December 16, 2011

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

RE: EB-2011-0327 – Union Gas Limited – 2012-2014 Demand Side Management Plan – Evidence Update

The purpose of this letter is to update Union's EB-2011-0327 evidence with respect to changes in the scorecard targets for Union's proposed Large Industrial Rate T1/Rate 100 program.

On September 23, 2011, Union filed its proposed 2012-2014 Demand Side Management ("DSM") Plan. The Large Industrial Rate T1/Rate 100 Program targets proposed at the time were based on results for operating and maintenance ("O&M") projects over the period January 2008 to June 2011.

During the second quarter of 2011, Union developed promotional materials targeting O&M projects for this group of customers. Union also increased its sales efforts for O&M projects. As a result of these marketing efforts, the number of O&M projects funded between June 2011 and November 2011 increased dramatically.

Accordingly, the Large Industrial Rate T1/Rate 100 program targets have been recalculated to be more reflective of our recent experience. The new proposed 100% target level for the Large Industrial Rate T1/Rate 100 Program is 500,000,000 m^3, an increase from the previously filed 100% target level of 200,000,000 m^3.

Please find attached updated copies of Exhibit A and Appendix A reflecting the changes in scorecard targets for Union's proposed Large Industrial Rate T1/Rate 100 Program.

If you have any questions, please contact me at 519-436-4521.

Yours truly,

[Original signed by]

Marian Redford
Manager, Regulatory Initiatives

cc: Crawford Smith (Torys)
EB-2011-0327 Intervenors

UNION GAS LIMITED

PROPOSED 2012 – 2014 DSM PLAN

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1 INTRODUCTION

Union Gas Limited ("Union") has prepared its Demand Side Management ("DSM") Plan (the "Plan") for the three year period 2012 – 2014 in compliance with the Guidelines for Natural Gas Utilities (the "Guidelines") dated June 30, 2011 (EB-2008-0346). The Guidelines were developed to provide guidance to the utilities when preparing their Plans.

Union is seeking approval of its Plan effective January 1, 2012. The Plan strikes the appropriate balance between the guiding objectives of the Board, stakeholder views, and market conditions within Union's franchise area. Union requires the Board's Decision on the Plan by November 15, 2012 to prevent market disruption, establish the required contracting commitments and to ensure program continuity in the market. Union recognizes that there is limited time between now and November 15, 2012 to complete the regulatory process and for the Board to issue its final Decision. Accordingly, in the event that a Board Decision cannot be released by November 15, 2011, Union has requested interim approval of the following:

a) Approval of DSM budgets for the year 2012;
b) Approval of the Resource Acquisition Programs; exclusive of the Large Industrial Rate T1/Rate 100 Program;
c) Approval of the Low-income Program;

Since 1997, Union's DSM Programs have produced substantial energy savings and bill reductions for customers. Energy conservation, and specifically natural gas DSM, continues to be an important public policy goal for the provincial government. The Green Energy and Green

Economy Act ("GEA"), and other related legislation, are aimed to increase conservation programs while creating green jobs and economic growth for Ontario. The legislation is part of Ontario's plan to become the leading green economy in North America. One of the largest underpinnings of that ambitious goal is to create the potential for savings and better managed household and business energy expenditures through a series of conservation programs and utility driven initiatives. Ontario's Environmental Commissioner supports this direction, and in relation to the natural gas utilities' DSM programs, stating that "conservation provides system benefits that help all gas consumers and environmental benefits for all Ontarians from reduced emissions. Limiting conservation funding means these benefits are lost."[1]

Since 1997 Union has delivered over 4.3 billion m^3 of natural gas savings. These natural gas savings correspond to a reduction of approximately 8.2 million tonnes of carbon dioxide equivalent emissions. It is clear that Union's DSM results play an important role in achieving the provinces' environmental objectives. Union has a proven track record of delivering DSM Program results and has served as a consistent source of energy information and assistance. Due to their unique position, natural gas utilities are able to provide stable programs for Ontario's energy consumers despite political changes, economic challenges and the natural gas pricing environment faced by customers.

The economic impact in both the province and the Union franchise area over the period following the 2008 recession has been significant. Although Canada skirted much of the

[1] Environmental Commissioner of Ontario. *Managing a Complex Energy System - Annual Energy Conservation Progress Report – 2010 (Volume One).* June 2011. p 4.

economic impact of the global financial recession and sovereign debt malaise, economic activity in Canada and Ontario is lower today when compared to the pre-2008 time period. Total housing starts have since recovered somewhat but are below past peak levels and labour force indicators are weaker: the unemployment rate is higher and the labour force participation rates are lower. The Canadian dollar has appreciated above parity with the U.S. dollar and many industrial establishments in our franchise have closed. Although monetary policy has lowered interest rates to levels not seen in 60 years, total household debt is high. Currently, in mid 2011, global economic activity in North America is slowing and fears of a double dip recession are rising. All of these issues support the need for continued efforts by Union Gas to help customers reduce their energy bills to save money and become more competitive in a global marketplace.

Union's DSM Programs have been impacted by this new and uncertain economic environment. Program take-up is negatively affected by weaker economic activity. In the short term, the expected impact of these factors is a delay in capital and operating investment in gas sector energy efficiency and, hence, lower program participation rates. Customer payback and return on investment calculations for natural gas efficiency expenditures are also negatively impacted by the current low price of natural gas. Together with rising electricity prices and the competition for customer attention from electric Conservation and Demand Management ("CDM") programming, these factors present challenges to natural gas DSM Programs over the term of the Plan. Within this context, the Guidelines have provided Union with a stable three year DSM framework to meet this challenge and the flexibility to adjust its DSM Program portfolio.

The Board's expectation, as set out in the Guidelines, was for the utilities to develop DSM Plans that would result in the: 1) maximization of cost effective natural gas savings; 2) prevention of lost opportunities; and 3) pursuit of deep energy savings. Union's Plan includes Resource Acquisition, Market Transformation and Low-income Programs (the "Programs"). In consideration of these objectives Union has rebalanced its portfolio of Programs to be consistent with the Guidelines. Union's Plan includes the following enhancements:

- Greater emphasis on deeper measures. These deep measures drive higher gas savings per participant and avoid lost market opportunities for energy efficiency.
- Increased emphasis on Market Transformation Programs to drive fundamental market changes in Ontario.
- More targeted programming to the large industrial market to quantify energy savings opportunities and help optimize operational efficiency.
- A more holistic approach to the energy needs of low-income energy consumers. The Program will include providing high efficiency furnaces and water heaters and a multi-family offering to ensure all building stock is addressed when working with social housing providers.
- Increased budget for research and evaluation activities to ensure new measures are considered over the term of the Plan and all parties have confidence in the natural gas savings delivered within the DSM portfolio.

Consultation Efforts

As part of developing the Plan, Union consulted with a broad range of stakeholders, including intervenors, industry organizations, customers, home builders, the OPA and service providers. Union regularly engages industry stakeholders in each sector to ensure its Programs are tailored to the needs of the market and to refine its delivery strategy.

Intervenor Consultation on 2012 – 2014 DSM Plan

On August 11, 2011, Union held a full day consultation on its draft Plan with intervenors and interested parties. At the consultation, the programs, scorecards, and budget allocation of the Plan were reviewed and feedback was provided. Following the consultation, Union circulated meeting notes to all stakeholders, including those not able to attend. In addition, Union offered stakeholders the opportunity to provide written comments on Union's proposed Plan. The material provided in advance of the August 11, 2011 consultation, the meeting invitation, attendance list and meeting notes are provided in Appendix B.

Union held a subsequent consultation on August 18, 2011 to communicate Plan changes made as a result of the August 11, 2011 consultation session. Material provided in advance of the August 18, 2011 meeting, the meeting invitation and attendance list is provided in Appendix C. A summary of the changes Union made from the original Plan proposal to the final Plan is provided in Appendix D.

Between August 11, 2011 and September 20, 2011, Union consulted individually with the Low-Income Energy Network ("LIEN"), Vulnerable Energy Consumers Coalition ("VECC"), Building Owners and Managers Association ("BOMA"), Federation of Rental-housing Providers of Ontario (" FRPO"), Canadian Manufacturers & Exporters ("CME"), Industrial Gas Users Association ("IGUA") and Pollution Probe. Union also met with the Green Energy Coalition ("GEC") to discuss market transformation opportunities. Any changes that resulted from these individual meetings are included in Appendix D and reflected in Union's Plan.

Union notes that although it consulted with stakeholders when developing the Plan and incorporated, where appropriate, the feedback provided through consultation, it does not have consensus on the Plan. It is Union's view that the Plan is consistent with the Guidelines while balancing the goals of the Board and the interests of Union and its stakeholders.

Enbridge Gas Distribution Consultation

Union and Enbridge have consulted extensively throughout the process of developing the Plan. While there are regional differences between the franchise areas and some variation in the programs offered, Union intends to continue to work closely with Enbridge over the term of the Plan. This will result in efficiencies in program planning, evaluation and ensure a high degree of alignment across Ontario on DSM Program offerings.

Stakeholder Engagement Terms of Reference Consultation

As contemplated by the Guidelines, a separate consultation was held jointly with Enbridge to establish a Stakeholder Engagement Terms of Reference ("ToR"). At Enbridge's July 20, 2011 DSM Consultative meeting, intervenors were invited to nominate members to a Working Group to develop the ToR in consultation with both utilities. The utilities were informed on July 24, 2011 that the Working Group intervenor members would consist of CME, LIEN, IGUA, GEC and the School Energy Coalition ("SEC")

Half day sessions were held with the Working Group on August 19, 22, 24 and 26th. In addition, a final conference call was also conducted on August 31st. Union and Enbridge engaged a third party consultant, Mr. Mike Messenger[2] of Itron, to present an overview of stakeholder engagement models in other jurisdictions at the first Working Group session. Mr. Messenger attended subsequent sessions via conference call. Consensus was not reached on the final ToR with the Working Group. Appendix E provides Union's proposed ToR.

Rate T1/Rate 100 Customer Consultation

As indicated in the Guidelines:

"the Board is of the view that large industrial customers possess the expertise to undertake energy efficiency programs on their own. As a result, ratepayer funded DSM programs for large industrial customers are no longer mandatory."[3]

[2] Mr. Messenger's curriculum vitae and presentation are included in Appendix F.
[3] Ontario Energy Board. *Demand Side Management Guidelines for Natural Gas Utilities.* (EB-2008-0346). June 30, 2011. p. 26

To assist Union in its determination as to whether or not to continue to provide DSM Programs to large industrial rate classes, Union surveyed all Rate T1 and Rate 100 customers. Specifically, Union asked customers if they supported the continuation of DSM Programs and for their input on our program proposals. Based on the feedback from customers, Union believes that DSM Programs for Rate T1 and Rate 100 customers should be continued. The survey results and Union's further justification for the continuation of Programming for Rate T1/Rate 100 customers is provided below.

Justification for Large Industrial Rate T1/Rate 100 Program

As indicated above, Union surveyed all Rate T1 and Rate 100 customers to determine if it should continue to offer DSM Programming to large industrial customers. Based on the survey results, Union determined that it should continue DSM Programming to these customers.

