360	1,496,939,054[2]	1,700,748,492[2]	1,715,289,268[2,3]	1,749,595,053[2,3]
Low-Income	43,600,000	56,642,187	64,186,528[2]	71,499,683[2]	76,151,889[2,3]	83,580,811[2,3]
Large Volume	1,236,097,404	1,058,588,072	996,825,303[2]	1,005,036,313[2]	1,040,552,894[2,3]	1,034,420,933[2,3]

1 – Values are cumulative gas savings at the target (100%) band for programs launched in indicated year.

2 – Target is formulaic based on performance in previous year(s). Draft value presented here assumes Union achieves 100% of its cumulative gas savings target in previous year(s) and spends 100% of its budget.

3 – Target setting methodology for 2019 and 2020 assumes same approach as outlined in Decision for 2016-2018 scorecards.

Table 3.7 - Total annual and cumulative gross and net natural gas savings (10^3m^3) for 2015

	Annual Gas Savings		Cumulative Gas Savings	
10^3m^3	**Gross**	**Net**	**Gross**	**Net**
Resource Acquisition	108,356	56,240	1,737,648	919,157
Low-Income	2,356	2,310	53,041	52,181
Large Volume	144,457	66,528	1,691,807	779,428
Total	**255,169**	**125,077**	**3,482,496**	**1,750,765**

Table 3.8 - Total historic annual gross and net natural gas savings (10^3m^3) dating back to 2007

10^3m^3	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Total Net Annual Natural Gas Savings	55,854	61,852	92,604	121,116	139,027	137,438	179,967	131,825	125,077
Total Gross Annual Natural Gas Savings	Not reported for 2007 – 2011					282,177	370,474	267,465	255,169

Table 3.9 - Total historic cumulative gross and net natural gas savings (10^3m^3) dating back to 2007

10^3m^3	**2007-2011**	**2012**	**2013**	**2014**	**2015**
Total Net Cumulative Natural Gas Savings	Not reported for 2007-2011	2,336,351	2,820,834	1,889,459	1,750,765
Total Gross Cumulative Natural Gas Savings	Not reported for 2007-2011	4,777,826	5,752,390	3,752,366	3,482,496

Table 3.10 – Total annual gross and net natural gas savings from 2007 to the reporting year as a percent of total annual natural gas sales[1]

%	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Total annual net natural gas savings as a percent of total annual natural gas sales	0.42%	0.47%	0.75%	0.95%	1.02%	1.03%	1.29%	0.93%	0.93%
Total annual gross natural gas savings as a percent of total annual natural gas sales	Not reported for 2007 – 2011					2.11%	2.65%	1.88%	1.90%

1 – Total natural gas sales include rate classes subject to DSM costs only.

Table 3.11 - Total cumulative gross and net natural gas savings from 2007 to the reporting year as a percent of total annual natural gas sales[1]

%	2007-2011	2012	2013	2014	2015
Total cumulative net natural gas savings as a percent of total annual natural gas sales	Not reported for 2007-2011	17.44%	20.16%	13.30%	13.06%
Total cumulative gross natural gas savings as a percent of total annual natural gas sales	Not reported for 2007-2011	35.67%	41.11%	26.42%	30%

1 – Total natural gas sales include rate classes subject to DSM costs only.

Table 3.12 - Actual annual gas operating revenues ($M/year)

$M/yr.	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gas Sales and Distribution Operating Revenue	$ 655	$ 675	$ 658	$ 699	$ 713	$ 727	$ 772	$ 778	$ 800
Commodity cost of gas	$ 1,156	$ 1,177	$ 1,026	$ 794	$ 755	$ 638	$ 849	$ 977	$ 875
Total	**$ 1,811**	**$ 1,852**	**$ 1,684**	**$ 1,493**	**$ 1,468**	**$ 1,365**	**$ 1,621**	**$ 1,755**	**$ 1,675**

Table 3.13 - Total natural gas sales for rate classes subject to DSM costs (10^3m^3/year)

10^3m^3/yr.	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total	13,158,018	13,231,158	12,327,846	12,778,870	13,654,990	13,396,120	13,992,688	14,204,104	13,404,980

Table 3.14 - Number of customers broken out by customer type per year

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Residential	916,119	931,175	943,129	957,061	969,416	983,542	998,051	1,013,433	1,026,656
Low-Income[1]	258,392	262,639	266,011	269,940	273,425	277,409	281,501	285,840	289,570
Commercial	114,325	115,091	115,403	116,304	116,735	117,518	118,643	119,755	120,237
Industrial	523	520	495	485	475	478	480	466	457
Wholesale	5	5	5	5	5	6	5	5	5
Total	1,289,364	1,309,430	1,325,043	1,343,795	1,360,056	1,378,953	1,398,680	1,419,499	1,436,924

1 – Low-Income customers are estimated to be 22% of all Residential customers.

Table 3.15 - Number of customers broken out by rate class per year

	2007	2008	2009	2010	2011	2012	2013	2014	2015
General Service									
M1	NA	999,490	1,011,147	1,025,698	1,037,146	1,050,659	1,064,399	1,078,289	1,089,633
M2	989,531	5,990	6,566	6,607	6,637	6,689	6,723	6,940	7,752
01	296,979	301,020	304,583	308,846	313,633	319,027	325,057	331,780	336,857
10	2,326	2,405	2,247	2,154	2,160	2,094	2,016	2,019	2,220
Total	**1,288,836**	**1,308,905**	**1,324,543**	**1,343,305**	**1,359,576**	**1,378,469**	**1,398,195**	**1,419,028**	**1,436,462**
Contract									
M4	157	155	145	130	132	143	149	154	159
M7	9	9	6	6	5	4	4	28	28
20	57	57	52	51	49	48	48	48	47
100	16	20	16	16	14	15	14	11	11
T1	53	53	53	53	56	59	38	36	37
T2	NA	NA	NA	NA	NA	NA	22	22	22
M5	128	125	124	130	124	123	111	82	75
Total	**420**	**419**	**396**	**386**	**380**	**392**	**386**	**381**	**379**
Non-DSM Rate Classes									
M9	2	2	2	2	2	2	2	2	2
M10	3	2	2	2	2	3	2	2	2
T3	1	1	1	1	1	1	1	1	1
25	96	101	98	99	94	86	94	85	78
30	1	0	1	0	1	0	0	0	0
77	1	0	0	0	0	0	0	0	0
Total	**1,289,360**	**1,309,430**	**1,325,043**	**1,343,795**	**1,360,056**	**1,378,953**	**1,398,680**	**1,419,499**	**1,436,924**

4. 2015 DSM Program Results Summary

Union's DSM program generated 1,750,765,480 cumulative m³ in natural gas savings for customers. As illustrated in Figure 4.0, the 2015 Commercial / Industrial program delivered the largest portion of savings, followed by the 2015 Large Volume, Residential and Low-Income programs respectively.

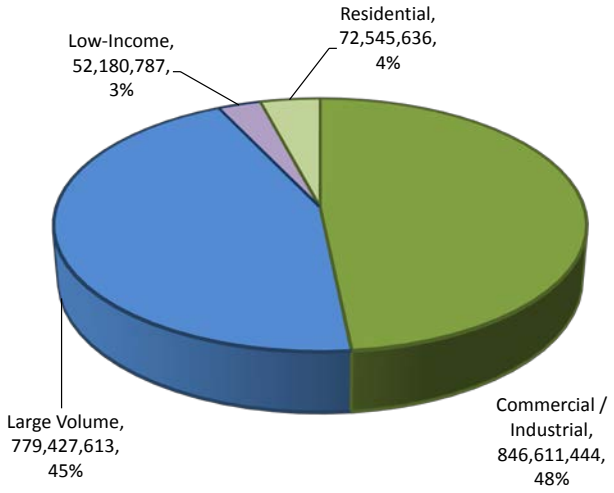


Figure 4.0 - Major Drivers in Natural Gas Savings (Cumulative m³ and Percentage)

Table 4.0 summarizes Union's DSM results by program for 2015, including annual and cumulative natural gas savings, number of units, expenditures, and the associated net TRC and TRC ratio.

Table 4.0 - 2015 Program Results

Program	Annual Net Gas Savings (m^3)	Cumulative Net Gas Savings (m^3)	Units	Expenditures	Net TRC	TRC Ratio
Residential	4,368,514	72,545,636	22,294	$5,450,210	-$921,126	0.94
Commercial / Industrial	51,871,279	846,611,444	3,630	$11,368,397	$106,869,166	3.23
Low-Income	2,309,842	52,180,787	1,603	$7,701,035	$552,817	1.07
Large Volume	66,527,557	779,427,613	150	$3,209,716	$113,820,506	6.97
Optimum Home	0	0	0	$1,405,340	$0	NA
Program Subtotal	**125,077,193**	**1,750,765,480**	**27,677**	**$29,134,697**	**$220,321,362**	**3.44**
Portfolio Costs				$3,044,068		
Portfolio Total				**$32,178,766**[7]	**$217,424,127**	**3.33**

[7] Does not include incremental DSM spend on DSM tracking and reporting system upgrades – see Table 4.1.

DSM costs are detailed on a program level in Table 4.1.

Table 4.1 - 2015 Direct DSM Program Costs

Program	Administration	Evaluation	Promotion	Incentives	2015 Total
Residential	$ 527,197	$ 397,650	$ 972,997	$ 3,552,367	$ 5,450,210
Commercial/ Industrial	$ 2,924,084	$ 100,200	$ 796,336	$ 7,547,777	$ 11,368,397
Low-Income	$ 859,796	$ 196,171	$ 1,195,605	$ 5,449,463	$ 7,701,035
Large Volume	$ 863,933	$ 122,498	$ 4,134	$ 2,219,151	$ 3,209,716
Optimum Home	$ 386,703	$ 0	$ 282,464	$ 736,172	$ 1,405,340
Program Total	**$ 5,561,713**	**$ 816,519**	**$ 3,251,535**	**$ 19,504,930**	**$ 29,134,697**
Portfolio Costs					
Research					$ 329,116
Evaluation					$ 525,012
Administration					$ 2,189,940
Portfolio Total					**$ 3,044,068**
Subtotal	**$ 5,561,713**	**$ 816,519**	**$ 3,251,535**	**$ 19,504,930**	**$ 32,178,766**
Incremental DSM Project Spend[8]					$ 213,879
Total 2015 DSM Spend	**$ 5,561,713**	**$ 816,519**	**$ 3,251,535**	**$ 19,504,930**	**$ 32,392,645**

Net annual and cumulative savings[9] are provided in Table 4.2.

Table 4.2 - 2015 Net Natural Gas Savings

Program	Offering	Annual Net Gas Savings (m^3)	Cumulative Net Gas Savings (m^3)
Residential	Energy Savings Kit	1,179,468	14,800,935
	Home Reno Rebate	3,189,046	57,744,701
Residential Total		**4,368,514**	**72,545,636**
Commercial/Industrial	Prescriptive	9,283,248	182,411,887
	Custom	42,588,031	664,199,557
Commercial/Industrial Total		**51,871,279**	**846,611,444**
Low-Income	Affordable Housing Conservation	874,226	16,333,361
	Home Weatherization Program	1,435,616	35,847,426
Low-Income Total		**2,309,842**	**52,180,787**
Large Volume	Rate T1	8,842,211	121,416,767
	Rate T2	50,153,666	603,578,141
	Rate 100	7,531,680	54,432,706
Large Volume		**66,527,557**	**779,427,613**
Optimum Home	Optimum Home	0	0
Optimum Home Total		**0**	**0**
Portfolio Total		**125,077,193**	**1,750,765,480**

[8] Incremental spend was on DSM Tracking and Reporting System Upgrades.

[9] Gross annual and cumulative gas savings total 255,168,761 m^3 and 3,482,495,645 m^3 respectively. Gross savings refer to the results of Union's 2015 DSM programs without the exclusion of free riders.

5. Resource Acquisition Scorecard

Union has three performance metrics on its resource acquisition scorecard with results attributable to programs addressing the residential and commercial/industrial markets. Resource acquisition programs are programs that seek to achieve direct, measureable savings for customers through the installation of energy efficient equipment and/or energy management systems. These programs also help identify and implement process improvements and/or operation and maintenance activities.

For residential customers, these programs are oriented toward offering incentives for installing energy efficient water or space heating equipment or home building envelope upgrades.

Programs designed for commercial customers include incentives to invest in energy efficient technologies geared for new and existing commercial buildings, such as the purchase and installation of efficient heating, ventilating and air conditioning ("HVAC") systems, and custom solutions specific to the customer's building and/or process needs. Due to the unique nature of industrial customers, solutions for these customers tend to be custom designed and engineered to meet the requirements of the customer's facility.

Union recognizes the inherent value contained in the educational content of its programs and continues to develop and refine the customer awareness and educational components of its resource acquisition programs.

Table 5.0 presents the results of the resource acquisition scorecard, which illustrates an achievement of 131% of the overall scorecard target, resulting in a DSM Utility Incentive of $4.443 million.

Table 5.0 - 2015 Resource Acquisition Scorecard Results

Metrics	Metric Target Levels			Weight	Achievement	% of Metric Achieved	Weighted % of Scorecard Achieved
	Lower Band	Target	Upper Band				
Cumulative Natural Gas Savings (m^3)	612,421,364	816,561,818	1,020,702,273	90%	919,157,080	125%	113%
Deep Savings – Residential	934	1,245	1,556	5%	2,529	306%	15.3%
Deep Savings - C/I	7.88%	8.88%	9.88%	5%	8.08%	60%	3%
					Total Scorecard Target Achieved		***131%***
					Scorecard Incentive Achieved		***$ 4,443,225***

Homes were included in the Residential Deep Savings scorecard metric only if they a) achieve a minimum gas savings of 11,000 cumulative m^3 (based on HOT2000 software used in EnerGuide mode), and b) implement a minimum of two major measures. In addition, the aggregate of all of the homes counted towards the Residential Deep Savings metric must have achieved on average at least a 25% reduction in annual gas usage for space and water heating (also based on HOT2000 software used in EnerGuide mode). Free ridership and spillover do not get included in the calculations for this metric.

Commercial/Industrial Deep Savings calculations are based on the percentage of baseline consumption achieved within all Commercial/Industrial custom projects undertaken in the program year. Union has calculated this metric by comparing the forecast weather normalized annual gas savings for all Commercial/Industrial custom projects against the actual consumption of the participants in those projects for the immediately preceding year. Actual 2014 consumption data for commercial customers with weather sensitive loads has been weather normalized for this calculation, whereas industrial process demands do not fluctuate as a result of weather and therefore have not been weather normalized. For any customer who completed a Commercial/Industrial custom project and also had a prescriptive measure installed, the savings relating to the prescriptive measure have also been included for the purpose of calculating the normalized annual gas savings. Savings associated with custom projects for new construction were not included in this metric.

Table 5.1 presents the results of the Residential and Commercial/Industrial resource acquisition programs. The total spend includes all program costs including incentives.

Table 5.1 - 2015 Resource Acquisition Program Results

Program	Offering	Units	Annual Net Gas Savings (m^3)	Cumulative Net Gas Savings (m^3)	Total Spend	Net TRC	TRC Ratio
Residential	Energy Savings Kit	19,753	1,179,468	14,800,935	$ 5,450,210	$ -921,126	0.94
	Home Reno Rebate	2,541	3,189,046	57,744,701			
Commercial/ Industrial	Prescriptive	3,042	9,283,248	182,411,887	$ 4,071,045	$ 20,453,077	2.81
	Custom	588	42,588,031	664,199,557	$ 7,297,352	$ 86,416,088	3.35
2015 Resource Acquisition Total		**25,924**	**56,239,793**	**919,157,080**	**$ 16,818,608**	**$ 105,948,039**	**2.68**

5.1 Residential Program

Residential offerings are designed to achieve savings related to space and water heating for Union's residential individually metered residences. These offerings are marketed to residential customers and are delivered through a variety of channels including third party delivery agents. Strategic efforts to cost effectively promote energy efficiency within Union's residential customer base, included working with new and existing HVAC contractors and service organizations, as well as offering customer incentives. In 2015, Union focused on the Energy Saving Kit ("ESK") offering (Section 5.1.1) and the Home Reno Rebate ("HRR") offering (Section 5.1.2).

Table 5.2 shows the results of the Residential program and Table 5.3 breaks down the total spend into its components.

Table 5.2 - 2015 Residential Program Results

Program	Offering	Units	Annual Net Gas Savings (m^3)	Cumulative Net Gas Savings (m^3)	Total Spend	Net TRC	TRC Ratio
Residential	Energy Savings Kit	19,753	1,179,468	14,800,935	$ 5,450,210	$ -921,126	0.94
	Home Reno Rebate	2,541	3,189,046	57,744,701			
2015 Residential Total		**22,294**	**4,368,514**	**72,545,636**	**$ 5,450,210**	**$ -921,126**	**0.94**

Table 5.3 - 2015 Residential Program Spend

Item		Total
Incentives	$	3,552,367
Administration	$	527,197
Evaluation	$	397,650
Promotion	$	972,997
2015 Total Residential Program Spend	**$**	**5,450,210**

Table 5.4 shows the calculation of the Residential program's TRC ratio.

Table 5.4 - 2015 Residential Program Cost-Effectiveness

	TRC Benefits (a)	TRC Costs (b)	Net TRC (c)=(a-b)	TRC Ratio (d)=(a/b)
Measures	$ 13,982,611	$ 13,005,895	$ 976,717	1.08
Residential Administration		$ 527,197		
Residential Evaluation		$ 397,650		
Residential Promotion		$ 972,997		
Residential Program Total	**$ 13,982,611**	**$ 14,903,738**	**$ -921,126**	**0.94**

5.1.1 Energy Savings Kit Offering

In 2015, Union distributed 19,753 ESKs and 1,240 programmable thermostats. Union is exiting the ESK and Programmable Thermostat offerings after 2015 as a result of the Board decision on Union's 2015-2020 DSM Plan (EB-2015-0029).

ESKs are pre-packaged measures designed to reduce a customer's energy demand and water consumption.