Resource Acquisition Programs that previously focused on process and capital equipment incentives were valued by customers, however capital incentives in and of themselves were not sufficient to build a sustainable culture of energy efficiency in an organization. Union's proposed Rate T1 and Rate 100 Program is the next step in the evolution of energy efficiency programming for large industrial customers. Building on a long established, successful Resource Acquisition Program, the new Program draws out those attributes that customers have stated provide them the most value at the least cost. Leveraging Union's in house expertise, our energy engineers will focus the customer on building a sustainable culture of energy efficiency within their organization through the training and development of staff and the development and

support of in house energy teams. Union's Program will provide detailed energy assessments and studies that enable facilities to quantify the real savings that can be achieved. This will enable plant managers to provide the technical business case justification executives require to support investment in energy efficiency. In addition, the new Program focuses incentives on the implementation of operating and maintenance related energy improvements. Customers have consistently indicated that in times of economic uncertainty, it is the spending on items that do not directly impact production numbers that comes under fire, like energy improvements. As mentioned previously, the focus of these facilities is not on energy management, but on production numbers. The true value of Union's Program is in keeping energy management a focus for these organizations to drive a sustainable culture of energy efficiency in organizations across Ontario.

As of August, 2011, there are 56 Rate T1 customers and 15 Rate 100 customers. Each of these customers is strategically account managed from the plant level to the corporate decision makers. It has been Union's experience that, although these customers tend to be large sophisticated industrial customers in their specific industry, their expertise and focus is not on energy management. Largely, energy costs are improperly viewed as a sunk cost incurred as part of the manufacturing process rather than a prospective cost with significant savings opportunities. Plants are measured based on production output and associated cost controls with resources focused primarily on production target outcomes. Union adds value by providing experience, knowledge and support, which encourage the customer to maintain a continual focus on the saving opportunities that can be afforded through energy management best practises.

The purpose of the customer research undertaken was to gain an understanding of the customers' views of the current value of Union's efficiency Program; to determine what Enersmart DSM offerings customers would like Union to provide beyond 2011; and what average cost would customers be willing to pay for the Program as part of a rate payer funded initiative. Surveys were sent to all customers in these two rate categories and, where appropriate, to multiple contacts within a customer site. Customers were also given the opportunity to provide verbatim comments with respect to their perception of the value of the Program and to ask any potential Program questions. The DSM Program survey for Rate T1 and Rate 100 Customers Report is provided in Appendix G.

72% of the eligible customers responded to this survey. 69% of the respondents support Union's continued provision of DSM Programs. Those in support of the continuation of DSM programming can be further broken down between the industrial/institutional customers and power customers. 73% of the Industrial/Institutional customers support continuing Programs while only 54% of the power generators are supportive. Power generators represent 18% of the customers in these rate classes. The remainder are industrial clients, greenhouse growers, and hospitals. The survey can also be further delineated by rate class with 72% of Rate T1 customers and 58% of Rate 100 customers showing support for continuing DSM programming.

To ensure the development and promotion of a Program that is of value to this customer group, Rate T1 and Rate 100 customers were asked for their input on Union's Large Industrial Rate T1/Rate 100 Program proposals. The input received from customers is consistent with Union's

proposed Program, focusing on operating and maintenance optimization incentives and process improvement studies. Respondents have indicated that they want Union to provide targeted energy management programs with experienced technical resources and support for energy efficiency initiatives. Project Managers understand the customers' production processes and equipment and, as a result, Union is able to provide not only technical expertise but business case support for energy efficiency projects that would otherwise not be considered.

With respect to the appropriate cost for the Program, the survey provided a dollar value range for respondents to select from. The dollar value was presented as the gross cost of the Large Industrial Rate T1/Rate 100 Program prior to the receipt of any individual customer incentives relative to the delivered cost of gas at their facility. A dollar value range for Rate T1 customers went from $0.00 to $0.025/GJ, with $0.025/GJ representing the average rate impact over the term of the previous DSM Plan. Rate 100 customers had a range of $0.00 to $0.05/GJ, with the $0.05/GJ representing the average rate impact to a Rate 100 customer over the term of the previous DSM Plan. For Rate 100, 50% of the respondents selected the current level of rate payer funding of $0.05/GJ, and a further 8% selected $0.015/GJ. For Rate T1, 31% of Rate T1 respondents chose the current level of funding at $0.025/GJ, and the average response for this rate class was $0.02/GJ. These rate payer funding points are in line with Union's recommended budget and Program proposal for the energy efficiency services for Rate 100 and Rate T1 submitted as part of this application. The proposed 2012 Program budget includes a rate payer funded level of $0.018/GJ for the Rate T1 rate class and $0.019/GJ for the Rate 100 rate class. Schedule 1 shows a comparison of the 2012 Program cost to the Program costs incurred in 2010.

The proposed 2012 DSM related costs used in the analysis include the proposed 2012 DSM budget and the proposed DSM incentive at a 100% utility achievement level. The 2010 DSM related costs include the actual DSM Program spend, the market transformation incentive amount per the EB-2011-0038 filing, plus the actual 2010 SSM deferral amount per the EB-2011-0038 filing.

The survey results indicate that, with the exception of the power market, the Rate T1 and Rate 100 customers, made up of industrial and commercial customers, such as greenhouses and hospitals, support the Large Industrial Rate T1/Rate 100 Program with some level of funding. It is therefore Union's view, based on the customer response, that the Rate T1 and Rate 100 rate classes should continue to be afforded the opportunity to participate in rate funded DSM Programming.

In addition to the survey results supporting the continuation of DSM programming in Rate T1 and Rate 100, Union notes that competitors of the industrial and commercial Rate T1 and Rate 100 customers are found in other contract rate classes that are eligible for DSM programming. Steel, automotive, hospitals, greenhouses and chemical companies form part of the Rate M4, Rate M5 and Rate 20 rate classes. Customers in the Rate M4, Rate M5 and Rate 20 rate classes will continue to have access to Union's incentives and resources to improve their competitiveness through energy efficiency initiatives. It would be inappropriate and unfair to deny those Rate T1 and Rate 100 customers, competing in the same industrial and commercial environment, access to similar initiatives simply because of their rate class designation. This is

true especially when Rate T1 and Rate 100 customers have expressed their support for the continuation of these Programs.

2 UNION'S PROPOSED 2012 – 2014 DSM FRAMEWORK

Per the Guidelines, the company's Plan includes Union's Proposed Framework, Characteristics of Distribution System (Appendix A), Proposed Programs (Appendix A), Stakeholder Engagement Terms of Reference (Appendix E), Input Assumptions (Appendix H), Avoided Costs (Appendix I), Evaluation Studies (Appendix J) and ICF Marbek Natural Gas Energy Efficiency Potential Study (Appendix K).

2.1 Budget

Union's 2012 DSM budget will be $30.091 million, adjusted annually for inflation. For 2012, the budget including inflation is $30.954 million. The calculation of the proposed 2012 budget is provided in Table 1 below. Union's proposed 2012 budget is consistent with the Guidelines which allow for the utilities 2011 budget to be increased by 10% to support of Low-income Programs. The Guidelines also allow the utilities to increase their 2011 budget by inflation each year.

To calculate inflation Union has used the four quarter rolling average at Q1, 2011 of the Gross Domestic Product Implicit Price Index ("GDP-IPI") value rather than the Q3, 2011 GDP-IPI indicated in the Guidelines because the third quarter GDP-IPI will not be available until November, 2011. Any variance between the proposed 2012 DSM budget and the actual 2012 DSM costs will be trued up in the DSM Variance Account. For 2013 and 2014, Union proposes to use the four quarter rolling average at Q2 of each year of the GDP-IPI inflation factor, released at the end of August, to align with the timing of Union's annual rate setting process.

Table 1
2012 DSM Budget Calculation
($ 000's)

Line		
	Calculation of Overall Budget	
1	2011 Budget	27,355
2	10% Increase for Low-income (line 1* 10%)	2,736
3	Total 2012 Budget	30,091
	Calculation of Low-income Budget	
4	Minimum 2012 Low-income Plan Budget	4,103 (1)
5	10% Increase for Low-income	2,736
6	Total 2012 Low-income Budget Before Portfolio Costs	6,839
7	Portfolio Level Costs Allocated to Low-income	1,004
8	Total 2012 Low-income Budget (line 6 + line 7)	7,843
	Calculation of Inflation	
9	Inflation (line 3 * 2.87%)	864
10	Total 2012 Budget With Inflation (line 3 + line 9)	30,954

(1) As indicated at page 26 of the Guidelines

With the exception of the Low-income budget, Union's 2012 DSM budget is allocated to rate classes based on the forecasted budget by rate class. Budgeted program costs were calculated at the customer class level (e.g. Residential, C/I General Service etc). The portfolio-level costs that could not be assigned to a customer class were allocated based on the percentage allocation of the program costs. For example, as 25% of the 2012 program budget was assigned to C/I General Service, 25% of the portfolio costs were allocated to this customer class. As customer incentives received are tracked at a rate class level, the forecasted customer class budgets were allocated to individual rate classes based on the 2010 customer incentives paid by rate class (e.g. within the C/I General Service customer class the 2010 customer incentive allocation of 42% Rate M1, 38% Rate M2, 7% Rate 01 and 12% Rate 10 was used to allocate the 2012 C/I General Service

budget). This methodology will be used to forecast the DSM budget, by rate class, for each year of the Plan.

The Guidelines state that Low-income Programs should be funded by all rate classes. Union proposes to allocate the 2012 Low-income DSM budget of $8.068 million ($7.843 million plus $0.225 million of inflation) to rate classes in proportion to the most recent Board-approved allocation of rate base. Accordingly, for 2012, Union proposes to use the 2007 Board-approved allocation of rate base (EB-2005-0520, Exhibit G3, Tab 2, Schedule 2, Rate Base, updated for EB-2005-0520 Board Decision). For 2013 and 2014, Union will update the Low-income DSM budget allocation to rate classes based on the approved rate base allocation in Union's 2013Cost of Service Proceeding. In Union's view, allocating Low-income DSM costs to infranchise distribution rate classes using rate base is a reasonable approach and is consistent with the intent of the Guidelines.

Table 2 provides the allocation of the 2012 DSM budget by rate class.

Table 2
2012 DSM Program Costs by Rate Class

Line No.	Particulars	Pre-Inflation Budget			Inflation [2]			Total		
		Main Portfolio	Low-income [1]	Total	Main Portfolio	Low-income	Total	Main Portfolio	Low-income	Total
		(a)	(b)	(c) = (a+b)	(d)	(e)	(f) = (d+e)	(g)	(h)	(i) = (g+h)
	North									
1	R01	2,366	1,705	4,071	68	49	117	2,434	1,754	4,188
2	R10	928	315	1,243	27	9	36	955	324	1,279
3	R20	777	163	941	22	5	27	800	168	968
4	R100	1,200	216	1,416	34	6	41	1,234	222	1,456
	South									
5	M1	8,707	3,986	12,693	250	114	364	8,957	4,100	13,058
6	M2	2,881	606	3,487	83	17	100	2,963	623	3,587
7	M4	1,157	162	1,318	33	5	38	1,190	166	1,356
8	M5A	1,291	99	1,390	37	3	40	1,328	102	1,430
9	M7	532	100	632	15	3	18	547	103	650
10	T1	2,409	491	2,900	69	14	83	2,478	505	2,984
11	Total	22,247	7,843	30,091	638	225	864	22,886	8,068	30,954

[1] Includes portfolio level costs attributable to low-income
[2] 2.87% (Four quarter rolling average of GDP-IPI at Q1, 2011)

Table 3 provides the annual DSM budget by Program for each year of the Plan prior to the addition of inflation. The 2012 - 2014 DSM budget shown in Table 3 was established based on historical results, stakeholder input and Union's assessment of the market opportunities in each sector. Union may adjust the planned sector level spending during the market planning process that will be undertaken annually in Q4 prior to the Program year. Per the Guidelines, Union shall inform the Board and the Consultative in the event cumulative fund transfers among Board-approved programs exceed 30% of the approved annual DSM budget for any one program.