Each ESK contains the following components:

- Energy efficient showerhead (1.25 GPM)
- Energy efficient kitchen aerator (1.50 GPM)
- Energy efficient bathroom aerator (1.0 GPM)
- Pipe wrap (two 1 meter lengths)
- 1 roll of Teflon tape for ease of showerhead installation
- ESK Installation Guide and MyAccount paperless brochure
- $25 Programmable Thermostat rebate coupon

Target Market

The ESK offering is targeted to Union residential customers who have not previously received a kit and who live in detached, semi-detached houses or individually metered row townhouses. Customers must

also have a natural gas water heater. To be eligible for a programmable thermostat, customers must have a natural gas furnace.

Market Incentive

All water saving measures in the ESK are provided at no cost to the customer. A $25 rebate coupon for the programmable thermostat is included in the ESK.

Market Delivery

Union distributed ESKs using the two delivery methods outlined below.

ESK Door-to-Door Distribution Initiative
A door-to-door distribution approach was the primary delivery method used to reach customers who had not yet received an ESK. Door-to-door distribution made participation simple and easy for customers. Union's delivery agent deployed technicians in field to visit pre-identified customers with free ESKs in the following cities:

- Burlington
- Hamilton
- London
- Milton
- Oakville
- Waterloo
- Windsor

A week prior to field visits, Union mailed a marketing promotional postcard to each pre-identified customer notifying them that Union would be in their neighbourhood delivering a free ESK through its delivery agent over the next few days (Figure 5.0).

Figure 5.0 - Marketing Promotional Postcard for Door-to-Door Distribution

Delivery agent technicians wore a uniform and were equipped with an identification badge that also featured the Union Gas logo. Customers that received an ESK were asked to sign a customer acknowledgment form for tracking and reporting purposes. If a customer was not home, a door hanger was left behind to encourage customers to call a toll free number or go to www.uniongas.com/esk to order an ESK. A total of 12,963 ESKs were delivered through the door-to-door channel.

Bill Insert Coupons and Online Initiative

As a secondary delivery approach, Union provided its customers bill inserts (Figure 5.1) in July and August 2015 and paperless e-bill images in May, June and August 2015 to raise awareness of its ESK offering. The bill inserts and e-bill images provided information on the components of the ESK and directed customers to Union's website where an ESK could be ordered online. Alternatively, the customer could complete the ESK coupon on the bill insert and send it to Union by mail.

In 2015, customers received a total of 6,630 ESKs by ordering online and 160 by mail-in.

Figure 5.1 - ESK Bill Insert Promotional Material

The results for each delivery channel are shown in Table 5.5.

Table 5.5 - 2015 ESK Distribution Summary by Channel

	Door-to-Door	Online Requests	Coupon Mail-in Requests	Total
Units	12,963	6,630	160	19,753

Programmable Thermostat

As part of the ESK offering, Union continued to promote a $25 on-bill rebate for the purchase and installation of a programmable thermostat to its customers. This rebate, offered in the form of a coupon, was distributed through:

- Bill inserts (Figure 5.2)
- ESK insert
- Union's website

Figure 5.2 - Programmable Thermostat Bill Insert

In order to receive the on-bill rebate, customers are required to submit their active Union account number on the completed coupon indicating whether they are replacing a non-programmable thermostat and provide proof of purchase for the programmable thermostat.

5.1.2 Home Reno Rebate Offering

The HRR offering encourages homeowners to install two or more measures in their homes to:

- Achieve significant energy and money savings each year;
- Put a stop to costly home energy loss;
- Enjoy a home that is warmer in the winter and cooler in the summer;
- Avoid unsightly mould and condensation that can be caused by poor insulation; and,
- Improve health through better indoor air quality.

Homes must achieve a minimum natural gas savings of 11,000 lifetime m^3 (based on pre-installation and post-installation energy modelling using HOT2000 software in EnerGuide mode) and implement a minimum of two qualifying measures. These are tracked as 'Deep Savings Homes'.

Target Market

The HRR offering targets Union's residential customers who own a detached, semi-detached or duplex home with a natural gas heating system. In 2015, HRR was offered to all residential customers within Central and Southwestern Ontario.

Market Incentive

Table 5.6 outlines the measures of the HRR offering with the corresponding criteria and incentive.

Table 5.6 - HRR Offering Rebates*

Measure	Criteria		Incentives
Attic Insulation	Increasing attic insulation to at least R50 from R12 or less	$	500
	Increasing attic insulation to at least R50 from R13 to R25	$	250
	Increasing cathedral/flat roof insulation by at least R14	$	500
Basement Insulation	Adding at least R23 to 100% of basement	$	1,000
	Adding at least R12 to 100% of basement	$	500
Crawl Space Insulation	Adding at least R23 to 100% of crawl space wall	$	800
	Adding at least R10 to 100% of crawl space wall	$	400
	Adding at least R24 to 100% floor above crawl space	$	450
Exterior Wall Insulation	Adding at least R9 to 100% of building to achieve a minimum of R12	$	1,500
	Adding at least R3.8 to 100% of building to achieve a minimum of R12	$	1000
Draft Proofing	Achieving 10% or more above base target	$	150
	Achieving base target	$	100
Furnace/Boiler	Replacing a low or mid-efficiency heating system with 95% AFUE or higher condensing natural gas furnace or 90% AFUE or higher ENERGY STAR® condensing gas boiler	$	500
Water Heater	Replacing a water heater with an ENERGY STAR and ecoENERGY-qualified instantaneous natural gas water heater with EF of 0.82 or higher	$	200
Window/Door/Skylight	For each window, door or skylight replaced with ENERGY STAR-models	$	40

*Eligibility criteria required customers to complete pre and post audits, for which they were eligible for a $500 incentive.

Market Delivery

In 2015, Union continued to partner with Service Organizations ("SOs") for the delivery of the HRR offering. Services provided by the Service Organizations included managing a toll-free number, administering pre and post-audits, and tracking and reporting results. The service organizations were:

- Amerispec of Canada
- Barrier Sciences Group
- BuyWise Consulting
- Direct Energy
- Eco Advantage Energy Advisors
- Energuy Canada
- EnerTest Corporation
- Green Communities Canada (REEP, Green Venture and ELORA Environment)
- Ridge Energy Consultants
- Canada Energy Audit

Customers have the option to choose the suppliers and installers for measure upgrades, or complete the installations themselves.

Local Newsprint, Radio and Online Marketing

Union launched local newsprint campaigns targeting customers to generate awareness on the benefits and cost savings associated with home renovations. The newsprint ads directed customers to call one of the service organizations and/or to visit Union's website for additional details. The newsprint campaign ran in Brantford, Burlington, Chatham, London, Waterloo, Windsor, Hamilton, Guelph and Oakville.

Union also launched a 30-second radio ad that ran in Brantford, Hamilton, London, Waterloo, Windsor and Chatham, as well as a geo-coded online marketing campaign that ran on Kijiji (www.Kijiji.ca), Style at Home (www.styleathome.com) and Rogers Home Channel (www.rogers.com) (Figure 5.3).

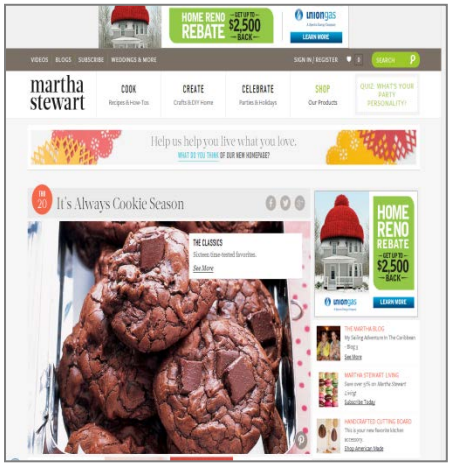


Figure 5.3 - HRR Online Advertising

Customer Brochure

A customer brochure was used by service organizations during their customer calls to explain the offering and as a leave behind for customer reference (Figure 5.4).

Figure 5.4 - HRR Customer Brochure

Door Hangers

Door hangers were used by service organizations and sales teams to promote the offering during their visits. After a visit, the service organization representatives would distribute the door hangers to other homes on the same street (Figure 5.5).

Figure 5.5 - HRR Door Hangers

Website and Bill Inserts

In 2015, Union utilized its owned media channels to promote the program and direct customers to participating Certified Energy Advisors to schedule a pre-renovation energy assessment. This includes the Union's website (www.uniongas.com/homereno) and bill inserts promoting the HRR offering to customers in Central and Southwestern Ontario.

5.1.3 Education and Awareness

Education and awareness efforts in the residential sector affecting consumer decisions are crucial to the success of Union's DSM programs. Union targets educational outreach to customers to empower them to manage their energy costs. In 2015, Union continued to disseminate educational materials through a variety of media:

- Union's interactive website and MyAccount
- Wise Energy Guides
- *InTouch* Monthly Newsletter
- Residential HVAC Newsletter (GasFacts) and Website

Residential Energy Efficiency Website

Energy efficiency, environmental stewardship and conservation are a central focus of Union's website. Under the residential section of the site, there is a dedicated Energy Conservation menu heading (http://www.uniongas.com/residential/save-money-energy) with the following sub-sections:

- **Rebates & Promotions:** Information on Union rebates and promotions to help customers save money and energy;
- **Upgrades & Renovations:** Information about do-it-yourself projects and upgrades to help customers reduce heating and cooling operating costs;
- **Tips to Save Money:** Tips and videos to help customers manage home energy usage; and
- **Energy Saving Resources:** Link to resources about energy efficiency labels and conservation websites.

Features found on the site in 2015 included:

- Online videos (topics include ESKs, draft proofing, and programmable thermostats);
- A downloadable programmable thermostat rebate coupon;
- Downloadable educational materials; and
- An overview of energy efficiency rebate programs offered in the province, as well as links to third party organizations involved in energy conservation.

MyAccount

MyAccount is Union's online account management tool for residential and small business customers. After logging into MyAccount, customers can access personalized tools to help them better understand their energy use including:

- An archive containing 24 months of natural gas use and billing history;
- A "compare bills" feature to graph consumption or bill amounts from two or more months; and
- A download feature to export energy data into a spreadsheet or energy management software.

Wise Energy Guide

In 2015, Union continued to distribute copies of the Wise Energy Guide to customers (Figure 5.6). The guide includes up-to-date tips and solutions to reduce heat loss, suggestions to solve moisture problems, natural gas equipment options, and an easy-to-use checklist to assist customers to achieve greater energy efficiency in the home. The primary distribution method is Union's website, where customers can view a digital copy or order a printed version.

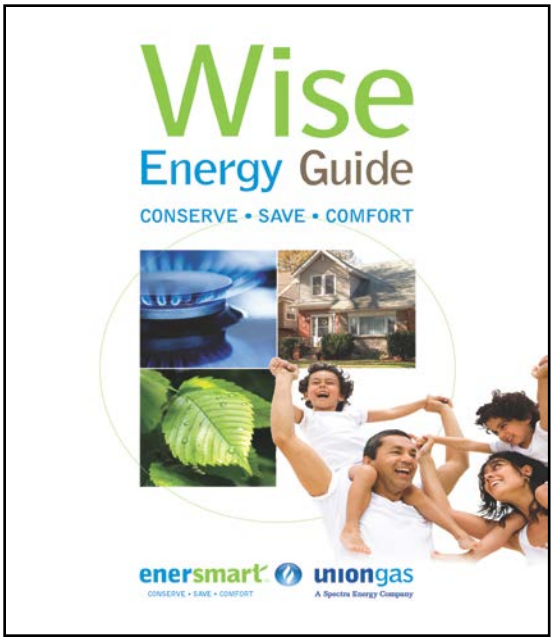


Figure 5.6 - Wise Energy Guide

***intouch* Monthly Newsletter**

Union continues to distribute the monthly *intouch* residential customer newsletter both in print and online (Figure 5.7). The newsletters include educational messages about energy efficiency, natural gas safety and the environmental and financial savings related to using natural gas.

Feature topics included:

- The importance of annual equipment inspections;
- The importance of caulking and weather stripping;
- How to avoid high natural gas bills; and
- Energy conservation programs available.

Figure 5.7 - *intouch* Newsletter

Residential HVAC Newsletter

In 2015, Union continued to target residential HVAC contractors through the GasFacts newsletter. This newsletter provides updates to the HVAC community related to Union's energy efficiency programs, codes and standards, recalls and manufacturers' notifications, as well as rebate offers from Union and third party organizations.

Dedicated HVAC Webpage

The HVAC partners section of the Union website has been designed to inform HVACs and the industry of relevant information, updates, codes and standards, and links to Union's conservation programs. The website hosts past GasFacts editions as well as FAQs, rebate and incentive information, equipment and technical support and other information.

5.1.4 Lessons Learned

ESK and Programmable Thermostat Offering

- ***Union is exiting the offering***
  Union is exiting the ESK and Programmable Thermostat offerings after 2015 as a result of the Board's decision on Union's 2015-2020 DSM Plan. During the delivery of these offerings, Union

learned that they were a valuable means of promoting energy efficiency to its residential customers.

Home Reno Rebate Offering

- ***HRR offering promotion can be a benefit to HVAC sales***
  Union has learned that some contractors may be reluctant to refer customers to the HRR offering because they feel it will impact their ability to close the sale in a timely manner. Others are promoting the HRR offering aggressively and are benefitting from higher sales of energy efficient heating systems utilizing the rebates offered through the HRR offering.

  Union has been actively engaged in promoting the HRR offering to contractors, both through the Residential Account Managers and education sessions. Continued promotion to contractors to address their concerns and demonstrate the benefits of promoting the HRR offering will be a continued focus in the future.

- ***Townhouses are an untapped market***
  In prior program years, Union had exclusively targeted single detached homes for the HRR offering. Union has since learned that semi-detached homes and side-by-side duplexes were an untapped market. In 2015, these homes were made eligible for the program and over 100 of these homes participated.

The HRR offering is successful and creates significant deep savings for participating homeowners. The HRR program offering will continue into 2016.

5.2 Commercial/Industrial Program

A portfolio of energy efficient technology related incentives were available to Commercial/Industrial ("CI") customers in 2015. Union uses the EnerSmart Business brand platform to promote the adoption of high efficiency natural gas technologies, processes, energy audits, surveys, studies and customer education. Union's CI Program is divided into two offerings: prescriptive and custom.

Program savings results, budget spend, and program TRC are presented in Tables 5.7, 5.8 and 5.9 below.

Table 5.7 - 2015 Commercial/Industrial Program Results

Program	Offering	Units	Annual Natural Gas Savings (m^3)	Cumulative Natural Gas Savings (m^3)	Total Spend	Net TRC	TRC Ratio
Commercial/ Industrial	Prescriptive	3,042	9,283,248	182,411,887	$ 4,071,045	$ 20,453,077	2.81
	Custom	588	42,588,031	664,199,557	$ 7,297,352	$ 86,416,088	3.35
2015 Commercial/Industrial Total		**3,630**	**51,871,279**	**846,611,444**	**$ 11,368,398**	**$ 106,869,165**	**3.23**

Table 5.8 - 2015 Commercial/Industrial Program Spend

Item		Total
Incentives	$	7,547,777
Administration	$	2,924,084
Evaluation	$	100,200
Promotion Costs	$	796,336
2015 Total Commercial/Industrial Program Spend	**$**	**11,368,397**

Table 5.9 - 2015 Commercial/Industrial Program Cost Effectiveness

	TRC Benefits (a)	TRC Costs (b)	Net TRC (c)=(a-b)	TRC Ratio (d)=(a/b)
Measures	$ 154,864,976	$ 44,175,191	$ 110,689,786	3.51
Administration		$ 2,924,084		
Evaluation		$ 100,200		
Promotion		$ 796,336		
Commercial/Industrial Program Total	**$ 154,864,976**	**$ 47,995,811**	**$ 106,869,166**	**3.23**

5.2.1 Prescriptive and Quasi-Prescriptive Offering

Union continues to offer DSM prescriptive and quasi-prescriptive measures to more than 120,000 CI customers. These customers are made up of office, retail, multi-unit residential, foodservice, hotel/motel, manufacturing, agriculture, warehouse, entertainment & recreation, and education & healthcare segments. All of these segments fall within CI rate classes M1, M2, M4, M5, M7, R01, R10 and R20.

- **Prescriptive Measures:** These measures have pre-determined deemed savings based on the size and classification of the equipment.
- **Quasi-Prescriptive Measures:** These measures have one or more variable inputs that need to be known for each installation in order to determine natural gas savings. An example of an input is the size or rating of the equipment (e.g. CFM or BTU).

Target Market

Union continues to approach segments within the CI market uniquely based on the business/industry type. Segmenting based on business type means that Union targets each segment with customized communications. This approach allows Union to use resources more effectively in order to educate business customers about potential energy savings. Segmenting based on business type also provides Union with market insights, allowing for a better understanding of Union's CI customer base and barriers for DSM uptake.

Market Incentive

In 2015, Union offered prescriptive incentives as outlined in Table 5.10 as well as additional incentives discussed below.

Table 5.10 - Commercial/Industrial Prescriptive Offering Incentives

Initiative	Measure	Customer Incentive	Service Provider	Distributor Incentive
Water Heating	Condensing Gas Water Heaters - 100, 500 & 1,000 gal/day/tank	$ 350	$ 100	$ 50
	Laundry Washing Equipment with Ozone - ≤ 120 lbs & 100,000 - 199,999 lbs/yr	$ 1,000	$ 100	
	Laundry Washing Equipment with Ozone - ≤ 120 lbs & ≥ 200,000 lbs/yr	$ 1,500	$ 100	
	Laundry Washing Equipment with Ozone - > 120 lbs & ≥ 260,000 lbs/yr	$ 6,000	$ 100	
	Energy Star Dishwasher - Stationary Rack & Under counter	$ 100	$ 50	
	Energy Star Dishwasher - Rack Conveyor - Single & Multi Tank	$ 400	$ 50	
Space Heating	Air Curtains - ≥ 48ft^2 and < 96ft^2 – Pedestrian	$ 250	$ 100	
	Air Curtains - ≥ 96ft^2 – Pedestrian	$ 500	$ 100	
	Air Curtains - ≥ 64ft^2 and < 96ft^2 - Shipping and Receiving	$ 1,000	$ 100	
	Air Curtains - ≥ 80ft^2 and < 100ft^2 - Shipping and Receiving	$ 1,000	$ 100	
	Air Curtains - ≥ 100ft^2 - Shipping and Receiving	$ 1,500	$ 100	
	Condensing Boiler - ≤ 299 MBtu/hr	$ 600	$ 100	$ 50
	Condensing Boiler - 300 to 999 MBtu/hr	$ 1,500	$ 100	$ 50
	Condensing Boiler - ≥ 1,000 MBtu/hr	$ 4,500	$ 100	$ 50
	Condensing Rooftop Units (MUA) Improved efficiency 1,000 – 4,999 CFM	$ 500	$ 100	
	Condensing Rooftop Units (MUA) Efficiency + 2 speed 1,000 – 4,999 CFM	$ 1,000	$ 100	
	Condensing Rooftop Units (MUA) Improved efficiency ≥ 5,000 CFM	$ 1,200	$ 100	
	Condensing Rooftop Units (MUA) Efficiency + VFDs 1,000 – 4,999 CFM	$ 1,400	$ 100	
	Condensing Rooftop Units (MUA) Efficiency + 2 speed ≥ 5,000 CFM	$ 1,800	$ 100	
	Condensing Rooftop Units (MUA) Efficiency + VFDs ≥ 5,000 CFM	$ 2,600	$ 100	
	Destratification Fan	$ 1,300	$ 100	
	ERV - ≤ 1,999 CFM	$ 600	$ 100	$ 50
	ERV - ≥ 2,000 CFM	$ 1,500	$ 100	$ 50
	HRV Multi Family, Health Care, Nursing	$ 400	$ 100	$ 50
	HRV 500 - 1,999 CFM - Hotel, Rest, Retail, Rec, School, Off, Warehouse, Man	$ 400	$ 100	$ 50
	HRV ≥ 2,000 CFM - Hotel, Rest, Retail, Rec, School, Off, Warehouse, Man	$ 700	$ 100	$ 50
	Infrared Heating*	$ 300	$ 100	$ 50
	Demand Control Ventilation (DCV) Retail, Rooftop Unit (RTU)/MUA < 5,000 sq ft	$ 150	$ 50	
	DCV Retail RTU/MUA ≥ 5,000 sq ft	$ 350	$ 50	
	DCV Office RTU/MUA < 2,500 sq ft	$ 100	$ 50	
	DCV Office RTU/MUA ≥ 2,500 sq ft	$ 200	$ 50	
Commercial Kitchen	Cooking Equipment - Energy Star Fryer	$ 200	$ 50	
	DCKV Fast Food - ≤ 4,999 CFM	$ 1,200	$ 100	
	DCKV Full Menu - 5,000 – 9,999 CFM	$ 3,000	$ 100	
	DCKV Dinner House - 10,000 – 15,000 CFM	$ 4,000	$ 100	

*Service Provider Incentive to HVAC contractors only.

National Account Multi Unit Incentive

National Account customers are those that have multiple property locations throughout Union's franchise with similar design and use, such as retail chains, property management firms and foodservice chains. National Account customers have the ability to install various different energy efficient technologies within numerous locations across Union's franchise. Recognizing that this customer group

has a greater number of savings opportunities, Union continued to offer a multi-unit installation bonus incentive in 2015:

- 25% incentive increase on 6-30 installations per National Account
- 50% incentive increase on 30 or more installations per National Account

Hotel and Motel Ozone Laundry Incentive
Hotel and motel customers are sometimes reluctant to install ozone laundry due to low awareness of the technology's benefits and its high costs. Union continued to offer the following additional incentive to hotel and motel customers who participated in the Ozone Laundry initiative in 2015:

- $200 per unit – Washer Extractor ("WE") < 120 lbs capacity & 100,000 - 199,000 lbs laundry/year
- $500 per unit – WE < 120 lbs capacity & >200,000 lbs laundry/year
- $800 per unit – WE > 120 lbs capacity & > 260,000 lbs laundry/year

Market Delivery

To reach CI customers, Union continued to implement a combination of the following approaches:

- **Direct Sales Approach.** With this approach, Union works directly with the end-use customer to provide education on potential options to improve the energy efficiency of their facilities, offerings available to facilitate those options, and how the application process works. The direct sales approach requires working with multiple contacts within an organization as well as service providers, manufacturers and distributors who are instrumental in affecting a decision to install energy efficiency technologies;
- **Mass Market Approach.** Union uses a number of mass marketing techniques to target the end-use customer such as the Union webpage, bill inserts, direct mails, email blasts, and advertising. Union also uses event based marketing including tradeshows, customer workshops and other similar events to reach a large number of customers and industry partners; and
- **National Account Approach.** Union's National Account managers communicate and influence end-use customers who make decisions using a top-down, centralized approach. National Account customers are those that have multiple property locations throughout Union's franchise with similar design and use, such as retail chains, property management firms and foodservice chains.

Not only does Union reach and influence the market through the above direct sales, mass market and National Account approaches, but support is also provided through a network of industry partners. These industry partners specify or install energy efficient equipment and/or directly educate or influence Union's customers to adopt natural gas energy efficient equipment. Maintaining and cultivating relationships with each of the following industry partners ensures that they are informed of Union's programs and that they can present the savings, benefits and incentives to customers:

- **Service Providers.** Architectural consultants, builders, HVACs, engineering consultants and energy service companies all carry significant influence with end-use customers;
- **Associations.** Associations align with segment-specific approaches to market and provide industry insight necessary to design programs that resonate with customers and drive action;
- **Manufacturers.** Manufacturers of the technologies that Union promotes provide insight into product benefits, as well as effective methods of influencing the market; and
- **Distributors.** Distributors influence the market and their contractor customers. Contractors then influence the end-use customers installing the equipment.

By employing various market approaches and tailoring initiatives to specific business segments, Union is able to ensure communication with customers is relevant to their needs. For this report, prescriptive and quasi-prescriptive measures are grouped as Water Heating, Space Heating, and Kitchen initiatives.

5.2.1.1 Water Heating Initiative

The Water Heating initiative is designed to reduce a customer's energy use and water consumption. In 2015, Union offered incentives for the following technologies:

- **Condensing Gas Water Heater.** High efficiency gas water heaters that operate at 95% thermal efficiency. This thermal efficiency is higher than that of conventional tank type water heaters, which operate at 80% efficiency. Installation of high efficiency gas water heaters results in faster hot water cycle times and therefore reduces building operating and energy costs; and
- **Ozone Laundry**. A piece of auxiliary equipment added onto a new or existing commercial washing machine that reduces the amount of hot washing and drying times required to achieve the same standard of cleaning.

Target Market

Within the Water Heating initiative, there are specific target markets depending on the technology:

- Condensing gas water heaters were targeted to multi-unit residential, foodservice, education, entertainment, recreation, and healthcare customers; and
- Ozone laundry was marketed to customers with large volumes of laundry such as hotels, motels, laundry services and long-term care facilities.

Market Incentive

The following incentives were offered to the end-use customer:

- Condensing gas water heater: $350 per unit
- Ozone laundry
    - Ozone WE =< 60 lbs cap & 100,000 to 199,999 lbs/yr: $1,000 per unit
    - Ozone WE =< 60 lbs cap & =>200,000 lbs/yr: $1,500 per unit
    - Ozone WE > 60 lbs and =< 120lbs cap & => 200,000 lbs/yr: $1,500 per unit
    - Ozone WE > 120 lbs and < 500lbs cap & > 260,000 lbs/yr: $6,000 per unit

Union offered a special segment-specific additional incentive of $250 per unit to hotel/motel customers and $800 per unit to laundromat customers with large laundry facilities to encourage uptake of ozone laundry.

Market Delivery

Water heating marketing efforts included promotion through direct sales, mass marketing, bill inserts and National Accounts. In 2015, Union continued to collaborate with technology manufacturers and service providers to effectively reach and influence early technology adopters, primarily in the National Account, hotel/motel and long-term care markets. Union's Business webpage (www.uniongas.com/business) offered online education tools and resources that helped inform customers on how to manage energy use. Union also exhibited at tradeshows and association events, such as PM Expo, to target National Account retail and hotel/motel customers and promote water heating measures. Multi-family customers also remained a focus with exhibits at various local property manager associations and tradeshows in London, Waterloo and Hamilton.

5.2.1.2 Space Heating Initiative

The Space Heating initiative is designed to stimulate customer action towards retiring older inefficient space heating equipment and installing new energy efficient space heating equipment. In 2015, Union offered incentives for the following:

- **Air Curtains**. This technology delivers a controlled stream of air that separates the indoor and outdoor environment. Air curtains reduce infiltration of cold or hot outside air through doorways, significantly reducing natural gas heating in winter and air conditioning in summer. Air curtains are often used where doors stay open for long periods of time. Typical examples include shipping docks and retail or office entrances;
- **Condensing Boilers**. Condensing boilers recover energy that would normally be discharged into the atmosphere through a flue. This improves heating efficiency by approximately 15-20% compared to conventional boilers, resulting in reduced gas bills. They also require less space, offering more flexibility in small environments;
- **Condensing Make-Up Air Units ("MUAs")**. These units are indirect gas fired and provide fresh air to common areas in commercial buildings. The majority of furnaces built into rooftop units are mid efficiency units with efficiencies ranging from 78% to 82%. Condensing technology offers improved efficiencies of 90% and above. A high 'turn down' feature results in lower operating costs, better control, and increased comfort. There are three sub-categories for this technology:
    - Improved efficiency
    - Efficiency + 2 speed
    - Efficiency + Variable Frequency Drives ("VFDs")
- **Destratification Fans**. Large downdraught destratification fans bring heat down from the ceiling to mix with cooler floor temperature air, which helps create a comfortable temperature where it is most needed. Facilities with large stratified temperature differences have the greatest potential for energy savings;

- **Energy Recovery Ventilation ("ERV") and Heat Recovery Ventilation ("HRV")**. ERVs capture heat and moisture, while HRVs capture heat. The recovered heat energy from the indoor air is used to heat air entering the building. ERVs and HRVs reduce the energy use associated with heating the space and related energy costs, and make the ventilation system operate more efficiently;
- **Infrared Heaters**. Infrared heaters help customers conserve energy and money, as they deliver heat directly to where it is needed instead of heating the air within a space, like traditional forced air heating systems. This technology is especially beneficial in large volume buildings that do not require a steady state of heat or where there is a large amount of air exchange, such as near a loading dock; and
- **Demand Control Ventilation ("DCV")**. This technology uses carbon dioxide sensors designed to control the amount of air exchanged (fresh air coming in, stale air leaving the building) based upon occupancy. Occupancy is measured by the amount of carbon dioxide in the air through sensors that control the amount of air exchanged from the rooftop/MUA units.

Target Market

Within the Space Heating initiative, there are specific target markets depending on the technology as detailed below:

- Air curtains were targeted to warehouse, retail and manufacturing segments;
- All CI customers were eligible for the condensing boiler measure;
- Condensing MUAs were targeted primarily to multi-unit residential and healthcare segments as well as all other segments where the technology is appropriate;
- Destratification fans were targeted to warehouse, manufacturing and retail customers whose facilities have high ceilings;
- All CI customers were eligible for ERVs/HRVs provided that an engineer stipulates that it is not a code requirement;
- Infrared heaters were targeted to warehouse, agriculture, retail and manufacturing customers; and
- DCV were targeted to office and retail customers.

Market Incentive

The incentives in Table 5.11 were offered to the CI customer.

Table 5.11 - Commercial/Industrial Space Heating Initiative Incentives

Measure	Customer Incentive ($ per Unit)[1]
Air Curtains (Shipping Doors)	$ 1,000 - $ 1,500
Air Curtains (Pedestrian Doors)	$ 250 - $ 500
Condensing Boilers	$ 600 - $ 4,500
Condensing MUAs (Improved Efficiency)	$ 500 - $ 1,200
Condensing MUAs (Efficiency + 2 Speed)	$ 1,000 - $ 1,800
Condensing MUAs (Efficiency + VFDs)	$ 1,400 - $ 2,600
Destratification Fans	$ 1,300
ERVs	$ 600 - $ 1,500
HRVs	$ 400 - $ 700
Infrared Heaters	$ 300
DCV retail RTU/MUA < 5,000 sq ft	$ 150
DCV retail RTU/MUA ≥ 5,000 sq ft	$ 350
DCV office RTU/MUA < 2,500 sq ft	$ 100
DCV office RTU/MUA ≥ 2,500 sq ft	$ 200

1 – Incentive varies with size of equipment.

Market Delivery

In 2015, promotion of space heating technologies included direct sales, mass marketing, bill inserts and National Account market approaches. Focus was on building and maintaining relationships with industry partners to ensure education and awareness of Union's programs. In addition, the Union business webpage offered educational tools to help the mass market learn how to manage its energy use. Union also participated in segment specific tradeshows, workshops and industry events to highlight available incentives.

5.2.1.3 Commercial Kitchen Initiative

The Commercial Kitchen initiative is designed to encourage food establishment owners and operators to install high efficiency technologies that are designed to reduce hot water consumption and natural gas use. In 2015, Union offered incentives for the following:

- **Energy Star Fryers**. Energy Star rated fryers are 20-50% more efficient than traditional cooking equipment;
- **Demand Control Kitchen Ventilation ("DCKV")**. Traditional ventilation systems operate at only one speed, whereas the speed of DCKV systems automatically respond to changes in cooking volume and heat, resulting in much greater efficiency. The prescriptive savings for DCKV were based on three ranges of total range hood exhaust: 0 – 4,999 CFM, 5,000 – 9,999 CFM, and 10,000 – 15,000 CFM; and
- **Energy Star Dishwashers**. Energy Star rated commercial dishwashers reduce energy and water consumption and improve performance. On average, they are 25% more energy efficient and 25% more water efficient than standard models. Models include under counter, stationary and conveyor.

Target Market

Energy Star fryers, DCKV, and Energy Star dishwashers were targeted to the following commercial kitchen customer segments: foodservice, hotel/motel, education and healthcare.

Market Incentive

- Energy Star fryers: $200 per unit
- DCKV
  - Up to 4,999 CFM: $1,200 per unit
  - 5,000 to 9,999 CFM: $3,000 per unit
  - 10,000 to 15,000 CFM: $4,000 per unit
- Energy Star dishwasher
  - Under counter and stationary rack: $100 per unit
  - Rack conveyor: $400 per unit

Market Delivery

Commercial kitchen marketing efforts included promotion through direct sales, targeted direct market communication such as bill inserts (Figure 5.8), participation at tradeshows and a National Accounts approach. The National Accounts approach in the foodservice segment focused on program uptake from select foodservice organizations within Union's franchise. To further enhance these efforts, Union focused on continued relationship management with manufacturers to support awareness of Union's offerings and to ensure that the program offering was being promoted to their customers.

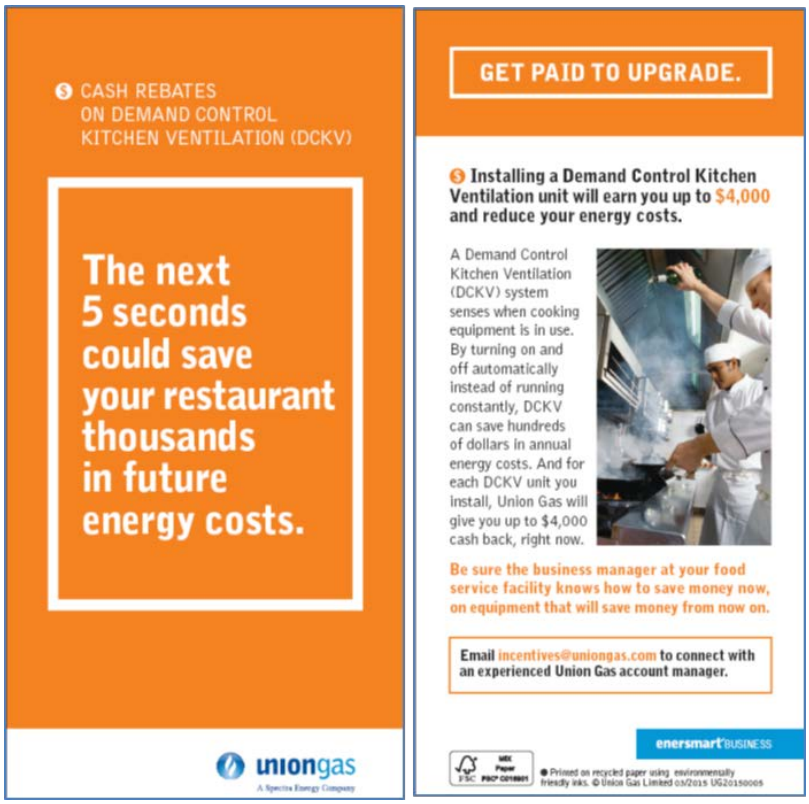


Figure 5.8 - DCKV Brochure

2015 Prescriptive and Quasi-Prescriptive Offering Highlights

Marketing Initiatives

- Union developed a case study featuring one of its commercial national account customers to demonstrate how the decision to install energy efficient technology can lead to energy savings for retail and office customers. The case study highlighted air curtains and DCV and provided information on project costs, energy savings and payback. This case study was included in the "Small Business Energy Saving Guide "Helping Businesses Save Energy" published by the Ministry of Energy.