Table 3
2012 – 2014 DSM Plan Budget

	Year		
	2012 ($000)	2013 ($000)	2014 ($000)
Program Budget			
Resource Acquisition			
Residential Program	4,103	4,282	4,054
Commercial/Industrial Program	9,181	9,181	9,106
Large Industrial T1/R100 Program	3,147	3,147	3,147
Low-Income			
Low-Income Program	6,839	6,839	6,839
Market Transformation			
High Efficency Water Heating Program	1,552	1,238	1,506
High Efficiency Residential New Build Program	726	860	820
Integrated Energy Management Systems Program	690	690	765
Programs Sub-total	26,237	26,237	26,237
Portfolio Budget			
Research	1,066	1,066	1,066
Evaluation	969	969	969
Administration	1,819	1,819	1,819
Total DSM Budget	**$30,091**	**$30,091**	**$30,091**

Union will track the variance between the DSM budget included in rates, by rate class, and the actual DSM dollars spent by rate class. The variance, by rate class, will be disposed of annually through Union's deferral disposition application.

2.2 Targets

Union has used a balanced scorecard approach to establish targets for each of its Programs. It is Union's view that metrics should include both leading indicators, such as training initiatives or assessments completed, and lagging indicators such as cumulative m^3 or participation rates. It is important to measure both leading and lagging indicators to ensure that Union's Programs are performing well and delivering results to customers. Including leading indicators ensures that

Programs will deliver future energy savings. Scorecards have been established at the program type level to provide adequate flexibility so that Union can react to market developments. This also allows Union to react to changes in input assumptions by adjusting the design, delivery and set of DSM measures offered.

Union is proposing four scorecards. They are Resource Acquisition, Large Industrial Rate T1/Rate 100, Low-income, and Market Transformation. A separate balanced scorecard for Union's Large Industrial Rate T1 and Rate 100 Program provides additional transparency for the targets and rate impacts for customers in these rate classes. The scorecards are discussed in more detail below.

As indicated above, one of the Board's objectives when developing the Guidelines was to encourage the pursuit of deep energy savings. In defining deep measures, Union considers measures to be deep if they result in relatively long term savings as they would not reasonably be uninstalled prior to their end of useful life. Examples of deep measures include wall and attic insulation, condensing boilers and custom projects such as upgrades to industrial processes. Discretionary low-cost retrofit measures, such as showerheads and pre-rinse spray valves, are not considered deep for the purpose of the Plan or scorecard targets. These measures do not prevent lost opportunities and may be easily uninstalled prior to their end of useful life. Appendix H, Table 1 lists the deep measures/offerings which will be counted towards achievement of this metric on the applicable scorecards provided below.

Consistent with the Guidelines, Union has established annual targets for each of the three program years of the Plan. As the program results to calculate the DSM incentive are based on best available information, the cumulative natural gas savings metric included in Union's Resource Acquisition, Large Industrial Rate T1/Rate 100, and Low-income scorecards will be impacted by changes in input assumptions resulting from the evaluation and audit process of the same program year. To confirm the cumulative natural gas targets for the subsequent program year, Union will calculate a Target Adjustment Factor ("TAF") for each scorecard based on the variance in cumulative natural gas savings due only to changes in input assumptions confirmed through the Audit. This factor will be applied to the 50%, 100% and 150% cumulative natural gas savings metric targets included in tables 4 - 6 below for the following year of the Plan. The formula for the TAF is provided below.

$$TAF = \frac{(\text{Cumulative } m^3 \text{ Savings Using Post-Audit Input Assumptions} - \text{Cumulative } m^3 \text{ Savings Using Planning Input Assumptions*})}{\text{Cumulative } m^3 \text{ Savings Using Planning Input Assumptions*}}$$

* Union's planning input assumptions are included in Appendix H

For example, should changes to input assumptions for the 2012 program year confirmed through the Audit result in a cumulative natural gas savings value for the Resource Acquisition scorecard that is 10% higher than using Union's planning input assumptions (included in Appendix H), the 2012 targets will remain unchanged. However, the 50%, 100% and 150% cumulative natural gas savings metric targets in the 2013 Resource Acquisition scorecard will be escalated by 10% to reflect the changes in input assumptions. This approach rewards Union's ability to react to new information within the program year while recognizing that some Program results are driven by a

few key measures, and should the input assumptions for these measures be adjusted materially, the targets established at the start of this planning period would no longer be appropriate for the remaining year(s) of the Plan. This is a greater risk under cumulative natural gas savings targets than under TRC measurement as a change in measure life, for example, will have a higher impact compared to the discounting of future resource savings under TRC.

Should a change to the Market Transformation Programs be required within the term of the Plan Union will consult its stakeholders and may file revised scorecard targets with the Board for the following year(s) of the Plan.

Union has developed its 100% scorecard targets on a bottom-up basis using market fundamentals, historical data, relevant research, current input assumptions, projected budgets and feedback from intervenors and industry stakeholders. For the cumulative natural gas savings and deep measure metrics, Union has established the 50% and 150% target levels as a multiplier of the 100% target. The multiplier for the 50% target level is 0.5 (50% target = 100% target × 0.5). Therefore, Union will earn no utility incentive for achieving half of its weighted scorecard target but will begin to achieve its utility incentive only after this point. For example in the event 75% of the overall scorecard target was achieved, the utility would receive 20% of the maximum utility incentive for that scorecard. In establishing the multiplier for the 150% target level, Union considered that it would only be reimbursed up to a maximum of 15% above its DSM budget for a given year via the DSM Variance Account. Union therefore established the multiplier for the 150% target level as 1.25 (150% target = 100% target × 1.25). Within this structure Union must

achieve a 25% increase above the target with funding of only 15% above the DSM budget. Therefore, Union is challenged to drive increased participation above the 100% scorecard target level. For the metrics that are unique to individual programs, such as the Market Transformation Programs, Union has established the 50% and 150% metric levels based on an assessment of the unique nature and objectives of the Program.

2.2.1 Resource Acquisition Scorecard Exclusive of Large Industrial Rate T1/Rate 100

The metrics in the Resource Acquisition scorecard include cumulative natural gas savings and number of deep measure participants. Union included these metrics as they reflect the three guiding principles of the Board; the cumulative natural gas savings metric rewards Union for maximizing gas savings for customers while the deep measure participants metric motivates Union to focus on preventing lost opportunities and pursuing energy savings which persist for the customer. The Guidelines had outlined these metrics should be included in the Resource Acquisition scorecard to drive the multiple objectives of the Programs.

Union had initially developed the Resource Acquisition scorecard[4] to included a metric for the $ spent/cumulative m^3 savings as suggested by the Guidelines. Based on feedback received at Union's August 11, 2011 consultation, this metric was removed from the final scorecard. At the August 18, 2011 consultation, Union had proposed a 50% weighting for each of the metrics in recognition of the equal importance of driving natural gas savings with delivering deep measures that prevent lost opportunities for energy savings in the market. Union maintains both metrics are

[4] Union's initial Resource Acquisition scorecard structure presented at the August 11, 2011 consultation meeting is included in Appendix B.

equally important to drive the multiple objectives outlined in the Guidelines. Union has, however, allocated a higher weighting to the cumulative natural gas savings metric. Union has placed a greater emphasis on the cumulative natural gas savings metric in direct response to feedback received from stakeholders.

Table 4
2012 – 2014 Resource Acquisition DSM Scorecards

2012 Resource Acquisition Scorecard				
Metric	**Metric Target Levels**			**Weight**
	50%	**100%**	**150%**	
Cumulative Natural Gas Savings (m3)	279,020,000	558,041,000	697,551,000	60%
Deep Measures	1,746	3,490	4,363	40%

2013 Resource Acquisition Scorecard				
Metric	**Metric Target Levels**			**Weight**
	50%	**100%**	**150%**	
Cumulative Natural Gas Savings (m3)	278,600,000	557,200,000	696,501,000	60%
Deep Measures	1,813	3,625	4,532	40%

2014 Resource Acquisition Scorecard				
Metric	**Metric Target Levels**			**Weight**
	50%	**100%**	**150%**	
Cumulative Natural Gas Savings (m3)	277,616,000	555,231,000	694,040,000	60%
Deep Measures	1,813	3,625	4,532	40%

Scorecard Metrics Description

a. Cumulative Natural Gas Saved (m^3)

- The total natural gas saved for all resource acquisition offerings (excluding Rate T1/Rate 100 rate classes) delivered by Union for the term of their measure life, net of adjustment factors such as free ridership, spillover and persistence.

b. Deep Measures

- The total number of deep measures delivered by Union as listed in Appendix H, Table 1and amended as appropriate in the event new measures are confirmed within the term of the Plan (excluding Rate T1/Rate 100 rate classes).
- Each prescriptive measure is considered one unit and each custom project is considered one unit towards the target.

2.2.2 Large Industrial Rate T1/Rate 100 Resource Acquisition Scorecard

Union has separated the Large Industrial Resource Acquisition Program into a separate scorecard to provide additional transparency for all stakeholders for the targets and budget associated with this Program. The metrics in the Large Industrial Rate T1/Rate 100 scorecard include cumulative natural gas savings and percentage of customers participating.

The cumulative natural gas savings metric is included as part of the three guiding principles set out by the Board. With only 71 customers in Rate T1 and Rate 100 funding the Program, the percentage of customers participating metric ensures that Union is motivated to drive as many customers in the rate class as possible to participate.

Union's original Large Industrial Rate T1/Rate 100 scorecard[5] had included a metric for the $ spent/cumulative m^3 savings as suggested by the Guidelines. It had also included an effectiveness measure whereby customers would be surveyed as to whether Union is providing effective energy conservation support with achievement based on a top 3 box score percentage[6]. Based on feedback received at Union's August 11, 2011 consultation, these metrics were removed from the final scorecard. At the August 18, 2011 consultation meeting with stakeholders, Union had proposed a 50% weighting for each metric in recognition of the equal importance of driving natural gas savings with ensuring broad participation to ensure rate class cross subsidization is minimized.

[5] Union's initial Large Industrial Rate T1/Rate 100 scorecard structure presented at the August 11, 2011 consultation meeting is included in Appendix B[6] A "top 3 box" score refers to the percentage of respondents providing an 8, 9, or 10 on a 10 point scale.
[6] A "top 3 box" score refers to the percentage of respondents providing an 8, 9, or 10 on a 10 point scale.

Union responded to stakeholder feedback on the 50% weighting proposed by allocating a higher weighting to the cumulative natural gas savings metric in the scorecard below.