Program education and awareness

- Union partnered with several associations, including the Association of Municipalities of Ontario ("AMO") and sponsored the Local Authority Services ("LAS") Workshops across Union's franchise. Workshops featured information on understanding energy and value of energy efficiency projects. Sessions targeted decision makers within the public sector; and
- Union published a bi-monthly newsletter called Energylink delivered with the customer bill. This newsletter featured information on energy efficient equipment, savings and incentives available

from Union. The newsletter also provided the customer with information to help manage their account online through MyAccount.[10]

Focus on associations

- Industry associations are a credible source of information that members trust. In 2015, Union partnered with over 25 key associations to communicate the benefits of its energy efficiency programs. Union's participation included presentations at association events, exhibiting at tradeshows and sponsorship;
- Union is an active participant and supporter of energy improvement initiatives across its franchise. Union's employees strive to volunteer their time and expertise to improve upon the communities within which they work and live. Specifically, Union is a proud sponsor of the Race to Reduce and its expansion into Union's franchise areas of Burlington, Oakville, Milton and Hamilton. The Race to Reduce is a program that promotes collaboration between office building landlords and tenants to encourage energy saving behaviour; and
- Union also partnered with the City of Greater Sudbury for the development of its "EarthCare EcoGuide". The guide was developed specifically for businesses in the Sudbury area to educate and promote energy efficiency programs, natural gas, electricity and water.

5.2.2 Custom Offering

Union also focuses on advancing customer energy efficiency and productivity by providing a mix of custom incentives, education and awareness to CI customers across all segments. The objective of the Custom offering is to generate long-term and cost effective energy savings for Union's customers.

Target Market

The Custom offering covers opportunities where energy savings are linked to unique building specifications, design concepts, processes and new technologies that are outside the scope of prescriptive and quasi-prescriptive measures. The offering and incentives are targeted directly to the end user, while trade allies involved in the design, engineering and consulting communities assist to expand the message of energy efficiency.

Market Incentive

Various incentives are available for custom participants specific to education and audit assessments, and the resource acquisition incentive value for projects is $0.10 per annual m^3 of natural gas saved.

Market Delivery

There are numerous components to the Custom offering, many of which involve customer education designed to increase awareness of energy efficiency opportunities and benefits. These include the following:

[10] MyAccount provides anytime access to historical consumption information, bills and payments.

Customer Engagement - Communication and Education
Union provided education, training and technical expertise and offered a wide variety of materials aimed at building an increased awareness of energy efficiency opportunities and benefits.

Engineering Feasibility and Process Improvement Studies
Union supported the completion of studies to identify and quantify potential energy savings measures. Furthermore, Union supported comprehensive process improvement studies to determine and assess financial costs and benefits of energy efficiency opportunities, supporting the customer's internal decision making process.

Operation and Maintenance
Union's O&M custom projects are those for which Union works with the customer to identify and incent projects that the customer would not have otherwise completed that are related to the repair, replacement, or optimization of an existing piece of equipment or system.

New Equipment and Processes
Union provided financial incentives to support the installation of new equipment and processes, which result in saving natural gas, energy efficiency gains and/or improvements in the productivity of customer's operations. These incentives were available for customers with or without an engineering feasibility or process improvement study.

Energy Management
Union provided financial incentives to support the installation of energy meters, monitoring and management systems, allowing customers to manage the energy intensity of their operations actively and continuously.

2015 Custom Offering Highlights

Union continues to utilize a rigorous quality control process for all custom projects. Each custom project is assessed by Union's internal project review and verification Quality Assurance/Quality Control ("QA/QC") team prior to external verification and audit. The review is conducted by engineers within Union's custom CI project team. The custom project team reviews and confirms the calculated savings through evaluation of project and customer-specific factors including:

- Reasonableness of base case assumptions;
- Confirmation of high-efficiency case assumptions;
- Reasonableness of project life assumptions (EUL);
- Confirmation of "other" factors affecting gas demand (e.g. production and weather); and
- Confirmation of customer project costs.

Union uses standard calculators to estimate natural gas savings for a selection of commercial custom projects. The standard calculators used in 2015 were:

- Formula 1 laundry
- Destratification fan
- Make-up air VFD retrofit
- Make-up air
- High extraction washer (>300G)
- Hot water heating
- Roof insulation
- Boiler combustion control
- Window
- Dock door seals

Performance Based Conservation Pilot

The Performance Based Conservation ("PBC") pilot was launched in 2015 with CI customers. It is a data-driving pilot for customer engagement, project identification and energy savings verification. PBC takes a holistic approach to energy conservation and management and drives continuous improvement. Its activities focus on benchmarking, targeting and identifying the highest savings potential based on market segment.

The pilot is led by the Toronto Region Conservation Authority and Enerlife Consulting. Project Partners include: Union, Enbridge, IESO, Halton Hills Hydro, Milton Hydro, Brampton Hydro One, Region of Peel Water, Halton Region Water, and the Real Property Association of Canada (REALpac).

Pilot goals are to:

- Enroll up to 150 buildings
- Quantify energy (electricity and gas) and water savings opportunities
- Identify high-potential buildings
- Determine facility-specific conservation measures
- Make the case for implementing energy efficiency projects
- Monitor and verify performance improvements

Energy Pathfinder Initiative

The Energy Pathfinder Initiative is a pilot project initiated by the Canadian Manufacturers and Exporters ("CME") in collaboration with ICF International, Union, Enbridge, IESO and Hydro One Networks Inc. The project is designed to explore, define and quantify the opportunity for optimizing end-use operations and energy intensive processes, and to develop best practices for energy optimization and waste energy reduction within the Ontario manufacturing sector.

5.2.3 Education and Awareness

Union offers a wide variety of materials and workshops aimed at building awareness for energy efficiency in the customer's facility. The focus is on educating the customer and their employees on how to identify energy conservation opportunities and supply them with the resources to research and evaluate possible solutions. For example, Union supported the Canadian Healthcare Engineering Society ("CHES") in its initiative to educate healthcare officials interested in energy planning and opportunity identification. Other specific customer education and awareness efforts included:

Canadian Boiler Society ("CBS") Educational Days: High Performance Boiler Solutions that Improve Your Bottom Line

Union partnered with the Canadian Boiler Society to deliver educational forums in London, Burlington, and Toronto to over 60 attendees (Figure 5.9). Information shared with participants included common boiler solutions to increase energy efficiency and how to save natural gas, with a focus on boiler selection and sizing, operation and maintenance, burner upgrades for lower emissions, and improved performance.

Figure 5.9 - Educational Day Brochure

Conferences and Seminars

To further educate and engage customers, Union participated in energy conservation panel discussions and presented at a number of conferences throughout 2015, including:

- Consortium for Energy Efficiency ("CEE") Industry Partners Meeting
- Energy 2015: Competitive Advantage through Energy with CME
- Canadian Boiler Society Technology Day Seminars/Conference
- Canadian Healthcare Engineering Society Conference
- SWITCH Ontario Hot Mix Producers Association Meeting

Union sponsored energy conservation seminars in 2015, including:

- Union's Taking Charge of Electricity Costs Webinar and Meeting
- Union's Managing Energy 2015 Conference
- Union's Large CI Customer Conference
- Union's Greenhouse Growers Luncheon
- Energy Monitoring Targeting and Reporting ("MT&R") Workshop

***GasWorks* Newsletter**

GasWorks is a technology and energy conservation newsletter targeted to large users of natural gas. *GasWorks* provides industry trends, technology and energy efficiency information to help businesses improve process productivity, enhance reliability of equipment and control energy expenses. The newsletter provides links to Union's website and energy efficiency programming as well as various tools, calculators, an online resource library, and an "Ask an Expert" service to provide technical advice.

5.2.4 Lessons Learned

Prescriptive and Quasi-Prescriptive Offering

- ***Channel partners play an important role***
  Channel partners including service providers, distributors and design architects play a vital role in the decision making process for the purchase of energy efficient technology. Union will continue to develop and enhance its relationships with channel partners to better understand and reach small to medium-size business customers.

- ***Opportunities to increase energy efficiency awareness will be explored***
  Awareness of energy efficiency continues to be lower in small to mid-size CI customer segments, specifically non-account managed customers. For the purpose of improving overall energy efficiency literacy in the CI market and to drive participation in DSM programming, Union will continue to explore opportunities to provide targeted education and awareness strategies.

Custom Offering

- ***IR Poly Project funding is being discontinued***
  An assessment of current greenhouse market practices in Union's franchise has indicated that infrared polyethylene (IR Poly) roof membranes have now become standard practice for new and existing greenhouse projects. Recognizing this successful transformation in the greenhouse market, Union discontinued its custom IR Poly incentives for greenhouses at the end of Q3 2015.

- ***Project basecase documentation has been augmented***
  For the 2015 program year, Union has implemented a formalized basecase documentation form to be filled out by participating customers. This form will augment Union's existing basecase documentation. The form explicitly documents each customer's basecase practices, absent Union's influence.

Union will continue to offer its CI prescriptive and custom offerings in 2016.

6. Low-Income Scorecard

Low-income programs are similar in nature to resource acquisition programs, but are separated to recognize the specific needs of this customer group. They may result in lower TRC net savings than non-low-income programs although they provide various other benefits that are difficult to quantify.[11] These programs also more adequately address the challenges involved in identifying and providing DSM programs that meet the special needs of this consumer segment. Like resource acquisition programs, low-income programs seek to achieve direct, measureable savings customer-by-customer and involve the installation of energy efficient equipment.

Table 6.0 presents the results of the Low-Income Scorecard. Union achieved 140% of the overall scorecard target, resulting in a DSM Utility Incentive of $2.463 million.

Table 6.0 - 2015 Low-Income Scorecard Results

Metrics	Metric Target Levels			Weight	Achievement	% of Metric Achieved	Weighted % of Scorecard Achieved
	Lower Band	Target	Upper Band				
Cumulative Natural Gas Savings from Single Family (m^3)	19,500,000	26,000,000	32,500,000	60%	35,847,426	176%	105%
Cumulative Natural Gas Savings from Multi-Family (m^3)	13,200,000	17,600,000	22,000,000	40%	16,333,361	86%	34%
					Total Scorecard Target Achieved		***140%***
					Scorecard Utility Incentive Achieved		***$ 2,462,534***

The Single Family metric consists of cumulative natural gas savings from the Home Weatherization Program ("HWP") offering. The Multi-Family metric consists of cumulative natural gas savings from the Affordable Housing Conservation ("AHC") offering.

6.1 Low-Income Program

The Low-Income program is designed to reduce the energy burden facing low-income single family and multi-family dwelling customers. In 2015, Union's low-income single family HWP offering consisted of building envelope measures. Details for this offering are located in section 6.1.1. Union's multi-family market AHC offering provided municipalities and social and assisted housing owners with enhanced incentives on all multi-family prescriptive and custom measures currently offered in the Commercial/Industrial program. Details of this offering are located in section 6.1.2.

Table 6.1 shows the results of the Low-Income program. The total spend for the Low-Income program is administered on a program level. Table 6.2 breaks down the total spend into its components.

[11] These various benefits not captured by the traditional net TRC savings measure may include reduction in arrears management costs, increased home comfort, improved safety and health of residents, avoided homelessness and dislocation, and reductions in school dropouts from low-income families.

Table 6.1 - 2015 Low-Income Program Results

Program	Offering	Units	Annual Natural Gas Savings (m^3)	Cumulative Natural Gas Savings (m^3)	Total Spend	Net TRC	TRC Ratio
Low-Income	Affordable Housing Conservation	131	874,226	16,333,361	$ 7,701,035	$ 552,817	1.07
	Home Weatherization Program	1,472	1,435,616	35,847,426			
2015 Low-Income Total		**1,603**	**2,309,842**	**52,180,787**	**$ 7,701,035**	**$ 552,817**	**1.07**

Table 6.2 - 2015 Low-Income Program Spend

Item	Total
Incentives	$ 5,449,463
Administration	$ 859,796
Evaluation	$ 196,171
Promotion	$ 1,195,605
2015 Total Low-Income Program Spend	**$ 7,701,035**

Table 6.3 shows the calculation of the Low-Income program's TRC ratio.

Table 6.3 - 2015 Low-Income Program Cost Effectiveness

	TRC Benefits (a)	TRC Costs (b)	Net TRC (c)=(a-b)	TRC Ratio (d)=(a/b)
Measures	$ 8,878,229	$ 6,073,840	$ 2,804,389	1.46
Low Income Administration		$ 859,796		
Low Income Evaluation		$ 196,171		
Low Income Promotion		$ 1,195,605		
Low-Income Program Total	**$ 8,878,229**	**$ 8,325,413**	**$ 552,817**	**1.07**

6.1.1 Home Weatherization Program Offering

The HWP offering provides low-income customers living in single family homes with a free home energy audit and upgrades including attic insulation, wall insulation, basement insulation and draft proofing measures. Basic measures including showerheads, aerators, pipe insulation and programmable thermostats are provided to qualified customers at the time of the home energy audit if they have not previously received them.

Target Market

This offering targets customers who meet the following criteria:

- Income is at or below 135% Low-Income Cut-Off ("LICO"); and
- Occupants of a single/semi-detached, town/row house or low-rise multi-family housing (3 stories or less);

And are either:

- Private homeowners or tenants who pay their own gas bills; or
- Tenants residing in social and assisted housing, regardless of who pays the gas bills.

Income verification is required to participate in this offering.

In 2015 Union expanded the geographic reach of the HWP offering into smaller communities, like Ingersoll, Walkerton, Hanover, Wingham and Dunnville. Union also continued to focus on Southwestern Ontario communities, including Cambridge, Hamilton, Waterloo, Windsor, London, Grey Bruce County, Huron County, Sarnia and St. Thomas, as well as Northern Ontario communities, including Sudbury, Thunder Bay and North Bay, in addition to Belleville and Cobourg.

Market Incentive

The HWP offering is delivered at no cost to the customer. Customers participating in this program can receive all recommended thermal envelope upgrades as determined through the free energy audit at no cost. Customers can expect to reduce gas consumption, lower gas bills, and benefit from a quieter and more comfortable home.

Market Delivery

Union's main approach to delivering the HWP offering is to work with experienced and reliable delivery agents to perform energy audits and measure installation. Measures that are installed in the home are determined by a free home energy audit performed by a Certified Energy Auditor. Union installs all cost effective measures, while maintaining a portfolio TRC ratio of 0.7 or greater. After the measures are installed, a second home energy audit is conducted to verify the natural gas savings realized.

Union was successful in delivering the HWP offering to 386 homes in the social housing market and 940 homes in the private market for a total of 1,326 homes. Approximately 15% of the natural gas savings were derived from social housing and 85% from the private market.

Private Market Strategies

The private market has become the primary focus for the HWP offering. Union utilized traditional marketing strategies including direct mail, advertisements in community newspapers, door hangers and posters to attract new customers (Figure 6.0 and 6.1).

Figure 6.0 - HWP Offering Brochure

Union Gas program provides relief for Ontario residents

It seemed too good to be true. This past winter, McKellar homeowner Judith received a direct mail letter from Union Gas, offering to insulate her home free of charge. Skeptical but curious, she phoned about the program.

After a Union Gas contractor explained the details and income eligibility criteria for the utility's home weatherization program, Judith filled out an application, photocopied her Notice of Assessment from last year's tax return and mailed it in.

In a matter of days, she received a call from a certified energy adviser, Don Rutledge, to schedule an energy audit of her home. The audit revealed that the attic and basement of her 85-year-old house were under-insulated.

Over the past year, Don has helped over 125 area residents take advantage of the Union Gas weatherization program. He calculated the energy savings, submitted the work plan and within two weeks, Judith's basement walls were neatly clad in a blanket of R-12 insulation.

"The basement has always been quite cold in the winter and damp and humid in the summer," noted Judith. "I was amazed how almost immediately the basement felt much warmer."

The insulation contractor also added nine inches of cellulose fibre to the existing insulation in her attic.

For a retiree living on a fixed income, free home energy improvements worth $3,750, along with estimated savings of $250 in annual heating costs, provide welcome relief.

"I made sure my neighbour signed up for the program," she said.

To find out more about the Union Gas Home Weatherization Program go to uniongas.com/weatherization.

WE MAKE WINTER WARMER.

THE HOME WEATHERIZATION PROGRAM FROM UNION GAS.

WE PAY. YOU SAVE. Make your home more energy efficient. Don't spend another winter in a cold, drafty home. Find out if you're eligible for the program that provides – and pays for – upgrades that will keep you cosy while saving you up to 30 per cent in energy costs: the Home Weatherization Program from Union Gas.

WON'T COST YOU A CENT

WE WILL INSTALL INSULATION IN YOUR BASEMENT, WALLS AND ATTIC

MORE THAN 4,500 HOMES IN ONTARIO HAVE ALREADY BENEFITED

SAVE UP TO 30% ON YOUR GAS BILL EVERY YEAR

INCREASE COMFORT ALL WINTER LONG

GET AN ENERGY EFFICIENT SHOWERHEAD AND PROGRAMMABLE THERMOSTAT

CALL OUR AUTHORIZED CONTRACTOR ENVIROCENTRE TOLL-FREE AT 1-877-580-2582, OPTION 1 TO QUALIFY AND APPLY FOR THE HOME WEATHERIZATION PROGRAM

uniongas A Spectra Energy Company

uniongas.com/weatherization

HOUSE REQUIREMENTS: Built before 1975 and requires more insulation. Union Gas pays all costs associated with this program. Proof of income eligibility is required. There is a limit to the number of customers we can help every year. Apply now to make sure you're one of them.
© Union Gas Limited 01/2013 UG20140099

Figure 6.1 - Advertorial for the HWP Offering

Web Strategy

Union's HWP offering webpage

Union's HWP offering webpage (www.uniongas.com/weatherization) allows private homeowners, renters and social housing providers to explore the benefits of participating, and informs viewers on eligibility criteria and means of registration (Figure 6.2).

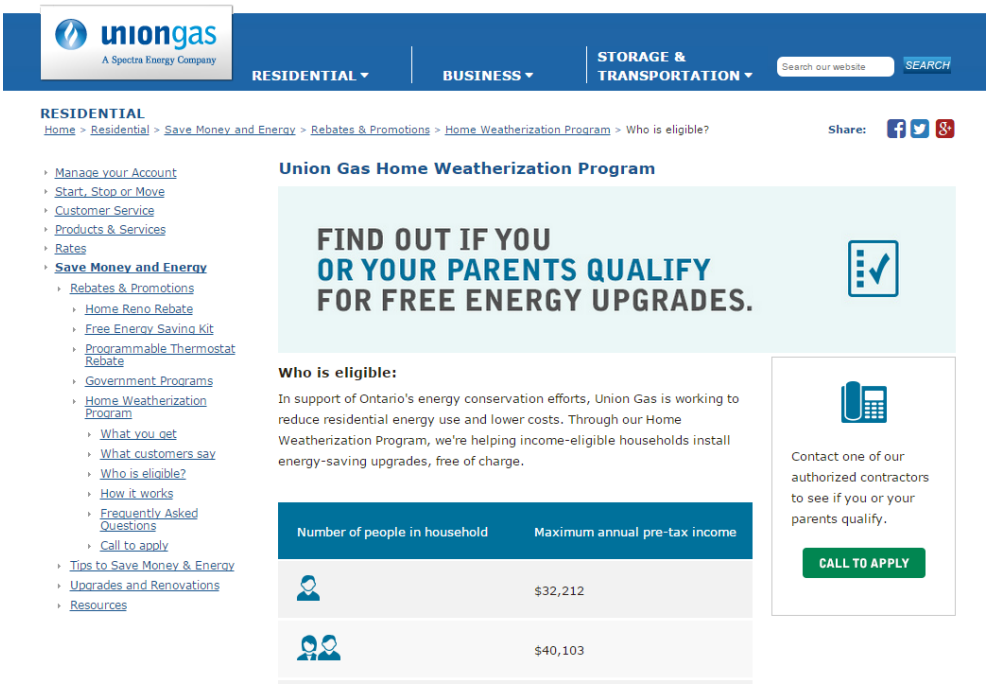


Figure 6.2 - HWP Offering Webpage

In 2015, Union's existing webpage was enhanced to allow customers to pre-qualify for the HWP offering online. Using the web tool, customers can initiate the approval process by answering initial screening questions to determine their eligibility for the offering (Figure 6.3).

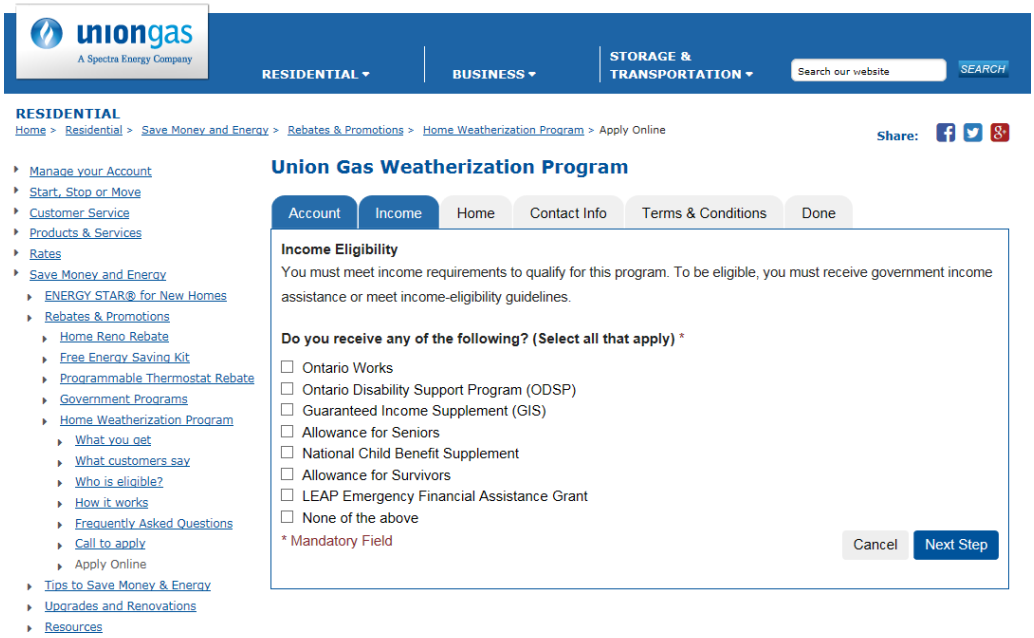


Figure 6.3 - HWP Online Qualification Tool

The new web qualification tool was launched in November 2015. During the December direct mail campaign, nearly one third of the customers chose to apply online, demonstrating the usefulness of additional application channels. Union will continue to utilize digital technology as a way to reach a broader private market segment. An additional benefit of the new online form is that it allows customers to submit information at a time that is most convenient for them, regardless of time of day. This information is then transmitted directly to the delivery agents for follow-up and further screening as required.

Partnership Strategies

Union works with several organizations in its franchise area to deliver the HWP offering to low-income customers.

Winter Warmth Emergency Assistance Program

Winter Warmth is coordinated and delivered to customers by the United Way through a network of community agencies across Union's franchise area. The Winter Warmth program provides low-income customers with one-time financial assistance if they are unable to pay their gas bill. To qualify, individuals must have a Union bill in arrears, have recently received a disconnection notice, and/or are experiencing personal circumstances that make it difficult to pay a current natural gas bill. Customers who are eligible for Winter Warmth funding are also income eligible for the HWP offering. In 2015, Union continued to support the Winter Warmth program by participating in webinars with the partner agencies to understand the fundamentals of the HWP offering, and provide marketing materials to customers applying for Emergency Assistance.

Partnership with the United Way

In 2015, Union continued to work with the United Way of Grey Bruce in establishing a partnership to identify leads in the Grey Bruce region. The United Way reviewed past applications for customers that would be eligible for the HWP offering that could be forwarded to the delivery agent for completion. Union continued to explore partnership opportunities with the United Way by participating in regional meetings with the Executive Directors to explore collaboration potential. Several United Way agencies have expressed interest in forming partnerships and discussions have started with United Way London and United Way Windsor.

Emerge Guelph

Emerge Guelph is a social and environmental organization that connects citizens to innovative solutions that maximize resource efficiency and community wellbeing. Home owners sign up for a free one-hour consultation where they are led through a structured interview about their home that identifies and recommends efficient retrofits and behavioural changes that save money and improve home comfort. As part of the process, the home is screened for eligibility in the HWP offering, and qualified applicant information is automatically forwarded to the delivery agent servicing the Guelph area.

Union Gas Customer Care Partnership

Union's Customer Contact Centre has daily contact with low-income customers in need of assistance with their bills. To increase awareness and encourage participation in the program, a group of customer

service representatives have been trained to promote the HWP offering to customers. Customers are transferred to the appropriate delivery agent, or provided with a phone number to determine home eligibility.

Health and Safety

Union avoids disqualifying homes that have treatable environmental hazards within the building envelope. Hazards can include inadequate ventilation, combustion safety, mould, moisture, asbestos, vermiculite, excessive clutter, and lead paint. The issues are often the result of poor structural design, age of the home, as well as the inability of the homeowner to address maintenance concerns due to lack of time, knowledge, and money. In 2015, Union continued addressing treatable environmental hazards identified during the audit, prior to the commencement of any installation work.

6.1.2 Affordable Housing Conservation Offering

The AHC offering targets the multi-family social and assisted housing market with custom and prescriptive measures. In recognition of the limited capital available for upgrades in social housing, Union offers enhanced incentives for these providers to implement any energy efficient measures available to commercial multi-family customers. These improved incentives aim to help this market segment achieve greater long term energy and cost savings.

Target Market

There are two main target markets for the AHC offering:

- Social housing buildings; and
- Low-income market-rate buildings (as part of Union's demonstration initiative).

Social Housing Buildings

The AHC offering targets social and assisted housing providers that manage multi-family housing stock. Social and assisted housing is defined as housing developed, acquired or operated under a federal, provincial or municipally funded program.

Examples of social and assisted housing are:

- Non-profit corporations as outlined in the Social Housing Reform Act, 2000;
- Public housing corporations owned by municipalities directly or through Local Housing Corporations;
- Non-profit housing co-operatives as defined in the Co-operative Corporations Act, 1990;
- Non-profit housing corporations that manage or own rural and native residential housing; and
- Non-profit housing corporations that manage or own residential buildings developed under the AHC offering.

Union has established strong relationships with 27 municipal social housing providers in its franchise area. Union assists them to proactively plan their energy efficiency upgrades. The majority of these 27 municipal housing providers have participated in the AHC offering over the past three years. In 2015,

Union continued to increase its focus on the 400+ smaller housing providers, including non-profit housing providers, low-income co-operative housing providers as well as faith- and ethnic-based providers. This targeted approach enabled Union to broaden its reach to low-income customers.

Low-Income Market-Rate Buildings

Market-rate buildings with low-income tenants have been identified as an area that is not addressed in the AHC offering social housing segment. As such, in 2015 Union ran a demonstration project to target a small number of these buildings. This demonstration project enabled Union to support a small number of private market apartment building owners with low-income tenants. Measures and incentives were offered to address energy efficient upgrades in these buildings, including all prescriptive and custom measures available in the AHC offering. The results of this demonstration project will help Union refine future delivery of this offering.

Market Incentive

Prescriptive Measures

The AHC offering includes all of the prescriptive measures offered to the multi-family segment within the standard Commercial portfolio. However, the incentive levels offered to the low-income sub-segment of the market are higher in recognition of the capital barriers that face this group. Participating social and assisted housing providers were responsible for sourcing service providers for installation of these measures. They received the appropriate incentives from Union upon project completion as outlined in Table 6.4 below. Service providers include architectural consultants, builders, HVACs, engineering consultants and energy service companies.

Table 6.4 - AHC Offering Incentives

Measure	End-user Incentive		Service Provider Incentive
Condensing Boiler – up to 299 MBtu/h	$ 0.10	per cumulative m^3	$ 100
Condensing Boiler – 300 to 999 MBtu/h	$ 0.10	per cumulative m^3	$ 100
Condensing Boiler – over 1,000 MBtu/h	$ 0.10	per cumulative m^3	$ 100
Condensing Gas Water Heater (High Volume)	$ 1,900	flat incentive	$ 100
Condensing Gas Water Heater (Low Volume)	$ 1,000	flat incentive	$ 100
ERV Multi-family	$ 0.10	per cumulative m^3	$ 100
HRV Multi-family	$ 0.10	per cumulative m^3	$ 100
MUA Unit Improved Efficiency	$ 0.10	per cumulative m^3	$ 100

Note: There is a prescriptive incentive cap of 50% of the eligible costs of the project.

Custom Initiative

Custom measures were also made available to social and assisted housing providers where there was an opportunity for significant energy savings. Participating social and assisted housing providers were responsible for driving the installation process for these measures and they received the incentives for participation as outlined below:

- $0.10 per cumulative m^3 of gas saved; and
- Incentive cap: 50% of the eligible costs of the project.

Building Assessments

Building assessments identify high-efficiency space heating, water heating and envelope upgrade opportunities in social and assisted housing multi-family buildings. Union offered social and assisted housing providers funding for a comprehensive building assessment service for their multi-family buildings. These assessments resulted in a report that identified prescriptive and custom measure upgrade recommendations. Multi-family site assessments were funded up to a maximum of $5,000 per site and up to a maximum of $25,000 per housing entity per year. Union follows existing commercial market protocols for assessing energy auditor reports and site assessment subsidization.

Basic Measure Installation Initiative

This initiative offers energy efficient showerheads and aerators. Union provides free installation of showerheads to eligible multi-unit social and assisted housing properties.

Market Delivery

Union focused its market delivery efforts on housing managers and decision makers within 27 municipal social housing providers in the Union franchise area. While the prospect of significant subsidization of capital expenditures through Union's offerings may seem like an easy decision, there are many barriers to adoption. Social housing managers are extremely busy, under resourced and face tight budget constraints. To maximize program adoption, Union took two main approaches for outreach: direct sales and association marketing.

Direct Sales

Union met directly with its customers in municipal and non-profit housing sectors to present Union's suite of offerings and to elicit participation. A sales package clearly and concisely conveyed the offerings available to all multi-family and single-family stock managed by the social and assisted housing provider (Figure 6.4).

Figure 6.4 - AHC Offering Sales Package

Qualified prescriptive and custom measures were identified by the housing provider and a building assessment was considered if there was potential to discover projects.

Social and assisted housing managers were responsible for sourcing contractors to implement prescriptive and custom measures, which were followed by the applicable incentive payment from Union.

Association Marketing
To support the direct sales efforts, Union developed and fostered relationships with relevant housing and social service associations while educating them on Union's suite of offerings in the social and assisted housing sector.

Partnership with the Ontario Non-Profit Housing Association ("ONPHA")
Union partnered with the ONPHA by sponsoring regional meetings in Hamilton, London, North Bay, Thunder Bay and Windsor to further promote energy conservation, in addition to placing advertisements in their bi-monthly newsletter Quick Connections. Moreover, Union sponsored and exhibited at the 2015 ONPHA tradeshow in Toronto, which provided the opportunity to promote the AHC offering. Union found that this partnership was an effective means of educating social and assisted housing providers on the cost benefits of Union's AHC offering for multi-unit properties in order to drive participation.

Partnership with Housing Services Corporation ("HSC")
HSC is a non-profit organization that delivers province-wide programs that benefit Ontario's affordable housing sector. HSC has been a long standing partner with Union in promoting Union's low-income program offerings. In 2015, Union was a key sponsor for the Measuring Matters Conference for the second year in a row. This conference provides practical energy efficiency solutions for social housing providers. Real-life case studies were used to illustrate how to reduce natural gas consumption by understanding and integrating energy benchmarking data, overcoming technical and organizational challenges, and maximizing human and financial resources. Several housing managers highlighted the AHC offering and discussed how their organization had participated and benefitted from significant natural gas savings in several multi-family buildings. The conference also provided Union with the opportunity to connect with housing providers.

6.1.3 Market Research

Consolidated Municipal Service Manager ("CMSM") Office and Non-profit/Co-op Housing Providers
In 2015, Union continued to enhance its understanding of Ontario's social housing landscape. Specifically, Union focused on the role of the CMSMs. The CMSMs manage the distribution of subsidies and technical services to all social housing providers in a given municipality, including municipal, non-profit and co-operative housing organizations. Within the offices, technical staff oversee the building condition assessments of the housing portfolios, so they have an understanding of the building condition as well as its financial viability. In 2015, Union continued to leverage CMSM relationships to gain insights into the social housing market structure, funding models, building condition assessments and decision making processes associated with the different types of housing.

6.1.4 Education and Awareness

Education has been, and will continue to be, an important part of the Low-Income program. Union recognizes that there is a need not only to provide conservation programs directed to low-income customers, but also to educate customers on the direct benefits of energy efficient behaviour. To date, Union has focused education efforts on private market customers through targeted education brochures and education workshops hosted at the community level.

In 2015, Union participated in a pilot of the Community Champions Workshop delivered by HSC. HSC's Community Champion Program supports the development of healthy, sustainable communities within Ontario's social housing sector by educating, engaging and supporting staff and residents in conservation activities. Participants receive valuable training on the benefits of energy conservation and community engagement. Training sessions address a variety of opportunities, including reducing energy and water consumption and minimizing waste. Union sponsored the first of four presentations by HSC staff at a social housing building for seniors. Union will evaluate this tenant education model to ensure it will deliver the appropriate program for low-income tenants in the franchise area.

6.1.5 Lessons Learned

HWP Offering

- ***Web strategy has been successful***
  In 2014, Union promoted the HWP offering through www.Kijiji.ca and the Weather Network. In 2015, an application form was added to the website to allow customers to continue to investigate the HWP offering through the internet. This has proved very successful as a touch point and Union will continue with this internet advertising in the future.

- ***Carbon monoxide detectors will be provided***
  To further promote energy conservation and health and safety, Union will begin providing a carbon monoxide detector in homes where there is not already one present as part of the HWP offering. This will enhance the HWP offering, and improve overall safety for the homeowner.

- ***Aerator installation will be offered***
  Some low income customers may lack the technical expertise or ability to install a kitchen or bathroom aerator that has been left behind for customer installation as part of the basic measures included in the HWP offering. As a result of Board Decision EB-2015-0029, Union was instructed to begin providing aerator installation services in 2016. This will remove installation as a barrier for the customer and guarantee that the benefits are achieved immediately.

AHC Offering

- ***Smaller housing organizations are an important sector***
  CMSMs manage the distribution of subsidies to all social housing providers within a given municipality, and are an important part of Ontario's social housing landscape. Union has learned that developing service manager relationships is important to reach more social housing

providers, especially smaller non-profit and co-operative housing providers that have yet to participate in the AHC offering.

In 2015, Union saw continued growth in participation by non-profit and co-operative housing providers – particularly smaller housing organizations. Union has learned that smaller housing organizations have proven to be an important sector and targeting them will enable Union to more fully service the social housing industry with high-efficiency energy incentives.

- ***Low-income market-rate multi-family demonstration project was successful***
  The low-income market-rate multi-family demonstration project that Union ran in 2015 was successful. Through project findings, Union has discovered a market demand for enhanced incentives for energy efficient space and water heating equipment among market-rate apartment buildings in Union's franchise area. Customer interactions have allowed Union to refine the AHC offering to this market segment for a future full program launch.

2015 was a successful year for the Low-Income program, resulting in significant natural gas savings in the social housing sector. While municipal social housing entities comprised the majority of AHC program participation, the non-profit and co-operative segment of market continues to grow. The Low-Income program is well positioned heading into 2016 – a year in which the current program is expected to explore new offerings.

7. Large Volume Scorecard (Rate T1, Rate T2/Rate 100)

The Large Volume scorecard consists of cumulative m^3 saved from customers within Rate T1, and Rate T2/Rate 100. Table 7.0 presents the results of the Large Volume scorecard. Union achieved below the threshold that earns a DSM Utility Incentive.