Table 5
2012 – 2014 Large Industrial Rate T1/Rate 100 DSM Scorecards

2012 Large Industrial T1/R100 Program Targets				
Metric	**Metric Target Levels**			
	50%	**100%**	**150%**	**Weighting**
Cumulative Natural Gas Savings (m^3)	250,000,000	500,000,000	625,000,000	60%
Percentage of Customers Participating	30%	55%	65%	40%

2013 Large Industrial T1/R100 Program Targets				
Metric	**Metric Target Levels**			
	50%	**100%**	**150%**	**Weighting**
Cumulative Natural Gas Savings (m^3)	250,000,000	500,000,000	625,000,000	60%
Percentage of Customers Participating	30%	55%	65%	40%

2014 Large Industrial T1/R100 Program Targets				
Metric	**Metric Target Levels**			
	50%	**100%**	**150%**	**Weighting**
Cumulative Natural Gas Savings (m^3)	250,000,000	500,000,000	625,000,000	60%
Percentage of Customers Participating	30%	55%	65%	40%

Scorecard Metrics Description

a. Cumulative Natural Gas Saved (m^3)

- The total natural gas saved for all projects delivered to Rate T1/Rate 100 rate class customers for the term of their measure life, net of adjustment factors such as free ridership, spillover and persistence.

b. Customers Participating (%)

- The total number of Rate T1, Rate 100 and Rate 100/25 customers that receive an incentive in a given year, divided by the total number of customers in those rate classes on December 31 each year.
- Every contract (or Service Agreement Number) will be considered (or defined) as one customer, except in cases where:
    - The customer is ineligible for DSM (i.e. Transmission customers).
    - The customer did not receive natural gas in that given year.

2.2.3 Low-income Scorecard

Consistent with the three guiding principles contained in the Guidelines, the metrics in the Low-income scorecard include cumulative natural gas savings as well as the number of residential deep measure participants and multifamily deep measures. The Guidelines indicate that these metrics should be included in the Low-income scorecard to drive the multiple objectives of the Program. Union's original Low-income scorecard[7] had included a metric for the $ spent/ cumulative m^3 savings as suggested by the Guidelines. Based on feedback received at Union's August 11, 2011 consultation this metric was removed from the final scorecard. Union has separated the residential deep measure participant metric from the multi-family deep measures metric based on feedback received at the second consultation meeting held August 18, 2011. Consistent with the Weatherization scorecard filed with full consensus from the Low-income subcommittee of stakeholder groups in Union's Incremental 2011 Low-income DSM Plan (EB-2010-0055), Union is proposing that half of the metric weighting be allocated to natural gas savings and half allocated to the number of deep measure participants. This weighting structure ensures equal emphasis on each of the dual objectives of ensuring depth of savings for low-income energy consumers with breadth of program reach within this customer group.

[7] Union's initial Low-income scorecard structure presented at the August 11, 2011 consultation meeting is included in Appendix B

Table 6
2012 – 2014 Low-income DSM Scorecards

2012 Low-Income Scorecard				
Metric	**Metric Target Levels**			**Weight**
	50%	**100%**	**150%**	
Cumulative Natural Gas Savings (m3)	18,204,000	36,409,000	45,511,000	50%
Residential Deep Measure Participants	275	550	688	25%
Multi-Family Deep Measures	95	190	238	25%

2013 Low-Income Scorecard				
Metric	**Metric Target Levels**			**Weight**
	50%	**100%**	**150%**	
Cumulative Natural Gas Savings (m3)	15,924,000	31,848,000	39,809,000	50%
Residential Deep Measure Participants	325	650	813	25%
Multi-Family Deep Measures	113	225	281	25%

2014 Low-Income Scorecard				
Metric	**Metric Target Levels**			**Weight**
	50%	**100%**	**150%**	
Cumulative Natural Gas Savings (m3)	15,570,000	31,141,000	38,926,000	50%
Residential Deep Measure Participants	375	750	938	25%
Multi-Family Deep Measures	85	170	213	25%

Scorecard Metrics Description

a. Cumulative Natural Gas Saved (m^3)

- The total natural gas saved for all Low-income offerings delivered by Union for the term of their measure life, net of adjustment factors such as free ridership, spillover and persistence.
- For the building envelope component of Union's home retrofit offering the natural gas savings will be calculated based on the results of the pre and post energy audits conducted by certified energy auditors on a custom basis using HOT2000. Should the methodology for calculating these results change over the term of the Plan Union's targets would be adjusted accordingly.

b. Residential Deep Measure Participants

- Each home is treated as one deep measure participant that receives at least one Low-income deep measure as listed in Appendix H, Table 1 or a substantial insulation measure (e.g. increase in insulation in more than half of the walls, basement walls or attic of the home) as well as associated cost-effective air sealing.

c. Multi-Family Deep Measures

- For Union's Social and Assisted Housing Multi-Family offering each prescriptive deep measure (as listed in Appendix H, Table 1 and amended as appropriate in the event new

measures are confirmed within the term of the Plan) is considered one unit and each custom project is considered one unit towards the target.

2.2.4 Market Transformation Scorecard

Union's Market Transformation Scorecard includes three Programs: Residential High Efficiency Water Heating, Residential New Home Efficiency and Industrial Integrated Energy Management Systems ("IEMS"). As each Program must be assessed on its own merits based on the Program's specific objectives, the metrics in Union's Market Transformation scorecard are tailored to measuring Union's success in overcoming the key market barriers and, as a result, advancing adoption of the efficient technologies and industry practices. Union's Market Transformation Programs are designed to change the operation of the market (e.g. generate a change in builder practices or create new behavioural norms) and to ensure that the impacts of Union's market transformation efforts continue after Union's market intervention has concluded. Union's Market Transformation scorecard, therefore, includes leading indicators that drive education and awareness as well as lagging indicators that measure the ultimate outcomes and action taken in response to the Program intervention.

While Union had considered the potential for the Residential New Home Efficiency Program, Union's original Market Transformation scorecard[8] presented at the August 11, 2011 consultation had not included this Program. Based on feedback from those in attendance at the August 11, 2011 meeting, consultation with industry stakeholders and a desire to deliver this Program, Union has included it in the Plan and Market Transformation scorecard. In addition,

[8] Union's initial Market Transformation scorecard structure presented at the August 11, 2011 consultation meeting is included in Appendix B

the Residential High Efficiency Water Heating Program had initially been developed by Union to include both the new construction and retrofit market. Union has removed the retrofit offering to focus exclusively on the residential new construction market based on the input of the attendees at the August 11, 2011 consultation. Union has included context for the metrics and metric weights for each of the Market Transformation Programs below. The High Efficiency Water Heating, New Home Efficiency and IEMS Programs have cumulative metric weights of 40%, 30% and 30% respectively. While Union considers the objectives of each Program equally important, this weighting structure reflects the higher budget allocation to the High Efficiency Water Heating Program. The Market Transformation Program metrics are described in more detail below.

High Efficiency Water Heating Program

Union has included metrics for the percentage market uptake, participating builders and number of education sessions and consumer/industry shows for this Program. The market uptake metric ensures Union is driven to increase the penetration of high efficiency water heating technology in the residential new home construction market. This metric measures the increase in ultimate market adoption over the term of the Program. The participating builders metric ensures the Program drives broad adoption by residential homebuilders to facilitate widespread market acceptance. The final metric, which measures the number of education sessions Union leads and consumer/industry shows at which Union exhibits, ensures the utility invests in market education on the technology and its benefits. This is a key component of long-term transformation. Education and awareness on both the supply and demand side of the market is required to

address the fundamental market barriers which currently limit adoption of the technology, and ensure continued uptake once Union exits the Program. While each metric is required to drive fundamental change in the market, Union has allocated the highest weight on the market uptake metric as it measures the ultimate outcome that results in natural gas savings.

New Home Efficiency Program

The metrics for this Program measure the number of new participating builders enrolled in the Program, prototype homes built, and the percentage of homes built to an efficiency standard at least 15% above 2012 Ontario Building Code ("OBC 2012") by participating builders. The builder metric is required to ensure a significant proportion of the production builders in Union's franchise area (defined as those that build a minimum of 50 housing starts per year) are enrolled in the Program. This will ensure the building practices promoted by the Program result in widespread change in builder practices. The metrics for prototype homes and residential homes built ensure the Program is measured on the ultimate change in building practices of builders in new home construction. Over the term of the Plan, the metric weighting shifts, from an emphasis on participating builders in 2012 to the percentage of homes built 15% above OBC 2012 by participating builders in 2014, to reflect the evolution of the Program.

Integrated Energy Management Systems Program

The IEMS Program is the next evolution of DSM Programs for the industrial market. It builds on the successful Resource Acquisition Program to date and will drive industrial customers to implement a sustainable culture of energy efficiency within their organizations. While this

approach to conservation is still in its infancy, the Program will look to shift the culture of the business to quantify, implement, and validate energy efficiency improvements. The Program targets behaviour based, process based, and equipment based initiatives. The metrics in the IEMS section of the Market Transformation scorecard reflect the longer term horizon of the Program and the necessary phases to ensure transformation.

Union has identified the measurable outcomes of the Program as assessments completed, implementation/installation and persistence reports. The assessments completed metric motivates Union to convince customers to take a comprehensive and costly review of their entire facility and fully commit to the three year cultural change process. It is critical to demonstrate that Union has facilitated the customer through plan development, baseline establishment and identification of a strategy for data collection.

The implementation/installation metric measures the number of customers who complete an implementation agreement for metering and monitoring. The achievement of this metric will demonstrate that Union has overcome the challenges of changing corporate policies to install and commission expensive and complicated metering systems which will allow customers to generate energy savings.

The final stage of measuring actual performance through persistence reports over an 18 month period will demonstrate success and sustainability. This metric measures the ability of Union to

illustrate it has influenced and proven the adoption of continuous improvement. This ensures long-lasting fundamental change has been achieved within the organization.

In the first year of the Program, the weighting is heavily focused on the assessments completed metric to reflect the first stage of the Program. In recognition of the evolution of the Program over the term of the Plan, the weightings shift to incrementally increase the weight of the implementation/installation and persistence reports metrics respectively in 2013 and 2014.