Table 7.0 - 2015 Large Volume Rate T1, Rate T2/Rate 100 Scorecard Results

Metrics	Metric Target Levels			Weight	Achievement	% of Metric Achieved	Weighted % of Scorecard Achieved
	Lower Band	Target	Upper Band				
Rate T2 / Rate 100 Cumulative Natural Gas Savings (m^3)	772,381,040	1,029,841,387	1,287,301,734	40%	658,010,847	28%	*11%*
Rate T1 Cumulative Natural Gas Savings (m^3)	154,692,013	206,256,017	257,820,021	60%	121,416,767	18%	*11%*
					Total Scorecard Target Achieved		***22%***
					Scorecard Utility Incentive Achieved		***$ 0***

7.1 Large Volume Program

Union continues to encourage the adoption of energy efficient equipment, technologies, and actions through direct customer interaction.

In Section 15.1 of the DSM Framework, the Board outlined that "the gas utilities should roll-forward their 2014 DSM plans, including all programs and parameters (i.e., budgets, targets, incentive structure) into 2015." As 2015 was a rollover of 2014 programs, the 2015 Large Volume program was consistent with the Large Volume DSM Plan for 2013-2014 (EB-2012-0337).[12] The Large Volume program is applicable to customers in Rate T1, and Rate T2/Rate 100 only.

The 2015 program continued to use a Direct Access budget mechanism for the customer incentive budget process for Rate T2/Rate 100 customers. This mechanism grants each customer direct access to the customer incentive budget they pay in rates. Customers must use these funds to identify and implement energy efficiency projects, or lose the funds which will consequently become available for use by other customers in the same rate class. This 'use it or lose it' approach ensures each customer has first access to the amount of incentive budget funded by their rates. The incentive approach for Rate T1 customers remains unchanged from the aggregate pool approach offered in 2014.

Union's Large Volume program is aligned under one brand platform, EnerSmart. This ensures a seamless, recognizable brand throughout Union's franchise. Large Volume custom projects are jointly delivered through Union's Account Managers and Project Managers. This approach is important to influencing the market and achieving successful implementation of the program.

[12] The Board rendered a decision on this filing on March 19, 2013.

The Account Manager's role is to work with assigned customers to gain in-depth knowledge of their business plans, particularly with respect to their energy use and needs. As Account Managers typically interact with multiple departments within the customer's organization (e.g. purchasing/procurement, plant operations, technical/engineering functions), they are uniquely positioned to identify customer-specific information, which is a critical input into the assessment of project savings opportunities.

The Project Managers (who are all engineers with a Professional Engineering designation in Ontario) work together with the Account Managers as well as third party engineers, equipment manufacturers and service providers as necessary to complete custom applications.

Table 7.1 shows the results of the Large Volume program and Table 7.2 breaks down the total spend into its components.

Table 7.1 - 2015 Large Volume Program Results

Program	Offering	Units	Annual Natural Gas Savings (m^3)	Cumulative Natural Gas Savings (m^3)	Total Spend	Net TRC	TRC Ratio
Large Volume	Rate T2	92	50,153,666	603,578,141			
	Rate 100	18	7,531,680	54,432,706	$ 3,209,716	$ 113,820,506	6.97
	Rate T1	40	8,842,211	121,416,767			
2015 Large Volume Total		**150**	**66,527,557**	**779,427,613**	**$ 3,209,716**	**$ 113,820,506**	**6.97**

Table 7.2 - 2015 Large Volume Program Spend

Item		Total
Incentives	$	2,219,151
Administration	$	863,933
Evaluation	$	122,498
Promotion	$	4,134
2015 Total Large Volume Rate T1, Rate T2 and Rate 100 Program Spend	**$**	**3,209,716**

Table 7.3 shows the calculation of the Large Volume program's TRC ratio.

Table 7.3 - 2015 Large Volume Program Cost Effectiveness

	TRC Benefits (a)	TRC Costs (b)	Net TRC (c)=(a-b)	TRC Ratio (d)=(a/b)
Measures	$132,897,217	$ 18,086,146	$114,811,071	7.35
Large Volume Administration		$ 863,933		
Large Volume Evaluation		$ 122,498		
Large Volume Promotion		$ 4,134		
Large Volume Rate T1, Rate T2 and Rate 100 Program Total	**$132,897,217**	**$ 19,076,711**	**$113,820,506**	**6.97**

7.1.1 Program Offerings

The large volume market is heterogeneous, with most projects tied directly to unique processes or technology requirements. Accordingly, all Large Volume projects are custom.

The Large Volume program goal is to generate long-term and cost-effective energy savings for Union's customers. The program components are outlined below.

Customer Engagement - Communication and Education
Union provided education, training and technical expertise and offered a wide variety of materials aimed at building an increased awareness of energy efficiency opportunities and benefits.

New Equipment and Processes
Union's role in promoting and implementing energy efficient options continued to help companies control energy costs and remain competitive in today's global economy. With the continual focus on cost reduction, many industrials lack the resources required to analyze potential energy saving opportunities. Union helps fill this gap with its reliable and knowledgeable Project Managers in conjunction with incentives designed to influence equipment choices.

Operations and Maintenance
Union works with the customer to identify and incent O&M custom projects that the customer would not have otherwise completed. Projects are related to the repair, replacement, or optimization of an existing piece of equipment or system.

Process Improvement Studies
Union provided customer incentives for conducting detailed engineering analysis and designing specific process equipment or operational improvements identified with or without a general plant audit. The program works to support performance testing and analyses of industrial boilers, total steam plants, thermal fluid heaters, vaporizers, furnaces and special process equipment. Testing identifies and quantifies energy saving opportunities, cost saving opportunities, implementation costs and payback periods as well as related environmental benefits.

Engineering Feasibility Studies
Engineering feasibility studies include an analysis of natural gas equipment as well as electricity, compressed air, water and wastewater. These feasibility studies helped customers formulate a priority list of energy efficiency projects geared to site-specific energy plans and budgets. As required, Union also assisted the customer's technical staff in generating business cases to enable the customer to secure corporate capital funding for energy efficient equipment and/or process changes.

Steam Trap Surveys
Steam trap surveys conducted by qualified service companies are designed to identify losses from steam distribution systems. Each survey identifies leaking, over-sized or under-sized, blocked and/or flooded traps, as well as the availability of performance improvements in condensate return systems.

Boiler Tune-ups

Union provided an incentive to large volume industrial customers for the optimization of their facilities' boiler air-to-fuel ratio, ensuring efficient combustion and natural gas savings.

Union continues to utilize a rigorous quality control process for all custom projects. Each custom project is assessed by Union's internal project review and verification QA/QC team prior to an external verification and audit. The review is conducted by engineers within Union's custom CI project team. The custom project team reviews and confirms the calculated savings through evaluation of project and customer-specific factors including:

- Reasonableness of base case assumptions;
- Confirmation of high-efficiency case assumptions;
- Reasonableness of project life assumptions (EUL);
- Confirmation of "other" factors affecting gas demand (e.g. production and weather); and
- Confirmation of customer project costs.

7.1.2 Large Volume Program Incentives

Table 7.4 and Table 7.5 show the incentive guidelines for the 2015 Large Volume Rate T1 and Rate T2/ Rate 100 offerings respectively.

Table 7.4 - 2015 Incentive Guidelines for Rate T1

Offer	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
New Equipment	$0.10 per cumulative m^3, up to $40,000
Operations & Maintenance	$0.10 per cumulative m^3, up to $20,000
Boiler Tune-Up	$250 per boiler
Meters – Gas/Steam/Hot-water	50% of the cost, up to $1,000 per meter
Infrared Polyethylene – IR Poly	$400 per growing acre

Table 7.5 - 2015 Incentive Guidelines for Rate T2/Rate 100

Offer	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
Direct Access Budget (DAB) New Equipment	$0.08 per cumulative m^3, up to $40,000
Aggregate Pool Funded (LVAP) New Equipment	$0.05 per cumulative m^3, up to $20,000
Direct Access Budget (DAB) Operations & Maintenance	$0.08 per cumulative m^3, up to $20,000

Offer	Incentive
Aggregate Pool Funded (LVAP) Operations & Maintenance	$0.05 per cumulative m³, up to $10,000
Meters – Gas/Steam/Hot-water	50% of the cost, up to $1,000 per meter

7.1.3 Education and Awareness

Customers have told Union that they find significant value in the training and educational material provided.

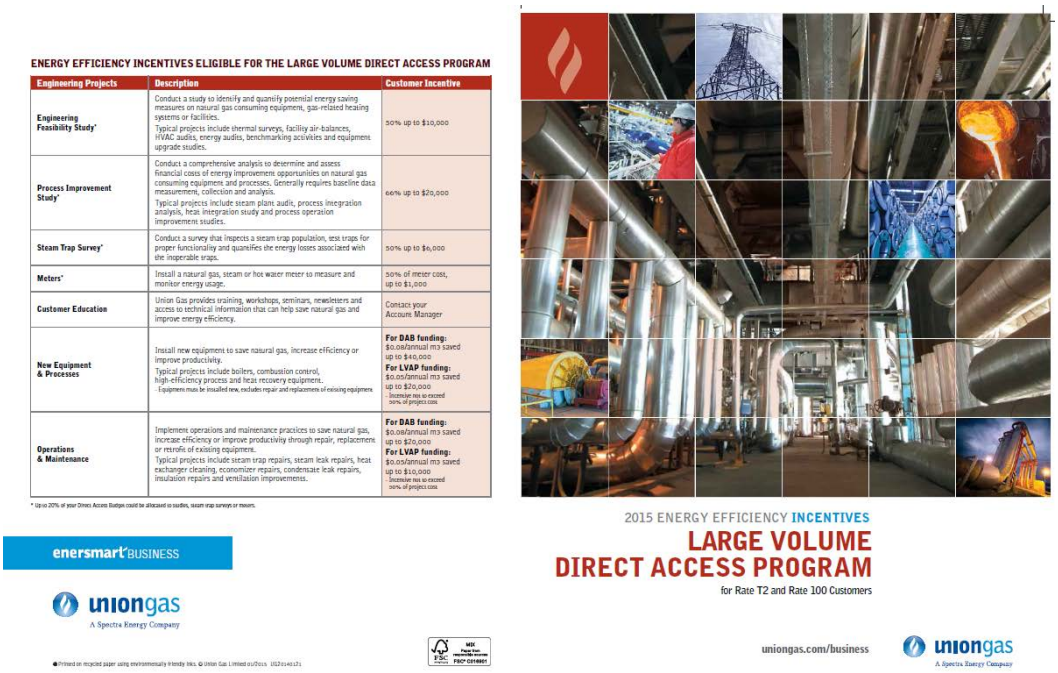
Union continues to expand and broaden distribution of the following educational and promotional tools, which contain information specifically geared towards Rate T1, Rate T2/Rate 100 customers:

- GasWorks newsletter;
- EnerSmart brochures;
- EnerCase reports;
- Workshops to promote the efficient use of natural gas and increase the awareness of energy savings opportunities;
- Sponsorship of specific educational forums; and
- Promotion and attendance at independent professional development groups, trade organizations, and government workshops.

As noted previously, *GasWorks* is a technology and energy conservation newsletter targeted to large users of natural gas. It provides industry trends, technology and energy efficiency information to help businesses improve process productivity, enhance reliability of equipment and control energy expenses. The newsletter provides links to Union's website and energy efficiency programming as well as various tools, calculators, an online resource library, and an "Ask an Expert" service to provide technical advice.

Union's webpage, dedicated to the EnerSmart program[13], contains an application form, technology information, conversion calculations, technical presentations from customer meetings, a series of links for additional references, and an expanding library of *EnerSmart* and *EnerCase* brochures (Figure 7.0 and Figure 7.1). These brochures include customer challenges and the solutions that Union provided.

[13] http://www.uniongas.com/business/save-money-and-energy



ENERGY EFFICIENCY INCENTIVES ELIGIBLE FOR THE LARGE VOLUME DIRECT ACCESS PROGRAM

Engineering Projects	Description	Customer Incentive
Engineering Feasibility Study*	Conduct a study to identify and quantify potential energy saving measures on natural gas consuming equipment, gas-related heating systems or facilities. Typical projects include thermal surveys, facility air-balances, HVAC audits, energy audits, benchmarking activities and equipment upgrade studies.	50% up to $10,000
Process Improvement Study*	Conduct a comprehensive analysis to determine and assess financial costs of energy improvement opportunities on natural gas consuming equipment and processes. Generally requires baseline data measurement, collection and analysis. Typical projects include steam plant audit, process integration analysis, heat integration study and process operation improvement studies.	66% up to $20,000
Steam Trap Survey*	Conduct a survey that inspects a steam trap population, test traps for proper functionality and quantifies the energy losses associated with the inoperable traps.	50% up to $6,000
Meters*	Install a natural gas, steam or hot water meter to measure and monitor energy usage.	50% of meter cost, up to $1,000
Customer Education	Union Gas provides training, workshops, seminars, newsletters and access to technical information that can help save natural gas and improve energy efficiency.	Contact your Account Manager
New Equipment & Processes	Install new equipment to save natural gas, increase efficiency or improve productivity. Typical projects include boilers, combustion control, high-efficiency process and heat recovery equipment. - Equipment must be installed new, excludes repair and replacement of existing equipment	For DAB funding: $0.08/annual m3 saved up to $40,000 For LVAP funding: $0.05/annual m3 saved up to $20,000 - Incentive not to exceed 50% of project cost
Operations & Maintenance	Implement operations and maintenance practices to save natural gas, increase efficiency or improve productivity through repair, replacement or retrofit of existing equipment. Typical projects include steam trap repairs, steam leak repairs, heat exchanger cleaning, economizer repairs, condensate leak repairs, insulation repairs and ventilation improvements.	For DAB funding: $0.08/annual m3 saved up to $20,000 For LVAP funding: $0.05/annual m3 saved up to $10,000 - Incentive not to exceed 50% of project cost

* Up to 20% of your Direct Access Budget could be allocated to audits, steam trap surveys or meters.

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2015 ENERGY EFFICIENCY INCENTIVES

LARGE VOLUME
DIRECT ACCESS PROGRAM

for Rate T2 and Rate 100 Customers

uniongas.com/business

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A Spectra Energy Company

Figure 7.0 - EnerSmart Large Volume Brochure

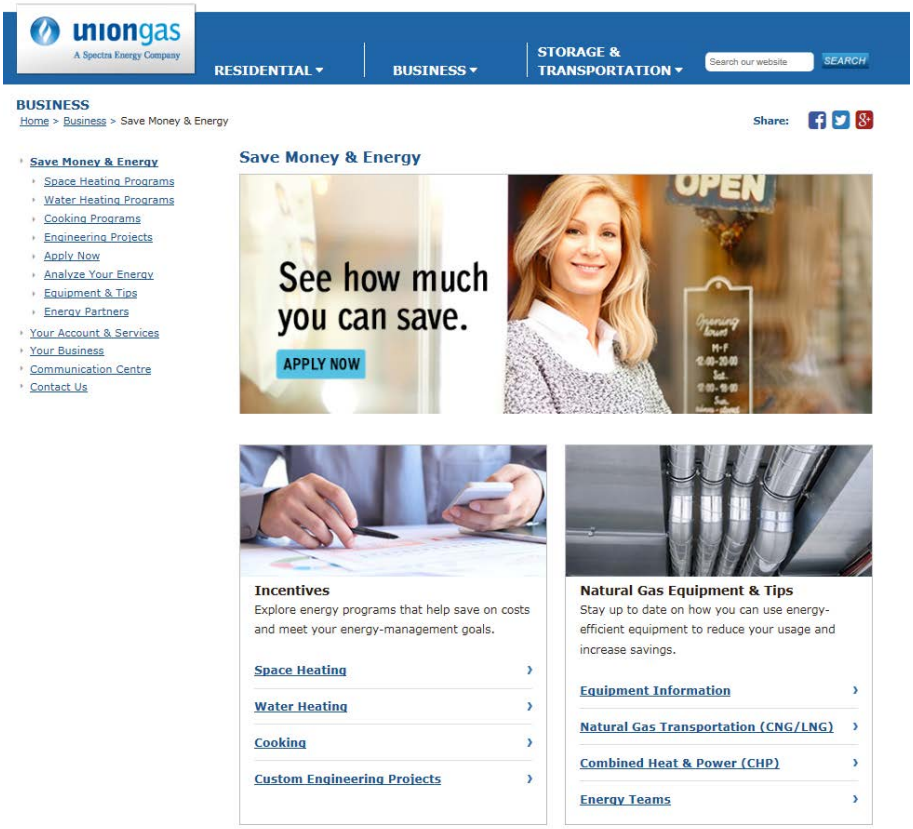

Figure 7.1 - *EnerSmart* Webpage

Union showcased its program offerings and industry knowledge by attending industry tradeshows. Table 7.6 lists the tradeshows specific to large volume customers that Union attended in 2015.

Table 7.6 - Industry Tradeshow Participation

Industry Tradeshow Attendance	Date
Canadian Boiler Society ("CBS") Education Day	April and October 2015
CBS Tech Fair and Education	June 2015
Canadian Healthcare Engineering Society Conference	May 2015

Education does not stop with customer training and seminars. Union continues to provide highly valued energy expertise, technical support, and resources for Large Volume Rate T1, Rate T2/Rate 100 customers. As a leader in energy efficiency committed to working closely with government and professional organizations, Union understands the latest trends and technologies. This is not limited to potential solutions for individual customers, but also includes the co-benefit of shared learning. Some examples of industry partnerships include:

Consortium for Energy Efficiency ("CEE")
Through this partnership, Union networked with efficiency program administrators from across the United States and Canada with a focus on developing common approaches to advancing energy efficiency.

Energy Solutions Centre ("ESC")
Through the ESC, Union collaborated with energy utilities, municipal energy authorities, equipment manufacturers, and vendors to accelerate the acceptance and deployment of new energy efficient, gas-fuelled technologies.

Natural Resources Canada ("NRCan")
Union's involvement with NRCan includes participating in research activities, providing funding of industry-specific benchmark studies, and offering Union customers assistance in obtaining government funding for energy efficiency projects. Specific NRCan departments include:

- Office of Energy Efficiency ("OEE")
- Canadian Industry Program for Energy Conservation ("CIPEC")
- CANMET Energy Technology Centre

Canadian Boiler Society (CBS)
Union partnered with the Canadian Boiler Society to provide technical training to Union customers that will help them operate their equipment at optimum efficiency.

7.1.4 Lessons Learned

- ***Direct access budget observations***
  The Direct Access budget mechanism for Rate T2/Rate 100 was designed in consultation with large volume customers. The following outlines some key observations of the program in 2015:

  - 97% of Rate T2/Rate 100 customers (35 out of 36) participated by submitting energy efficiency plans;
  - 78% of Rate T2/Rate 100 customers (28 out of 36) submitted energy efficiency plans and at least one project;
  - 33% of Rate T2/Rate 100 customers (12 out of 36) utilized all of their budget;
  - 33% of Rate T2/Rate 100 customers (12 out of 36) received additional funding from the Aggregate Pool; and
  - Approximately 27% of the total Rate T2/Rate 100 program savings were funded by the Aggregate Pool.

- ***Project basecase documentation has been augmented***
  For the 2015 program year, Union has implemented a formalized basecase documentation form to be filled out by participating customers. This form will augment Union's existing basecase documentation. The form explicitly documents each customer's basecase practices, absent Union's influence.

- ***Project opportunities have decreased***
  Union's Large Volume customers completed fewer and smaller projects in 2015 relative to the prior three year average that was used to determine the target.

The Direct Access program for Union's large volume customers assisted customers in reducing gas consumption in their facilities. This was done by implementing energy efficiency projects such as process improvements, upgrading equipment to more efficient technologies and prioritizing maintenance activities. This program will continue to be offered to Union's large volume customers (Rate T2 and Rate 100) in 2016.

8. Market Transformation Scorecard

In 2015, Union continued its market transformation efforts on the Optimum Home program.

Table 8.0 presents the results of the market transformation scorecard. Union achieved over 150% of the overall scorecard target, resulting in a DSM Utility Incentive of $0.567 million.

Table 8.0 - 2015 Market Transformation Scorecard Results

Metrics	Metric Target Levels			Weight	Achievement	% of Metric Achieved	Weighted % of Scorecard Achieved
	Lower Band	Target	Upper Band				
Homes Built (>20% above OBC 2012) by Participating Builders	25%	30%	35%	100%	50.30%	306%	*306%*
						Total Scorecard Target Achieved	***150%***[14]
						Scorecard Utility Incentive Achieved	***$ 566,721***

The 'Homes Built (>20% above Ontario Building Code ("OBC") 2012) by Participating Builders' metric is calculated as the percentage of homes built by enrolled builders in 2015 to a 20% higher energy efficiency standard than the 2012 Ontario Building Code in relation to the total number of homes built in 2015 by builders who remain enrolled in the program. Only homes that have an activated gas service are included in this metric.

Table 8.1 breaks down the total spend for the Optimum Home program into its components.

Table 8.1 - 2015 Market Transformation Spend

Item		Total
Optimum Home Program Incentives	$	736,172
Optimum Home Program Administration	$	386,703
Optimum Home Program Evaluation	$	-
Optimum Home Program Promotion	$	282,464
Total Market Transformation Spend	**$**	**1,405,340**

8.1 Optimum Home Program

The Optimum Home program is based on a whole-home consultant approach. The objective of the Optimum Home program is to accelerate residential home builders' energy efficiency practices. The program seeks to address barriers to the wider adoption of high efficiency homes in residential new construction thereby avoiding lost opportunities in the residential market. Optimum Home examines all aspects of the builder's business in an attempt to create fundamental change toward energy efficient building practices.

[14] Scorecard is capped at 150%. Actual scorecard achievement is 306%.

The Optimum Home program was targeted to the top fifty most active builders in Union's franchise area based on the number of housing starts in Union's franchise in the prior calendar year. Builders that signed up for the Optimum Home program enter into a multi-year consulting process. This process partners participating builders with a leading building science expert who can provide cutting edge advice on how to build residential homes to 20% above current OBC 2012. These experts are the leading group of consultants in Ontario's residential building industry, which reinforces the value proposition for builders. They are Gord Cook, Al Schmidt, Michael Leo, Tex McLeod, and Andy Oding.

Advanced building practices are achieved through a process that identifies and addresses barriers to energy efficient construction. The consulting process deals with every aspect of the builder's business including marketing, sales, contracts, construction, services and trades.

The Optimum Home program recognizes that every builder is different. Consultants tailor their advice to suit each builder's individual needs. Consultants work with the builder to develop capacity within its organization to effectively build to a higher efficiency, and to understand opportunities to mitigate any incremental costs through business process improvements. The Optimum Home program consists of three phases:[15]

- **Phase One – Discovery.** Union pairs participating top builders with a leading building science consultant to develop a baseline by benchmarking current product and business practices and by conducting an on-site audit. The consultant will lead discussions on new technologies, building practices and options, resulting in a customized handbook of building specifications to assist the builder to build 20% above OBC 2012. The builder will then build at least one prototype home (Discovery Home) to meet this requirement. On behalf of the builder, a Certified Energy Advisor ("CEA") must demonstrate that the Discovery Home is indeed 20% above OBC 2012. Cost of this evaluation work is covered by the builder.
- **Phase Two – Production.** The builder will work with the consultant to test the new building specifications, examine lessons learned, establish training requirements, conduct training as required, commence building high performance housing stock to 20% above OBC 2012 and conduct performance testing of these houses.
- **Phase Three – Transformation.** The consultant will work with the builder towards full implementation of the new specifications as identified throughout the Optimum Home program process. The consultant sets out a sustainability plan to maintain momentum of building to the new level of efficiency in the future. A wrap up session is then held with the consultant, the builder and any trades people involved where significant gains, technological advancements, and efficiencies achieved as a result of the program are discussed. In 2015, as part of the wrap up session, Union began offering each builder up to four days of additional support with a building expert.

Between 2012 and 2014 Union successfully recruited twenty two of the top fifty builders in Union's franchise area into the program. By mid-2015, all twenty two builders completed Phase One and built a

[15] Up to 30 Consultant days are available to each builder over the three phases of the program.

Discovery Home that has been verified by a third party CEA to be 20% above OBC 2012. By the end of 2015, nineteen builders completed Phases Two and Three of the program. These builders along with their building science experts each held a wrap up session to discuss program accomplishments, lessons learned and how to maintain momentum in building high performance homes in the future. This included identifying any remaining internal barriers and challenges to incorporating the Optimum Home standard across the majority of their housing starts.

Target Market

The Optimum Home program targeted the top fifty builders in Union's franchise based on the previous year's housing starts.

The following groups play a role in influencing the level of high performance homes built by participating builders. Influencing these parties will help drive demand for high performance homes:

- New home buyers, who will ultimately purchase the higher efficiency homes; and
- Builder sales centres, who work on behalf of builders to promote and sell new homes directly to new home buyers. They greatly influence customers' choices and selection of upgraded features. Under the builder's direction, they will promote the features that they believe will generate the most customer interest.

Market Incentive

Builder Incentive
The Optimum Home program is delivered at no cost to the builder. The builder incentive for the original three program phases and new incremental engagement phase is outlined below. The incentives come in the form of consulting services, education and training. Union has also provided an incentive of $2,500 per builder in Phase One towards the cost of the prototype Discovery Home.

- Phase One – $30,000 per builder
- Phase Two – $30,000 per builder
- Phase Three – $15,000 per builder

Market Delivery

In 2015, Union continued to deliver the program through partnering building science experts coordinated by a third party vendor. Union also played a role by monitoring builder engagement, helping to troubleshoot issues as needed, and leveraging manufacturing and channel partner relationships to provide product knowledge and education.

Marketing Support

In Phase One, Union provided each participating builder with a press release/editorial and key message document that could be released to media at the opening and display of the builder's Discovery Home.

Banners were also provided for each Discovery Home site to attract customers and encourage them to ask for more information regarding high performance homes.

Each builder was encouraged to create its own high performance home promotion and market it to its customers as they moved through the program phases and into wider-scale production, supported by sales and marketing training through the program (Figure 8.0).

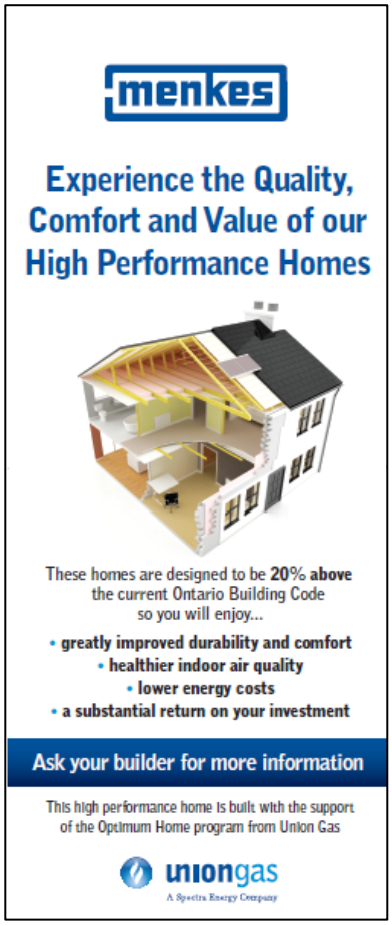

Figure 8.0 - Discovery Home Signage

Ontario Home Builders' Association ("OHBA") Partnership

As part of Union's ongoing commitment to the builder community, Union partnered with the OHBA. Support from the OHBA provided Union with the ability to enhance market intelligence related to energy efficiency, sustainability and better building in the new housing market. Since 2013 Union has been participating in the OHBA Builder Forums, and has attended various events throughout the year with the OHBA's local chapters.

8.2 Lessons Learned

- ***Builders learned the benefits of advanced innovative technologies***
  One of the key lessons learned from the Optimum Home program was the benefit of using new energy efficient technologies and building materials in home construction. Examples include:

- Optimum basement wall systems. Installing an optimal basement wall system was found to help eliminate moisture, mildew and rot in highly air tight homes creating a healthier, more comfortable living environment;
- Right sized furnaces. Right sized furnaces can be better suited to homes with higher air tightness and can help eliminate temperature stratification, providing a more comfortable and energy efficient living environment;
- Air barrier systems. Installing an advanced air barrier wall system can help bring superior air barrier performance while being easier and more efficient to install; and
- Infrared scanning to determine air leakage. Use of an advanced infrared scanning system can help identify areas in the construction where the most leakage was coming from. This proved to be an excellent tool to help improve air tightness.

- ***Sharing program knowledge across the greater building community is important***
  Union recognizes that in order for market transformation to be effective, program knowledge and experiences must be shared across the greater building community. To facilitate the sharing of best practices, Union is:

  - Planning builder forums across its franchise areas. These forums will provide information on how to build to a higher standard and serve as an opportunity to share lessons learned from builders who have been through the Optimum Home program.
  - Developing an online web section for builders, which includes:
    - How to get ready for the code change and stay ahead of the curve by building to a higher standard through programs like Energy Star for New Homes;
    - The value of these homes to new homebuyers, the community, and the environment and how it this value will continue to grow ; and
    - Lessons learned from other builders on how to use advanced technology and building practices while keeping costs low.

- ***Builders valued the consulting model***
  Many builders have expressed their appreciation for the consulting support that this program provided and found this to be effective in relation to programs that only focus on providing a financial incentive. They felt the consulting work provided by a lead consultant had a tremendous impact on their business.

- ***Consumer marketing***
  2015 Optimum Home results have shown that Union has had a tremendous impact on the supply side of the home builder market. Union has learned that most participating builders would like more support on the sales and marketing side to drive awareness, interest and demand from home buyers

In 2015, Union's main focus was to drive participating builders to construct a higher percentage of their stock to 20% above OBC 2012. Union exceeded its 2015 target with 50% of all homes built by participating builders constructed to 20% above OBC 2012. This program will continue in 2016 as per the Board's Decision on Union's 2015-2020 DSM Plan.

9. Lost Revenue Adjustment Mechanism Variance Account

The Board-approved Lost Revenue Adjustment Mechanism Variance Account ("LRAMVA") allows Union to recover the lost distribution revenues associated with DSM activity.

For 2015, the LRAMVA amount of $0.170 million is based on 2015 delivery rates, December 2015 Input Assumptions filing (EB-2015-0344) and annual natural gas savings of 49.134 million m^3. The 2015 LRAMVA statement is detailed in Table 9.0 on the following page.

Table 9.0 - 2015 LRAMVA Statement

Rate class	DSM Volumes (10^3 m^3)												Total Volumes (10^3 m^3)	2015 Delivery Rates ($/$10^3$ m^3)		Revenue Impact
	January	February	March	April	May	June	July	August	September	October	November	December	(a)	(b)		(a) x (b)
South																
M4 Industrial	3,202	1,890	165	409	202	309	167	251	351	311	57	141	7,456	10.41	$	77,633
M5 Industrial	567	176	31	72	23	94	119	152	86	96	116	67	1,600	23.54	$	37,670
M7 Industrial	4,243	1,424	129	862	661	176	380	419	385	589	258	-	9,527	3.47	$	33,060
T1 Industrial	3,348	-	121	687	1,962	52	72	456	164	100	215	-	7,177	0.74	$	5,304
T2 Industrial	8,265	-	-	601	291	478	-	946	2,501	895	4,162	466	18,605	0.08	$	1,488
South Total	**19,625**	**3,490**	**446**	**2,631**	**3,140**	**1,109**	**739**	**2,224**	**3,488**	**1,990**	**4,808**	**674**	**44,365**		**$**	**155,155**
North																
20 Industrial	358	-	103	35	-	96	113	415	39	60	113	-	1,332	5.40	$	7,195
100 Industrial	-	-	223	14	-	2,497	37	25	463	113	63	-	3,437	2.19	$	7,527
North Total	**358**	**-**	**326**	**49**	**-**	**2,593**	**150**	**441**	**503**	**173**	**176**	**-**	**4,769**		**$**	**14,722**
Total	**19,983**	**3,490**	**772**	**2,681**	**3,140**	**3,702**	**889**	**2,665**	**3,991**	**2,163**	**4,984**	**674**	**49,134**		**$**	**169,877**

10. DSM Utility Incentive

Union's 2015 results for each scorecard are presented in Tables 10.0, 10.1, 10.2, and 10.3 below.

Table 10.0 - 2015 Results - Resource Acquisition Scorecard

Metrics	Metric Target Levels			Weight	Achievement	% of Metric Achieved	Weighted % of Scorecard Achieved
	Lower Band	Target	Upper Band				
Cumulative Natural Gas Savings (m^3)	612,421,364	816,561,818	1,020,702,273	90%	919,157,080	125%	113%
Deep Savings – Residential	934	1,245	1,556	5%	2,529	306%	15.3%
Deep Savings - C/I	7.88%	8.88%	9.88%	5%	8.08%	60%	3%
					Total Scorecard Target Achieved		***131%***
					Scorecard Utility Incentive Achieved		***$ 4,443,225***

Table 10.1 - 2015 Results - Low-Income Scorecard

Metrics	Metric Target Levels			Weight	Achievement	% of Metric Achieved	Weighted % of Scorecard Achieved
	Lower Band	Target	Upper Band				
Cumulative Natural Gas Savings from Single Family (m^3)	19,500,000	26,000,000	32,500,000	60%	35,847,426	176%	105%
Cumulative Natural Gas Savings from Multi-Family (m^3)	13,200,000	17,600,000	22,000,000	40%	16,333,361	86%	34%
					Total Scorecard Target Achieved		***140%***
					Scorecard Utility Incentive Achieved		***$ 2,462,534***

Table 10.2 - 2015 Results - Large Volume Rate T1, Rate T2/Rate 100 Scorecard

Metrics	Metric Target Levels			Weight	Achievement	% of Metric Achieved	Weighted % of Scorecard Achieved
	Lower Band	Target	Upper Band				
Rate T2 / Rate 100 Cumulative Natural Gas Savings (m^3)	772,381,040	1,029,841,387	1,287,301,734	40%	658,010,847	28%	*11%*
Rate T1 Cumulative Gas Savings (m^3)	154,692,013	206,256,017	257,820,021	60%	121,416,767	18%	*11%*
					Total Scorecard Target Achieved		***22%***
					Scorecard Utility Incentive Achieved		***$ 0***

Table 10.3 - 2015 Results - Market Transformation Scorecard

Metrics	Metric Target Levels			Weight	Achievement	% of Metric Achieved	Weighted % of Scorecard Achieved
	Lower Band	Target	Upper Band				
Homes Built (>20% above OBC 2012) by Participating Builders	25%	30%	353%	100%	50.30%	306%	*306%*
						Total Scorecard Target Achieved	***150%***[16]
						Scorecard Utility Incentive Achieved	***$ 566,721***

Union achieved a total of $7.472 million in DSM Utility Incentive as a result of its program performance results in 2015 as shown in Table 10.4.

Table 10.4 - Summary of 2015 DSM Utility Incentive Achieved

Scorecard	DSM Utility Incentive Achieved	
Resource Acquisition	$	4,443,225
Large Volume Rate T1, Rate T2/Rate 100	$	-
Low-Income	$	2,462,534
Market Transformation	$	566,721
Total	**$**	**7,472,481**

[16] Scorecard is capped at 150%. Actual scorecard achievement is 306%.

The DSM Utility Incentive breakdown by rate class is shown in Table 10.5 below.

Table 10.5 - Breakdown of DSM Utility Incentive by Rate Class

Line No.	Rate Class		2015 Amount
	South		
1	M1	$	3,565,990
2	M2	$	1,230,083
3	M4	$	694,078
4	M5	$	236,532
5	M7	$	631,583
6	T1	$	0
7	T2	$	0
8		**$**	**6,358,266**
	North		
9	Rate 01	$	775,326
10	Rate 10	$	179,065
11	Rate 20	$	159,824
12	Rate 100	$	0
13		**$**	**1,114,215**
14	**Total**	**$**	**7,472,481**

11. Budget

Union's 2015 DSM Budget as approved by the Board was $33.988 million. The total spend for 2015 was $32.393 million.