Table 7
2012 – 2014 Market Transformation DSM Scorecards

2012 Market Transformation Scorecard					
Program	**Metric**	**Metric Target Levels**			**Weight**
		50%	**100%**	**150%**	
High Efficiency Water Heating	Market Uptake	14%	15%	16%	20%
	Participating Builders	40	50	60	10%
	Education Sessions & Consumer/Industry Shows	8	15	22	10%
New Home Efficiency	New Participating Builders	6	8	10	25%
	Prototype Homes Built	20% of Participating Builders	30% of Participating Builders	40% of Participating Builders	5%
Integrated Energy Management Systems	Assessments Completed	4	7	10	25%
	Implementation/Installation	1	2	3	5%

2013 Market Transformation Scorecard					
Program	Metric	Metric Target Levels			Weight
		50%	100%	150%	
High Efficiency Water Heating	Market Uptake	2012 actual result + 0%	2012 actual result + 2%	2012 actual result + 4%	20%
	Participating Builders	2012 actual result + 5%	2012 actual result + 10%	2012 actual result + 15%	10%
	Education Sessions & Consumer/Industry Shows	15	22	29	10%
New Home Efficiency	New Participating Builders	2	4	6	10%
	Prototype Homes Built	50% of Participating Builders	60% of Participating Builders	70% of Participating Builders	10%
	Homes Built (>15% above OBC 2012) by Participating Builders	2%	4%	6%	10%
Integrated Energy Management Systems	Assessments Completed	4	8	12	17.5%
	Implementation/Installation	1	2	4	7.5%
	Persistence Reports	1	2	3	5%

2014 Market Transformation Scorecard					
Program	Metric	Metric Target Levels			Weight
		50%	100%	150%	
High Efficiency Water Heating	Market Uptake	2013 actual result + 0%	2013 actual result + 2%	2013 actual result + 4%	20%
	Participating Builders	2013 actual result + 5%	2013 actual result + 10%	2013 actual result + 15%	10%
	Education Sessions & Consumer/Industry Shows	15	22	29	10%
New Home Efficiency	New Participating Builders	1	2	3	5%
	Prototype Homes Built	70% of Participating Builders	80% of Participating Builders	90% of Participating Builders	10%
	Homes Built (>15% above OBC 2012) by Participating Builders	2013 actual result + 4%	2013 actual result + 6%	2013 actual result + 8%	15%
Integrated Energy Management Systems	Assessments Completed	5	10	15	15%
	Implementation/Installation	1	3	5	10%
	Persistence Reports	1	2	3	5%

Scorecard Metrics Description

a. High Efficiency Water Heating Market Uptake

- The percentage of new build homes that install a residential natural gas water heater with efficiency equal to or greater than 0.80 in Union's franchise area.
- A new build home is defined as a newly built home that has gas service activated between January 1- December 31.

b. High Efficiency Water Heating Participating Builders

- A residential home builder that participates in the Union Gas High Efficiency Water Heater program (they install at least 1 unit in 1 of their homes).

c. High Efficiency Water Heating Education Sessions & Consumer/Industry Shows

- Each builder/trade education session led by Union, or homeowner/consumer/industry show at which Union exhibits with a focus on high-efficiency water heating.
    - Builder/trades education sessions are Union Gas led events that serve to educate builders with a minimum of 10 participants (e.g. "train the trainer" event, builder session a local geographic area, etc.).
    - Homeowner/consumer shows can include home shows, energy clinics or events geared to residential homeowners preferably with a new build focus (for example exhibit a booth at the London Home Show).
    - Industry Shows are those that are geared towards builders/trades/sales agents to serve to educate, have breakout sessions, networking, key note speakers, etc. (Examples include: Exhibiting a booth at the following trade shows: Ontario Home Builder Association's Builder's forum, Construct Canada/ Home Builder & Renovator Forum, etc.).

d. New Home Efficiency Program New Participating Builders

- A residential home builder that builds a minimum of 50 housing starts per year and participates in the Union Gas New Home Efficiency Program by signing a Participation Contract. in the program year.
- New builders to the program are measured on an incremental basis each year (a builder enrolled in the program in a prior year will not be counted toward the annual achievement of this metric).

e. New Home Efficiency Program Prototype Homes Built

- Calculated as the percentage of participating builders in the program who build a prototype home in relation to the actual total number of participating builders in the program to-date.
- A prototype home is a single home built to a 15% higher energy efficiency standard than the Ontario Building Code (OBC 2012) by participating builders
- The home must have an activated gas service in order to be included in the metric

f. New Home Efficiency Program Homes Built (>15% above OBC 2012)

- Calculated as the percentage of homes built to a 15% higher energy efficiency standard than the Ontario Building Code (OBC 2012) in relation to the total number of homes built in a program year by actual participating builders
- The home must have an activated gas service in order to be included in the metric
    - In 2013 this is defined as 4% of the participating builder's housing starts (for example 4 out of 100 homes will be built to the higher efficiency level)
    -

g. IEMS Assessments Completed

- In order to fully identify utility use areas for Water, Air, Gas, Electricity, Steam (W.A.G.E.S), the entire industrial facility must undergo an assessment study. The study will identify the utility using equipment/areas, and divide the facility into energy use centres where utility usage can be aggregated with production data for optimum tracking.
- The metric is considered complete per customer once the Facility Assessment report is submitted to Union Gas. Facilities served by each unique account number will be considered one customer.

h. IEMS Implementation/Installation

- In order to properly meter and monitor the facility W.A.G.E.S an implementation plan must be generated. Once this plan is submitted and approved by Union, Union and the customer will enter into an implementation agreement.
- The Implementation metric will be achieved upon the completion of the implementation agreement for each customer. Facilities served by each unique account number will be considered one customer.

i. IEMS Persistence Reports

- Once the metering and monitoring system has been installed and commissioned, the customer can enter the Persistence Phase. During this eighteen month time period, the customer must submit quarterly persistence reports demonstrating that the monitoring system is in place, in use and has been integrated into their management reporting system. This could be substantiated by monthly/quarterly Key Performance Indicator report, Management review minutes etc.
- The Persistence phase will start with the submittal of the first report and be considered complete for achievement of this metric at the sixth quarterly submission by each customer. Facilities served by each unique account number will be considered one customer.

2.3 DSM Incentive

Union proposes the maximum DSM incentive amount available for the 2012 program year be $10.450 million. This represents the DSM incentive of $9.5 million outlined in the Guidelines scaled up by 10% in recognition of the 10% increase identified above in Table 1, line 2. The 10% increase is to be used to support Low-income Programs. This is in compliance with the Guidelines which stated the following:

> *"The natural gas utilities' total DSM budgets may be increased by up to 10%, provided the funds are solely used to support low-income programs. This means the total DSM budget for Enbridge may be increased by $2.81 million and by $2.74 million for Union. This funding increase will be considered incremental to the natural gas utilities' total DSM budget and is not cumulative.*[9]"

The Guidelines also state:

[9] Ontario Energy Board. *Demand Side Management Guidelines for Natural Gas Utilities.* (EB-2008-0346). June 30, 2011. p. 26

"To the extent that the approved DSM budgets deviate in magnitude from the Board proposed budgets, the Annual Cap should be scaled accordingly. This will help ensure that the eligible incentive amount is consistent with the expected level of efforts require[d] to achieve or exceed the approved targets.[10]*"*

Union proposes to escalate the maximum incentive amount available in 2013 and 2014 using the four quarter rolling average of the GDP-IPI as issued by Statistics Canada in the second quarter and published at the end of August.

The DSM incentive will be allocated between the Resource Acquisition, Low-income and Market Transformation Program types based on their approved budget shares. The DSM incentive will be further allocated between the Resource Acquisition scorecard and Large Industrial Rate T1/Rate 100 scorecard based on their approved budget shares. No incentive will be provided for achieving a scorecard-weighted score of less than 50%. Union will earn 40% of the DSM incentive for achieving a scorecard weighted score of 100%, with the remaining 60% available for performance up to the 150% target level. Scorecard results will be linearly interpolated between the scorecard metric target levels. The incentive amount will be capped at the scorecard weighted score of 150%. Table 8 displays the maximum shareholder financial incentive allocated to each scorecard based on their budget shares prior to the addition of the GDP-IPI for 2013 and 2014.

[10] Ontario Energy Board. *Demand Side Management Guidelines for Natural Gas Utilities.* (EB-2008-0346). June 30, 2011. p. 31

Table 8
Maximum DSM Incentive Allocated to Each Scorecard Prior to Inflation

	Year								
	2012			2013			2014		
	Budget	Budget Share	Max Utility Incentive	Budget	Budget Share	Max Utility Incentive	Budget	Budget Share	Max Utility Incentive
	($000)	%	($000)	($000)	%	($000)	($000)	%	($000)
Scorecard									
Resource Acquisition	13,283	50.6%	5,291	13,463	51.3%	5,362	13,160	50.2%	5,242
Large Industrial T1/R100	3,147	12.0%	1,253	3,147	12.0%	1,253	3,147	12.0%	1,253
Low-Income	6,839	26.1%	2,724	6,839	26.1%	2,724	6,839	26.1%	2,724
Market Transformation	2,968	11.3%	1,182	2,788	10.6%	1,110	3,091	11.8%	1,231
Total	**26,237**	**100.0%**	**10,450**	**26,237**	**100.0%**	**10,450**	**26,237**	**100.0%**	**10,450**

The DSM Incentive achieved by Union will be recorded in the DSM Incentive Deferral Account ("DSMIDA"). Union will apply annually for disposition of the balance in the DSMIDA . Incentive amounts paid to Union will be allocated to rate classes in proportion of the amount actually spent on DSM activities in each rate class. The actual spending by rate class will be based on the methodology outlined in section 2.5.

2.4 Lost Revenue Adjustment Mechanism ("LRAM")

In accordance with the Guidelines, Union will be eligible to recover the lost distribution revenues associated with DSM activity. The lost revenue adjustment mechanism variance account ("LRAMVA") will true up the actual impact of DSM activities. Union will calculate the full year impact of DSM Programs on a monthly basis, based on the volumetric impact for the measures implemented in that month. The Board-approved volumetric rate (average yearly Quarterly Rate Adjustment Mechanism ("QRAM") will be applied to the appropriate rate class for the implemented month's savings and for each remaining month in the calendar year.

For example, the natural gas savings implemented in March 2012 will have 10 months of LRAM calculated based on the average rate for that rate class for the year whereas natural gas savings implemented in November will have 2 months of LRAM calculated based on the average rate for that rate class for the year. The LRAM amount will be based on the best available information for input assumptions resulting from the evaluation and audit process of the program year.

2.5 DSM Variance Account ("DSMVA")

Union will track the variance between actual DSM spending by rate class relative to the DSM budget included in rates by rate class in the DSMVA. Union is eligible to recover up to an additional 15% above its approved DSM budget. Any incremental funding can only be used on Program expenses (not additional utility overheads).

With the exception of the Low-income budget, the actual DSM spending will be calculated as follows. The DSM program costs will be calculated by rate class based on the total actual DSM spend by rate class. Customer incentives received are the only element tracked at a rate class level and they will be allocated based on the amount spent within each rate class. All other program costs not tracked at the rate class level, such as promotion and administrative costs, will be allocated by customer class (e.g. Residential, C/I General Service), and assigned by rate class based on the percentage allocation of the customer incentive costs. All portfolio-level costs that cannot be attributed to an individual program, such as the support staff engaged in DSM evaluation and program tracking, will be allocated to a rate class based on the percentage allocation of the program costs by rate class.

The variance between the Low-income DSM budget included in rates and the actual amount spent on Low-income DSM Programming will be recovered in proportion to the most recent Board-approved rate base attributable to each rate class.

For 2012, the variance will be recovered in proportion to the most recent Board-approved allocation of rate base. Accordingly, for 2012, Union proposes to use the 2007 Board-approved allocation of rate base (EB-2005-0520, Exhibit G3, Tab 2, Schedule 2, Rate Base, updated for EB-2005-0520 Board Decision). For 2013 and 2014, the variance will be recovered in proportion to the approved rate base allocation in Union's 2013 Cost of Service Proceeding. In Union's view, allocating Low-income DSM costs to infranchise distribution rate classes using rate base is a reasonable approach and is consistent with the intent of the Guidelines.