Table 11.0 tracks the variance between 2015 spend and budget. Total DSMVA amount is -$0.195 million.

Table 11.0 - Summary of 2015 Spend and Budget

	2015 Spend	2015 Budget	Variance	Budget Transfers	DSMVA
	A	B	C=A-B	D	E=C-D
Program Budget					
Resource Acquisition Scorecard					
Residential Program Incentives/Promotion/Admin	$ 5,052,560	$ 3,403,420	$ 1,649,140	$ (96,447)	$ 1,745,588
Residential Evaluation	$ 397,650	$ 21,660	$ 375,990	$ 375,990	$ 0
Commercial/Industrial Incentives/Promotion/Admin	$11,268,197	$ 11,045,951	$ 222,246	$ 222,246	$ 0
Commercial/Industrial Evaluation	$ 100,200	$ 64,980	$ 35,220	$ 35,220	$ 0
IEMS	$ 0	$ 649,797	$ (649,797)	$ (349,797)	$ (300,000)
Large Volume Scorecard (Rate T1, T2/R100)					
Large Volume T1 Incentives/Promotion	$ 477,540	$ 1,304,404	$ (826,864)	$ 0	$ (826,864)
Large Volume T2/R100 Incentives/Promotion	$ 1,745,745	$ 2,580,302	$ (834,557)	$ 0	$ (834,557)
Large Volume T1/T2/R100 Administration	$ 863,933	$ 981,748	$ (117,815)	$ 0	$ (117,815)
Large Volume T1/T2/R100 Evaluation	$ 122,498	$ 43,319	$ 79,179	$ 79,179	$ 0
Low-Income Scorecard					
Low-Income Program Incentives/Promotion/Admin	$ 7,504,864	$ 7,363,016	$ 141,848	$ (192,388)	$ 334,235
Low-Income Evaluation	$ 196,171	$ 43,319	$ 152,852	$ 152,852	$ 0
Market Transformation Scorecard					
Optimum Home Incentives/Promotion/Admin	$ 1,405,340	$ 1,493,642	$ (88,302)	$ (88,302)	$ 0
Programs Sub-total	$29,134,697	$ 28,995,558	$139,139	$ 138,553	$587
Portfolio Budget					
Research	$ 329,116	$ 829,796	$ (500,680)	$ (90,980)	$ (409,700)
Evaluation	$ 525,012	$ 1,049,519	$ (524,507)	$ (524,507)	$ 0
Administration	$ 2,189,940	$ 1,713,006	$ 476,934	$ 476,934	$ 0
Portfolio Sub-total	$ 3,044,068	$ 3,592,321	$ (548,253)	$ (138,553)	$ (409,700)
Incremental DSM Projects 2015 Budget Spend					
Achievable Potential Study, Future Infrastructure Planning Study, DSM Tracking and Reporting System Upgrades	$ 213,879[17]	$ 1,400,000	$ (1,186,121)	$ 0	$ (1,186,121)
Total 2015 DSM Budget	$32,392,645	$ 33,987,879	$ (1,595,234)	$ 0	$ (1,595,234)
Incremental DSM Projects not included in rates					$ 1,400,000
Total 2015 DSMVA					$ (195,234)

[17] Spend in 2015 was on DSM Tracking and Reporting System Upgrades only.

12. 2016 Scorecards

Union's 2016 Resource Acquisition, Low-Income and Performance-Based scorecards are set as outlined in Schedule C of the Board's Decision on Union's 2015-2020 DSM Plan (EB-2015-0029).

The 2016 Large Volume scorecard is based on Union's 2013-2015 DSM program results as outlined on page 52 of the Decision.

Table 12.0 – 2016 Large Volume Scorecard Target Setting Methodology

	Metric Target Levels			
Metrics	**Lower Band**	**Target**	**Upper Band**	**Weight**
Rate T2/Rate 100 Cumulative Natural Gas Savings (m^3)	75% of target	Three-year rolling average (2013-2015) Rate T2/Rate 100 cost effectiveness[1] x 2016 budget without overheads x 1.1 x 0.75	150% of target	100%

1 – Cost effectiveness is the final verified metric achievement used for LRAMVA purposes divided by final actual program spend for that year.

The 2016 Large Volume scorecard is as shown in Table 12.1.

Table 12.1 – 2016 Large Volume Scorecard

	Metric Target Levels			
Metrics	**Lower Band**	**Target**	**Upper Band**	**Weight**
Rate T2/Rate 100 Cumulative Natural Gas Savings (m^3)	853,079,252	1,137,439,002	1,706,158,503	100%

The 2016 Market Transformation scorecard is derived as outlined in Schedule C of the Decision.

Table 12.2 – 2016 Market Transformation Scorecard Target Setting Methodology

		Metric Target Levels			
Programs	**Metrics**	**Lower Band**	**Target**	**Upper Band**	**Weight**
Optimum Home	Homes Built (>20% above OBC 2012) by Participating Builders	75% of Target	2015 Actuals + 20%	150% of Target[1]	50%
Commercial New Construction	New Developments Enrolled by Participating Builders	6	8	12	50%

1 – 2016 Optimum Home upper band metric is capped at 100% of homes built (>20% above OBC 2012).

The 2016 Market Transformation scorecard is as shown in Table 12.3.

Table 12.3 – 2016 Market Transformation Scorecard

		Metric Target Levels			
Programs	**Metrics**	**Lower Band**	**Target**	**Upper Band**	**Weight**
Optimum Home	Homes Built (>20% above OBC 2012) by Participating Builders	53%	70%	100%	50%
Commercial New Construction	New Developments Enrolled by Participating Builders	6	8	12	50%

13. 2015 Avoided Costs

The avoided costs for 2015 are found in Table 13.0.

Table 13.0 - 2015 Avoided Costs

Gas Avoided Costs						
	Residential and Commercial				Industrial	
	Baseload ($/m^3)		Weather Sensitive ($/m^3)		Baseload ($/m^3)	
	Rate	NPV	Rate	NPV	Rate	NPV
1	0.21378	0.21378	0.22071	0.22071	0.20537	0.20537
2	0.19684	0.39992	0.20449	0.41409	0.20114	0.39558
3	0.19620	0.57537	0.20266	0.59532	0.19798	0.57263
4	0.20730	0.75067	0.21387	0.77618	0.20911	0.74947
5	0.23174	0.93599	0.23841	0.96684	0.23358	0.93626
6	0.25035	1.12531	0.25714	1.16130	0.25222	1.12700
7	0.24863	1.30312	0.25553	1.34404	0.25053	1.30616
8	0.25157	1.47324	0.25859	1.51891	0.25350	1.47760
9	0.26925	1.64543	0.27639	1.69566	0.27122	1.65104
10	0.25862	1.80184	0.26588	1.85646	0.26063	1.80866
11	0.27435	1.95873	0.28173	2.01757	0.27639	1.96672
12	0.27612	2.10806	0.28363	2.17096	0.27819	2.11717
13	0.29855	2.26074	0.30618	2.32755	0.30065	2.27093
14	0.30166	2.40663	0.30941	2.47718	0.30380	2.41785
15	0.32465	2.55510	0.33253	2.62926	0.32682	2.56732
16	0.32743	2.69671	0.33545	2.77434	0.32964	2.70988
17	0.33257	2.83272	0.34072	2.91369	0.33482	2.84681
18	0.33925	2.96393	0.34755	3.04810	0.34154	2.97890
19	0.35307	3.09306	0.36150	3.18031	0.35540	3.10888
20	0.36264	3.21848	0.37122	3.30870	0.36501	3.23512
21	0.37758	3.34197	0.38630	3.43504	0.37998	3.35940
22	0.38851	3.46213	0.39738	3.55794	0.39096	3.48031
23	0.39977	3.57905	0.40878	3.67750	0.40225	3.59796
24	0.41135	3.69282	0.42052	3.79380	0.41388	3.71243
25	0.42328	3.80352	0.43260	3.90695	0.42585	3.82381
26	0.43556	3.91125	0.44503	4.01702	0.43817	3.93219
27	0.44820	4.01608	0.45783	4.12410	0.45086	4.03764
28	0.46121	4.11809	0.47101	4.22828	0.46392	4.14024
29	0.47461	4.21736	0.48457	4.32963	0.47736	4.24009
30	0.48840	4.31396	0.49853	4.42823	0.49120	4.33724

Water and Electricity Avoided Costs				
	Residential/Commercial/Industrial			
	Water ($/m^3)		Electricity ($/kWh)	
	Rate	NPV	Rate	NPV
1	0.56824	0.56824	0.11280	0.11280
2	0.57778	1.11462	0.11470	0.22127
3	0.58749	1.63998	0.11663	0.32556
4	0.59736	2.14514	0.11859	0.42584
5	0.60739	2.63087	0.12058	0.52227
6	0.61760	3.09792	0.12260	0.61499
7	0.62797	3.54701	0.12466	0.70414
8	0.63852	3.97882	0.12676	0.78986
9	0.64925	4.39402	0.12889	0.87228
10	0.66016	4.79326	0.13105	0.95154
11	0.67125	5.17714	0.13325	1.02774
12	0.68253	5.54625	0.13549	1.10102
13	0.69399	5.90117	0.13777	1.17148
14	0.70565	6.24244	0.14008	1.23922
15	0.71751	6.57058	0.14244	1.30436
16	0.72956	6.88610	0.14483	1.36700
17	0.74182	7.18949	0.14726	1.42723
18	0.75428	7.48121	0.14974	1.48514
19	0.76695	7.76170	0.15225	1.54082
20	0.77984	8.03141	0.15481	1.59436
21	0.79294	8.29075	0.15741	1.64584
22	0.80626	8.54011	0.16006	1.69535
23	0.81980	8.77988	0.16274	1.74294
24	0.83358	9.01043	0.16548	1.78871
25	0.84758	9.23211	0.16826	1.83272
26	0.86182	9.44526	0.17109	1.87503
27	0.87630	9.65022	0.17396	1.91572
28	0.89102	9.84729	0.17688	1.95484
29	0.90599	10.03679	0.17985	1.99246
30	0.92121	10.21899	0.18287	2.02863

The inflation rate used in Table 13.0 is 1.68%. The discount factor is 5.75%.

Glossary of Terms

Audit The Audit is an annual process to assess the results of Union's DSM results and ensure that they are accurate. The Ontario Energy Board will be responsible for retaining the auditor, also known as the Evaluation Contractor.

Avoided Costs Avoided costs are a measurement of the reduction in the delivered costs of supplying all resources (natural gas, electricity and water) to customers as a consequence of a program.

Base Case The base case is a projection of the future without the effects of the utility's DSM program. The difference between the base case and the energy efficient case represents the saving attributable to the energy efficient measure.

Building Envelope The building envelope refers to the exterior surfaces (such as walls, windows, roof and floor) of a building that separate the conditioned space from the outdoors.

Channel Partner A Channel Partner is a company that, in the course of its business, can influence consumers to choose gas over competing fuels, or one method of increasing energy efficiency over another. Examples of Channel Partners include appliance retailers, HVAC contractors, engineers and architects.

Cost Effectiveness Cost effectiveness refers to the analysis that determines whether or not the benefits of a project/measure are greater than the costs. It is based on the net present value of savings over the equipment life of the measures.

Demand Side Management ("DSM") DSM is the modification in end-use customer demand for natural gas through conservation programs. While the focus of Union's DSM is natural gas savings and the reduction in greenhouse gases emissions, it may also result in the saving of a number of other resources such as electricity, water, propane, and heating fuel oil.

Demand Side Management Incentive Deferral Account ("DSMIDA") The account to record the DSM Utility Incentive amount earned by Union as a result of its DSM programs.

Demand Side Management Variance Account ("DSMVA") The account used to track the variance between actual DSM spending by rate class versus the budgeted amount included in rates by rate class. Union may record in the DSMVA in any one year, a variance amount of no more than 15% above its DSM budget for that year.

Direct Access ("DA") Budget Mechanism The DA budget mechanism is offered to Union's largest industrial customers (Rate T2 and Rate 100). It provides each customer dedicated access to the customer incentive budget they pay in their rates to support energy efficiency projects and studies on an annual basis.

Discount Rate The interest rate used to calculate the net present value of expected yearly benefits and costs.

DSM Utility Incentive The incentive available to Union for achieving Board approved performance targets.

Effective Useful Life ("EUL") EUL is the length of time that a piece of equipment or measure is anticipated to last and perform as expected.

Evaluation Contractor ("EC") The Evaluation Contractor is the independent third party auditor that will carry out the evaluation and audit processes of Union's DSM programs. The Evaluation Contractor is retained by the Ontario Energy Board.

Evaluation and Audit Committee ("EAC") The Evaluation Advisory Committee (EAC) will be formed to provide input and advice to the OEB on the evaluation and audit of DSM results. The EAC will consist of representatives from Union, Enbridge, non-utility stakeholders, independent experts, staff from the Independent Electricity System Operator (IESO), and observers from the Environmental Commissioner of Ontario and the Ministry of Energy, all working with OEB Staff.

Evaluation, Measurement & Verification ("EM&V") The activities undertaken to assess the implementation and performance of a program.

Free Ridership Free riders are program participants who would have installed the energy efficient measure without the influence of Union's DSM programs. Free rider rates are estimated based on research, market penetration studies or through negotiations in prior evaluation processes. The free rider rates are applied to the gross program savings results to derive actual savings.

Incentive An incentive is a payment from Union to DSM participants to encourage participation in a DSM program.

Incremental Cost The incremental cost is the difference in price between the high efficiency case and the base case.

Input Assumptions Assumptions such as operating characteristics and associated units of resource savings for a list of DSM technologies and measures. These cover a range of

typical DSM activities, measures and technologies with residential, low-income, commercial and industrial applications.

Lifetime Cumulative cubic meters ("cumulative m^3") Total natural gas savings over the effective useful life of a DSM measure. Frequently used at the measure or program level and can also summarize the benefits of an entire portfolio.

Lost Revenue Adjustment Mechanism Variance Account ("LRAMVA") The LRAMVA is the Board's approved method by which utilities recover the lost distribution revenues associated with DSM activity. These lost revenues are calculated for contract rate classes impacted by DSM energy efficiency programs.

Market Transformation Market Transformation facilitates fundamental changes that lead to greater market shares of energy efficient products and services.

Measure A measure is any particular energy efficient technology (e.g. a low-flow showerhead, an energy recovery ventilator, condensing boiler, etc.).

National Account National Account customers are those customers that have multiple property locations and are similar in design and use. National Account customers include retail chains, property management firms and foodservice chains.

Net Present Value ("NPV") The NPV is the sum of the discounted yearly benefits arising from an investment over the lifetime of that investment.

Net-to-Gross Ratio Gross impacts are the program impacts prior to accounting for program attribution effects. These attribution effects are free ridership and spillover. Net impacts are the program impacts once program attribution effects have been accounted for. The net-to- gross ratio is defined as 1 – (free ridership ratio) + (spillover ratio).

Offering A DSM offering exists where there are either bundles of energy efficiency measures or performance/maintenance based enhancements to existing measures marketed together (e.g. energy savings kits, home retrofit measures, custom equipment/process/O&M) or where support is delivered through a suite of services (e.g. customer engagement, site energy assessments, etc.).

Participants The units used by Union to measure participation in its DSM programs. Participant units of measurement include customers, projects and measures or technologies installed. Not all participants result in energy savings.

Persistence Persistence is the extent to which a DSM measure remains installed and performing as originally predicted. Persistence of DSM savings takes into account how long a DSM measure is kept in place relative to its useful life, the net impact of the measure relative to the base case scenario, and the impact of technical degradation.

Prescriptive Offering A prescriptive DSM offering is a natural gas savings measure/technology that is based on previously substantiated and pre-approved inputs. Prescriptive DSM measures apply to all of Union's customer market segments including residential, low-income, commercial and industrial.

Program A program is the utility specific approach to providing one or more DSM offerings to customers.

Program Costs DSM program include the following components:

- Development and Start-up
- Promotion
- Delivery
- Evaluation, Measurement and Verification ("EM&V") and Monitoring
- Administration

Of the above costs, only start-up, promotion, delivery, and a portion of the evaluation and verification costs are applicable to individual programs. Other costs related to the design and deliveries of DSM programs are appropriately considered at the DSM portfolio level. These include development, a portion of the evaluation costs, monitoring, tracking and administration costs.

Program Evaluation Program evaluation refers to activities related to the collection, analysis, and reporting of data for purposes of measuring program impacts from past, existing or potential program impacts.

Resource Acquisition Programs that seek to achieve direct, measurable savings customer-by-customer through the incenting/promotion of specific energy efficiency upgrades.

Social and Assisted Housing Residential social housing includes all non-profit housing developed, acquired or operated under a federal, provincial or municipally funded program including shelters and hostels.

Spillover Spillover effects refer to customers that adopt energy efficiency measures because they are influenced by a utility's program related information and marketing efforts, but do not actually participate in the program.

Technical Evaluation Committee ("TEC") The TEC consists of seven individuals: three intervenors members selected by intervenors, a representative from Union, a representative from Enbridge, and two independent members with technical and other relevant expertise. The goal of the TEC was to establish DSM technical and evaluation standards for natural gas utilities in Ontario.

Total Resource Cost Test ("TRC") The TRC Test provides a measure of the benefits and costs that accrue as a result of the installation of a DSM measure.

Trade Allies Trade allies include organizations (e.g. architectural and engineering firms, building contractors, appliance manufacturers and dealers, and banks) that influence the energy-related decisions of customers who might participate in DSM programs.

Units Units provided within report tables can represent different items, such as the number of measures installed or homes retrofitted, depending on the program being reported on. Units are not equivalent to the number of participants since a single participant can install several units.

Appendix A Input Assumptions

The input assumptions that were used to calculate the savings claims that comprise the 2015 DSM scorecard targets and results can be found at the following link (EB-2014-0354):

http://www.rds.oeb.ca/HPECMWebDrawer/Record?q=CaseNumber=eb-2014-0354&sortBy=recRegisteredOn-&pageSize=400