Union will be eligible to access the incremental 15% above its annual Board-approved DSM budget provided that it has achieved its overall scorecard target (i.e. 100%) on a pre-audited basis for one or more of its scorecards. The DSMVA will be used to produce results against any Program scorecard(s) which have achieved the overall scorecard target.

2.6 Rate Impacts

Section 18.1, subsection 4 of the Board's Guidelines requested the following information.

a) The total amount of DSM spending to be recovered in rates and the allocation of those costs to the customer class(es) that will benefit from the DSM program applied for;

b) A forecast of the number of customers in each class and a forecast of m^3 of natural gas to be used as a charge determinant for the rate rider of each rate class to benefit from the DSM program(s); and

c) A comparison of the proposed rates with and without the DSM rate rider for the rate year in question.

The total amount of DSM spending to be recovered in rates and the allocation of those costs is provided in Table 2 above. Union does not recover DSM-related costs using a rate rider. DSM costs are included in approved delivery rates and are not separately identified. Although Union does not have a DSM-related rate rider, Schedule 2 provides the average rate for 2012, by rate class, with and without DSM-related costs.

In addition to the information above, Union has provided Schedule 1 which compares the total DSM related costs actually incurred in 2010 to the total DSM related costs Union expects to incur in 2012. The 2012 DSM related costs include the proposed 2012 DSM budget and the proposed DSM incentive at the 100% utility achievement level. The 2010 DSM related costs include the actual DSM costs incurred in 2010, the 2010 Market Transformation incentive amount per the EB-2011-0038 filing, plus the actual 2010 SSM deferral amount per the EB-2011-0038 filing.

Union has also provided Schedule 3 which provides the impact of DSM costs included in 2012 rates relative to Board-approved 2011 rates, as filed in Union's 2012 Rates application (EB-2011-0025).

The bill impact for a typical residential customer consuming 2,600 m3 per year in the Southern Operations area will be $3-4 per year. The bill impact for a typical residential customer consuming 2,600 m3 per year in the Northern & Eastern Operations area will be $7-8 per year.

The bill impacts shown above reflect the unit rate changes between the actual incurred DSM related costs in 2010 relative to the proposed DSM related costs in 2012 as shown in Schedule 2, column (o).

2.7 DSM Program Screening

Union's proposed screening methodology is consistent with the program screening approach outlined in the Guidelines. A Program includes the combination of offerings available to a target market within a Program type. Union has only applied for DSM Programs that, at a Program level, have a TRC ratio greater than 1.0, except in the case of Low-income Programs which are screened at a TRC ratio value of 0.70. Where a Program is not amenable to the mechanistic TRC screening approach, as is the case for Union's Market Transformation Programs, they have been assessed on a case-by-case basis.

Where a change in Program input assumptions (including net equipment or Program costs, and adjustments to account for free ridership, spillover effects or persistence of savings) is confirmed which causes a Program to subsequently screen below the acceptable TRC ratio, the results of the Program will be included towards achievement of Union's annual DSM targets for that year. Union would seek to adjust its Program approach from the point new input assumptions are confirmed forward to ensure Programs are cost effective. Where an offering is causing the Program to screen below the acceptable TRC ratio, a withdrawal period would be required to prevent market disruption and manage contracting commitments.

2.8 Avoided Costs

Avoided costs represent benefits in the TRC calculation (i.e. the benefits of not having to supply natural gas, electricity and water) and are integral to the determination of TRC benefits for the purposes of Program screening.

Since 2007, Union and Enbridge have used the same methodology in calculating avoided costs; however, the costs are specific to each Utility's franchise area and gas supply management policies and practices. The commodity portion is updated annually.

In Union's proposed Plan, Union will continue the same approach for the calculation of avoided costs. Union will use the Board approved weighted average cost of capital ("WACC"). The Board-approved WACC is currently 7.9% as approved in EB-2005-0520.

Appendix I includes the 2011 avoided costs for natural gas, electricity and water that Union used for TRC screening in this Plan. The actual avoided costs used for TRC screening in each program year will be filed annually in the Annual Report for the program year.

2.9 Stakeholder Engagement Process

As indicated above, the Guidelines contemplated separate consultation to establish a Stakeholder Engagement ToR. Union and Enbridge jointly held consultations with a Working Group to establish a ToR that balances utility accountabilities with the value the utilities have for intervenor perspectives. Although consensus was not achieved, Union's proposed new process improves overall efficiency, is highly inclusive, and continues to emphasize Union's commitment to strive for consensus as the underlying cornerstone objective of stakeholder engagement. Union's proposed ToR is included in Appendix E.

Section 16 of the Board Guidelines notes that Union and Enbridge are ultimately responsible and accountable for their DSM activities and, accordingly, consultative activities will be undertaken at the discretion of the utilities. With these accountabilities in mind, the utilities drew from utility experience and sought input from stakeholders to inform the ToR during the Working Group sessions. The resulting ToR reflects a level of engagement beyond not only the requirements for stakeholder consultation as outlined in the Guidelines but also the Evaluation and Audit Committee process established in EB-2006-0021. In addition to two Consultative meetings contemplated in the Guidelines, each year the ToR includes a provision for stakeholder involvement in:

- Development and update of input assumptions**;**
- Evaluation research priorities and future studies;
- Design and implementation of individual evaluation studies**;**
- Review of evaluation study work products, draft and final reports;

- The audit of DSM annual results; and
- Development of new Program ideas.

The stakeholder engagement process envisioned in the ToR also includes two committees to be formed with tasks specific to either evaluation/input assumptions, or the audit. In addition to enabling a more focused approach to both the evaluation/input assumption review activities and the annual audit, the efficiency of separating stakeholder engagement into two processes allows activities in both areas to move forward in tandem without having one process impede the other. It also ensures that an appropriate level of industry expertise is available to draw from to inform committee participants and allows for sufficient time to be dedicated to each activity. (i.e. evaluation/input assumptions are discussed throughout the year and not only during the audit when time in limited.) In total, the ToR envisions 22 meetings with the two distinctive committees. The committees and their benefits are described further in section 2.10 below and outlined in the ToR in Appendix E.

2.10 Evaluation and Audit Process

During the Plan period, Union will file an Annual Report summarizing the savings achieved, budget spent, and supporting evaluation studies. The Annual Report will be subject to a third party audit, which will also be filed annually. In addition to the Annual Report, Union will file an annual Technical Reference Manual ("TRM"), which will contain input assumptions considered best available at the time of the Audit. The process that Union proposes to follow to fulfill its evaluation and audit requirements per the Guidelines is outlined below.

In an effort to streamline the process and ensure greater consistency between Union and Enbridge, stakeholder involvement in the evaluation and audit process has been refined and a separate process for evaluation and the audit has been proposed. Evaluation will be guided by a common Technical Evaluation Committee ("TEC") between Union and Enbridge, while the audit will be guided by separate Audit Committees ("AC").

The TEC will be charged with reviewing all input assumptions related to the delivery of DSM in each program year from 2012 to 2014. As outlined in the ToR, the TEC will have an advisory role in the following evaluation activities:

- Aligning input assumptions between Union and Enbridge;
- Setting the evaluation priorities for each program year;
- Design and implementation of evaluation studies;
- Development and updating of the TRM;
- Following the audit, review of the Annual Report to confirm scope and priority of any recommended evaluation projects.

In the proposed ToR, the utilities will provide the TRM to the Auditor on April 1st for the purpose of the audit. As soon as practical subsequent to the audit, the utilities will jointly file the TRM with any updates with the Board.

As envisioned through the new ToR, an AC will have an advisory role throughout the annual third party audit. Union will select and retain the auditor and determine the scope of the audit. The ACs advisory role in the audit includes the following activities:

- Selection of the independent auditor to audit the Annual Report and determine the scope of the audit;
- Ensure that all comments on the Annual Report from the Consultative are reviewed by the auditor; and,
- The full audit process.

In addition, the AC will be responsible for meeting the reporting guidelines of the Board (found at Section 2.1.12 of the Natural Gas Reporting & Record Keeping Requirements Rule for Gas Utilities). The AC will provide a final report within 10 weeks from the later of the receipt of the Draft Annual Report and supporting evaluation studies from the Utility, or the hiring of the auditor. Recommendations of the AC with respect to DSMVA, LRAMVA and DSMIDA clearances will be included in the AC's final report. The AC will not consider any further information subsequent to the Board's filing deadline each year.

The role of the auditor is also outlined in the ToR which notes that the auditor will:

- Provide an opinion on the DSMVA, DSM Incentive and LRAM amounts proposed and any amendment thereto;
- Confirm the Target Adjustment Factor based on audit results has been calculated and applied correctly;

- Verify the financial results in the Annual Report to the extent necessary to give that opinion;
- Review the reasonableness of any input assumptions material to the provision of that opinion; and,
- Recommend any forward looking evaluation work to be considered.

In fulfillment of the Board requirements outlined in EB-2008-0346, the independent third party auditor is expected to take such actions by way of investigation, verification or otherwise as are necessary for the auditor to form its opinion.

With respect to Union's custom offerings, Union will undertake third party verification studies of a sample of custom projects that will be reviewed by the auditor for reasonableness. Third party verification studies are not intended to be duplicated by the auditor as they will be based on a sampling methodology that has received TEC input and are carried out by third party engineering companies. As outlined in the Guidelines, projects selected for assessment will consist of a random selection of 10% of the large custom projects representing at least 10% of the total volume savings for all custom projects and consist of a minimum number of five projects.

As noted above, Union's Evaluation budget for 2012 will be $0.969 million not including salaries. Relative to previous years, the overall evaluation budget has been increased to improve confidence in the DSM results and to recognize the greater level of stakeholder engagement. In

addition to funding external third party evaluation consultants, this budget will be dedicated to paying for the TEC, the AC, two consultative meetings, as well as the Auditor.

2.11 Electricity Conservation and Demand Management ("CDM") and Other Partnerships

Union's focus is on the delivery of natural gas demand side management. However, with the electric utilities actively engaged in CDM activity over the coming three years, Union believes there are opportunities to provide customers seamless energy conservation solutions as well as optimize expertise, time and financial resources from the utilities. Therefore, as appropriate Union will engage all relevant market players, primarily electric utilities, to pursue collaboration in DSM and CDM delivery.

Where Union partners with rate regulated electricity distributors, all natural gas savings will be attributed to Union and vice versa for electricity savings.

Where Union partners with "other" parties (e.g. governments, non-rate-regulated private sector, etc.) benefits will be determined upfront of the Program's launch within a partnership agreement. Where the benefit share for Union is greater than 20% of the share that would have been allocated using a "percentage of dollars spent" approach, Union will file the explanation for the difference with the Board. Union will file expected Program spending for each of the partners prior to Program launch, and actual Program spending after completion of the Program.

2.12 Research

Union has long recognized that Research and Development activities are the source of new Programs and offerings. Over the term of the Plan, Union will continue to investigate emerging technologies and new opportunities that provide an enhanced understanding of the market Union serves. Through these investigations, the utility is able to offer customers a full suite of cost-effective Programs in ever changing markets.

Given the Board's desire for greater coordination between the natural gas utilities in Ontario, Union will continue to conduct these activities in coordination and collaboration with Enbridge. Union will enhance this collaborative process through regular and frequent research meetings with Enbridge, at which utility research ideas are vetted before projects are initiated. In addition, after projects are completed, experiences are shared to inform future potential Program design. This makes the undertaking of joint research projects with Enbridge more systematic and ensures that the process leverages both utilities' extensive technical and market resources. Union will follow this process over the term of the Plan resulting in more cost effective projects, minimal duplication of research efforts and greater value to customers.

Research ideas are generated for the Residential, Low-income, Commercial and Industrial sectors from internal employees, Enbridge, research exchanges with other utilities outside of Ontario, industry associations and experts, customers, conferences, and trade shows etc. Research projects thoroughly investigate critical input assumptions relating to natural gas, electrical and water savings, costs and equipment life, among a variety of typical usage data for

various market segments. Market information, such as market barriers, market shares, and how supply chains operate, is also examined to assist Union in designing Programs that are well informed with a strategic approach to the market. Information garnered through research informs Union's Program design process to overcome identified market barriers and target the appropriate customers in a manner that is most cost effective. Existing Programs are impacted by changes in market conditions. Market saturation, competitive alternatives, technology advances, the economy and other external forces drive the importance of research in order to adapt to shifting market conditions and continue to improve upon the diverse portfolio of Programs for customers.

Research additionally enables the utility to convert common custom DSM projects into prescriptive offerings. In such cases, research can determine common average input assumptions based on typical equipment use and characteristics, as well as market data. This provides information for a mass marketing campaign or broad based customer outreach, which in turn drives further participation. Increased participation is achieved through a more straightforward application process which typically results in a more streamlined process for customers and a more efficient evaluation process. A corollary benefit of research moving custom options towards more prescriptive Program offerings is that it allows Union's custom project resources to focus on projects which are truly unique in nature.

Through its research efforts, Union will continue to work with Enbridge to investigate leading edge Program options for all customer segments. While the technologies under investigation

will change over the duration of the Plan to include new compelling energy efficient options and solutions for customers, Union currently has various technologies and ideas under consideration for further research. They include zone heating and energy efficiency benchmarking in the residential and low income markets, boiler controls in commercial and industry specific improvements such as high efficiency greenhouse glazing in the industrial market.

PROGRAMS OF

UNION LIMITED

TABLE OF CONTENTS

1/ DISTRIBUTION SYSTEM CHARACTERISTICS

On page 45, under section 18.1 of the Guidelines, the Board requested the following characteristics of Union's distribution system:

a) Total natural gas purchases;

b) Sales by rate class; and

c) Number of customers by rate class.

The information requested by the Board is below.

a) Total Natural Gas Purchases

Below is the total gas purchased for system sales customers and the quantity of gas supplied for the account of direct purchase customers in 2010 as reported to the Board through the Q4 2010 Reporting and Record Keeping Requirements. Union does not purchase gas for direct purchase customers.

Gas Purchased for System Sales Customers:	3,151 $10^6 m^3$
Gas Supplied for the Account of Direct Purchase Customers:	9,461 $10^6 m^3$

b) and c) Sales and Number of Customers by Rate Class

Sales and number of customers by rate class as of Q4, 2010 are included below respectively. This information has also been provided in Union's 2010 Deferral Disposition Proceeding (EB-2011-0038).

UNION GAS LIMITED
Total Gas Sales Revenue by Service Type and Rate Class
All Customer Rate Classes
Year Ended December 31

Line No.	Particulars ($000s)	2009 Actual System Sales (a)	ABC-T (b)	ABC Unbundled (c)	Bundled-T (d)	T-Service (e)	Total (f)	2010 Actual System Sales (g)	ABC-T (h)	ABC Unbundled (i)	Bundled-T (j)	T-Service (k)	Total (l)
	General Service												
1	Rate M1 Firm	842,724	72,384	37,524	1,259	-	953,891	742,945	62,690	29,384	893	-	835,912
2	Rate M2 Firm	128,671	17,618	4,270	12,626	-	163,185	112,890	16,660	3,179	11,081	-	143,810
3	Rate 01 Firm	277,483	70,432	-	976	-	348,891	246,293	58,770	-	1,109	-	306,172
4	Rate 10 Firm	52,938	12,608	-	10,040	-	75,586	40,094	11,090	-	10,141	-	61,325
5	Rate 16 Interruptible	-	-	-	-	-	-	-	-	-	-	-	-
6	Total General Service	1,301,816	173,042	41,794	24,901	-	1,541,553	1,142,221	149,211	32,563	23,223	-	1,347,218
	Wholesale - Utility												
7	Rate M9 Firm	-	-	-	970	-	970	-	-	-	876	-	876
8	Rate M10 Firm	16	5	-	-	-	21	9	3	-	-	-	12
9	Rate 77 Firm	-	-	-	-	-	-	-	-	-	-	-	-
10	Total Wholesale - Utility	16	5	-	970	-	991	9	3	-	876	-	888
	Contract												
11	Rate M4	7,037	132	-	13,098	-	20,267	3,887	115	-	11,540	-	15,542
12	Rate M6	-	-	-	-	-	-	-	-	-	-	-	-
13	Rate M7	-	-	-	9,020	-	9,020	-	-	-	6,381	-	6,381
14	Rate 20 Storage	-	-	-	-	1,199	1,199	-	-	-	-	1,376	1,376
15	Rate 20 Transportation	4,699	-	-	7,431	7,514	19,644	3,861	-	-	8,532	7,407	19,801
16	Rate 100 Storage	-	-	-	-	816	816	-	-	-	-	839	839
17	Rate 100 Transportation	-	-	-	-	13,293	13,293	-	-	-	-	12,639	12,639
18	Rate T-1 Storage	-	-	-	-	9,746	9,746	-	-	-	-	9,982	9,982
19	Rate T-1 Transportation	-	-	-	-	45,824	45,824	-	-	-	-	49,548	49,548
20	Rate T-3 Storage	-	-	-	-	1,447	1,447	-	-	-	-	1,392	1,392
21	Rate T-3 Transportation	-	-	-	-	3,803	3,803	-	-	-	-	3,614	3,614
22	Rate M5	477	-	-	8,938	-	9,415	4,765	36	-	8,759	-	13,560
23	Rate 25	19,558	-	-	-	2,797	22,355	11,070	-	-	-	3,536	14,606
24	Rate 30	-	-	-	-	130	130	-	-	-	-	66	66
25	Total Contract	31,771	132	-	38,487	86,569	156,959	23,583	151	-	35,212	90,400	149,345
26	Total Revenue	$ 1,333,603	$ 173,179	$ 41,794	$ 64,358	$ 86,569	$ 1,699,503	$ 1,165,813	$ 149,365	$ 32,563	$ 59,311	$ 90,400	$ 1,497,451

Note:
Originally Filed in EB-2011-0038 as Exhibit A, Tab 2, Appendix A, Schedule 8

UNION GAS LIMITED
Total Customers by Service Type and Rate Class
All Customer Rate Classes
Year Ended December 31 (1)

Line No.	Particulars	2007 Board-Approved System Sales (a)	ABC-T (b)	ABC-Unbundled (c)	Bundled T (d)	T-Service (e)	Total (f)	2009 Actual Sales (g)	ABC-T (h)	ABC-Unbundled (i)	Bundled T (j)	T-Service (k)	Total (l)	2010 Actual System Sales (m)	ABC-T (n)	ABC-Unbundled (o)	Bundled T (p)	T-Service (q)	Total (r)
	General Service																		
1	Rate M1 Firm	-	-	-	-	-	-	723,093	184,653	102,461	940	-	1,011,147	783,779	161,276	79,713	930	-	1,025,698
2	Rate M2 Firm	663,740	297,276	34,458	1,690	-	997,164	2,789	2,636	355	786	-	6,566	3,055	2,517	262	773	-	6,607
3	Rate 01 Firm	172,580	125,484	-	166	-	298,230	203,416	100,853	-	314	-	304,583	223,892	84,611		343	-	308,846
4	Rate 10 Firm	1,329	1,344	-	300	-	2,973	1,074	893	-	280	-	2,247	1,110	758		286	-	2,154
5	Rate 16 Interruptible	-	-	-		-	-	-	-	-	-	-	-					-	-
6	Total General Service	837,649	424,104	34,458	2,156	-	1,298,367	930,372	289,035	102,816	2,320	-	1,324,543	1,011,836	249,162	79,975	2,332	-	1,343,305
	Wholesale - Utility																		
7	Rate M9 Firm	-	-	-	2	-	2	-	-	-	2	-	2	-	-	-	2	-	2
8	Rate M10 Firm	4	-	-	-	-	4	1	1	-	-	-	2	1	1	-	-	-	2
9	Rate 77 Firm	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
10	Total Wholesale - Utility	4	-	-	2	1	7	1	1	-	2	-	4	1	1	-	2	-	4
	Contract																		
11	Rate M4	13	-	-	181	-	194	12	3	-	130	-	145	9	2	-	119	-	130
12	Rate M6	-	-	-	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-
13	Rate M7	-	-	-	8	-	8	-	-	-	-	-	-	-	-	-	6	-	6
14	Rate 20 Storage	-	-	-	-	-	-	3	-	-	19	30	52	-	-	-	-	-	-
15	Rate 20 Transportation	10	-	-	20	35	65	-	-	-	-	-	-	3	-	-	17	31	51
16	Rate 100 Storage	-	-	-	-	-	-	-	-	-	-	16	16	-	-	-	-	-	-
17	Rate 100 Transportation	-	-	-	-	19	19	-	-	-	-	-	-	-	-	-	-	16	16
18	Rate T-1 Storage	-	-	-	-	-	-	-	-	-	-	53	53	-	-	-	-	-	-
19	Rate T-1 Transportation	-	-	-	-	68	68	-	-	-	-	-	-	-	-	-	-	53	53
20	Rate T-3 Storage	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
21	Rate T-3 Transportation	-	-	-	-	1	1	3	-	-	121	-	124	-	-	-	-	1	1
22	Rate M5	-	-	-	133	-	133	46	-	-	-	52	98	4	1	-	125	-	130
23	Rate 25	56	-	-	-	67	123	-	-	-	-	1	1	46	-	-	-	53	99
24	Rate 30	-	-	-	-	-	-	64	3	-	276	153	496	-	-	-	-	-	-
25	Total Contract	79	-	-	342	190	611	930,437	289,039	102,816	2,598	153	1,325,043	62	3	-	267	154	486
26	Total Customers	837,732	424,104	34,458	2,500	191	1,298,985							1,011,899	249,166	79,975	2,601	154	1,343,795

Note:
Customer count for storage is included in the transportation customer count.
Originally Filed in EB-2011-0038 as Tab 2, Appendix A, Schedule 10

2/ PROGRAMS

This section provides an outline of the Programs Union plans to deliver over the 2012 – 2014 DSM Plan period. Union will remain focused on continual improvements with respect to its Programs and approach to market as new information becomes available. For example, changing market conditions, new information, or process improvements may warrant Union to alter its DSM Program mix to effectively utilize the DSM budget and achieve targets.

Resource Acquisition

1.0 *Residential Program*

1.0.1 Customer Class(es) Targeted

- The Energy Savings Kit ("ESK") offering is targeted to Union residential customers in detached, semi-detached, townhouses and individually metered row townhouses.
- The Attic and Basement Wall Insulation offering will target single-family residential homes built prior to 1980.

1.0.2 Rate Classes Targeted

- Rate M1, Rate 01

1.0.3 Residential Program Goals

Program goals for the Residential Program consist of the following:

- Create/increase customer awareness of both energy conservation and energy efficiency, with a primary focus on available energy efficiency offerings
- Influence customers to install energy efficient measures; thereby, improving efficiency in space and water heating
- Minimize the barriers that residential customers face in participating in energy efficiency offerings
- Empower customers to reduce their energy bills and environmental footprint

1.0.4 Residential Program Strategy

Program strategies to achieve Union's goals for the Residential Program include:

- Targeting the reduction of natural gas consumption for both space and water heating, by delivering a combination of customer communication, education and financial incentives
- Consistent with the direction provided from the Board, over the course of the Plan Union will decrease emphasis on basic measure offerings and increase focus on deep measure offerings

- As the focus on deep measure offerings grows, expand the geographical areas targeted; thereby, increasing the energy savings delivered through deep measure participants
- Reduce, but not eliminate, basic measure offerings to ensure that the residential market as a whole continues to have access to energy efficiency measures

1.0.5 Residential Program Offerings

The offerings delivered in the Residential Program are outlined below.

Energy Savings Kit ("ESK")

- ESKs have been distributed to Union's customers since 2000.

Description

- ESKs are pre-packaged measures designed to reduce a customer's energy usage and water consumption.
- In 2011 the Energy Saving Kit contained:
  - Energy efficient Showerhead [1.25 Gallons Per Minute (GPM) (4.73 LPM)]
  - Energy efficient kitchen aerator [1.50 GPM (5.68 LPM)]
  - Energy efficient bathroom aerator [1.00 GPM (3.79 LPM)]
  - Pipe wrap (two 1 meter lengths)
  - Teflon tape (1 roll for ease of showerhead installation)
  - $25 Programmable Thermostat coupon
- The new Energy Saving Kit, effective 2012, will continue to contain the above items and has been enhanced with the inclusion of a draft proofing kit, which will contain the following:
  - 1 Foam Can
    - Used for sealing air leakage through holes, gaps, and cracks
  - 1 Caulking Tube
    - Used for air sealing around fixed window sill frames, or along baseboards
  - 3 Rolls of Foam Tape [10 Ft roll (3 metres)]

        - Used to fill gaps around doors and windows
    - 4 Energy Saver Gaskets with 2 child safety inserts
        - Fits into electrical outlets and used to stop air leaks into the wall cavities
- The addition of the draft proofing kit enhances energy savings for customers and supports continued access to efficiency measures for the Residential market as a whole.

Target Market

- The ESK offering is targeted to Union residential customers in detached, semi-detached, townhouses and individually metered row townhouses who have a natural gas water heater or furnace.
- The primary target is customers who have not received a kit before. Customers who have previously received Union's former energy efficient kit will be eligible to receive a new kit and savings will be measured based on the replaced kit.
- This offering is not available to Union customers living in high-rise buildings and multi-family buildings with more than five units. These buildings are targeted by Union's commercial offerings.

Market Incentive

- All water savings measures are provided in the ESK at no cost to the customer
- All draft-proofing measures are provided in the ESK at no cost to the customer
- A $25 coupon for a programmable thermostat (PSTAT) is provided in the ESK

Market Delivery

- The ESK is delivered through a combination of customer communication, education and incentives, and is largely consistent with 2011.
    - Customer communication (e.g. Bill inserts and Direct Mail)
    - Education (e.g. Wise Energy Guide, InTouch, EnerSmart)

- Financial incentives (Rebate on PSTAT purchase)

- Union's communication and education tools deliver the message that a key way to reduce energy bills is through conservation. These vehicles provide specific and relevant advice on actions residential customers can take to achieve energy savings, such as the installation of an ESK.

- Union employs the following three approaches to deliver ESKs to the residential market
  - Pull Approach:
    - The Pull delivery method is a mass market approach. Customers initiate the request for an ESK after receiving marketing material created and distributed by Union.
    - Examples of marketing material customers receive and act upon are bill inserts, direct mail campaigns and advertisements for events that Union holds at major retail stores, local events and home shows. Customers further spread these messages through referrals to friends and neighbours. In the case of Direct Mail, Union targets only those customers who have not received an ESK in the past.
    - The customer then initiates a request for an ESK by going to the Union website, attending an event, visiting a pick-up location, or going to a local consumer show, etc.
  - Push Approach:
    - The Push delivery method is a mass market approach. Service providers and Heating, Ventilation and Air Conditioning Contractors ("HVACs") promote and distribute the ESK during their regular service calls, as well as at tradeshows and local events that they attend.
    - The service providers/HVACS receive an incentive for each ESK they distribute
    - This approach also encourages HVAC's to educate themselves on the value of energy efficiency and deliver this value to their customers. This is a form of capacity building by educating channels on the value of energy efficiency.
  - Install Approach:
    - In the install delivery method, service providers/HVACS promote the ESK during their regular service calls.
    - The service provider/HVAC then installs certain components of the kit (showerhead and pipe-wrap).

- Service providers/HVACs receive an incentive for each ESK installed.

Barriers Addressed

- Some Union customers are not aware that the ESK is available. This is especially true in smaller cities/towns where retail and local events do not happen as frequently
    - To address this challenge Union actively solicits customers and selects retail and local event locations that are not only in urban centres, but also in areas close to the city's outer-edges. This makes it easier for those customers living in outlying areas to receive an ESK.
- Customers located in remote areas are less likely to have internet access and limited or no access to HVAC pick-up locations, making it more difficult for them to obtain an ESK.
    - To address this barrier Union ensures that all direct mail, bill insert and other marketing campaigns/materials include the option of mailing in an order form. /this approach allows customers without internet access or HVAC pick-up locations nearby to easily obtain an ESK
    - Union is developing a plan to provide customers with a phone number where they can request an ESK to accommodate those customers in remote areas with no access to the internet.
- Customers are not aware of energy and water savings options and/or draft proofing opportunities within their homes and how to properly address them. Therefore, they may not believe they require an ESK.
    - To address this Union clearly promotes energy and water savings options. Also Union will educate customers on how to identify draft proofing opportunities within the home to ensure that customers can easily identify that they need and would benefit from obtaining an ESK with draft proofing kit.
- With very low natural gas prices, and increasing electricity prices, customers are less focused on natural gas efficiency
    - To address this Union will educate customers on the importance of water and natural gas savings. With the addition of the draft proofing kit, Union will educate customers on electric and gas savings associated with sealing air leakage to prevent the loss of warm air in the winter and cool air in the summer.

Attic & Basement Wall Insulation

Description

- 2012 is the first year Union will offer a residential home insulation, deep measure offering
    - This offering provides prescriptive incentives for residential homeowners who install one or both of the following measures: Attic insulation – improving insulation from R-10 or below to R-40 or above
    - Basement wall insulation – improving insulation from R-1 or below to R-12 or above
- The offering encourages and incents homeowners to weatherize their homes, leading to deep energy savings and increased comfort due to:
    - Reduced cold air drafts, summer overheating and moisture/condensation problems
    - Reduced noise from outside the house
    - Improved indoor air quality and humidity levels
- To prevent lost opportunities, promotional material will educate customers on the benefits of undertaking additional air sealing measures, such as sealing exposed ducts, header areas, and service penetrations (including plumbing, wiring etc.).
- The Federal Government's *EcoEnergy Retrofit - Homes* program offers grants for attic and basement insulation. Union will build upon the momentum established by this initiative (and complementary support provided by the Ontario Government) by launching the attic and basement wall insulation offering when the 2011-2012 extension of the program is finished (anticipated end date is March 2012).

Target Market

- The offering will target single-family residential homes built prior to 1980 and heated by natural gas.
- To participate, existing insulation must be at R-1 or below for basement walls and at R-10 or below for attics.
- To improve cost effectiveness, the offering will primarily target unfinished attics and basements where insulation can be added without removing walls or other structures.

- For attics, insulation must be installed only where cavities separate conditioned space from unconditioned areas of the residence.

Market Incentive

- Customer incentives for this offering will be valued at 50% of the estimated incremental cost of each measure to a maximum value as outlined in Table 1 below.

Table 1 – Insulation Incentive Levels

Measure	Incentive Calculation	Maximum Incentive
Attic Insulation	50% of incremental cost	$300
Basement Insulation	50% of incremental cost	$825

- The incentive will be provided after the work is complete and receipts have been submitted to Union.
- The incremental cost includes the cost of the insulation and the cost of installation.

Market Delivery

- Union will drive participation in this offering via two main methods, including:
    - End-use customer communications. Customers will be targeted using a mix of promotions/initiatives that educate them on the benefits of improving insulation and air sealing to maximize energy efficiency and comfort.
        - Opportunities to target individual communities or neighbourhoods will be explored. Targeted areas that are suitable for these insulation offerings will be determined by analyzing billing data and other home characteristics obtained through a third party.
    - Working with mid-stream trade allies, including:
        - Contractors – Union will educate contractors on the benefits of improving insulation and air sealing, and will provide them with the material required to 'sell' these benefits, and Union's our incentive offering, to customers when they are already at the home quoting on or completing other renovations/upgrades.

- Insulation Installers – Union will provide these installers with marketing material they can provide to their customers above and beyond their own material. It will include the incentive value that Union is offering and will clearly explain the benefits of installing attic and basement wall insulation.

Barriers Addressed

Primary barriers preventing higher uptake in the market include the following:

- High product and installation costs
  - Union will address this barrier through the provision of financial incentives to eligible homeowners.
- Lack of customer awareness regarding what insulation they currently have in place
  - Union will address this barrier by educating customers on how to identify signs of insulation problems (e.g., wall is cold to touch in winter, uneven heating levels, mould growing in basement, ineffectiveness of air conditioning system in the summer).
- Lack of consumer awareness regarding the benefits of high efficiency insulation and how to differentiate between products
  - Union will address this barrier by educating customers on how to evaluate the thermal resistance of insulation, calculate payback on weatherization upgrades, and ultimately make informed purchase decisions.
  - Union will also encourage customers to have a professional energy audit or evaluation to understand insulation and air sealing opportunities in the home (including opportunities not incented by Union) and the benefits they could experience by upgrading.
- Lack of contractor expertise in selling the long-term benefits of high efficiency
  - Union will address this barrier by providing promotional materials to contractors to assist them in selling the benefits of improved insulation and Union's incentive offering.
- In addition to the barriers listed above, lost opportunities arise when homeowners complete extensive renovations/upgrades, but fail to add insulation. Due to the high cost of large renovation projects, such as finishing a basement or attic, insulation is not always viewed as a top priority or worthy investment. Unfortunately, once the space is finished and comfort and heating problems emerge, insulation is much more expensive and therefore often not installed.

- Union will address this barrier through the provision of financial incentives to eligible homeowners, and also through education (delivered both directly and using mid-stream channels).

1.0.6 Program Duration

- All offerings to residential customers are expected to be delivered throughout the 2012-2014 DSM Plan, although the insulation offering will be deferred until such time as federal program incentives come to an end.

- The measures within the offerings may vary should new measures be introduced or market conditions change over the course of the Plan.

1.0.7 Residential Program Budget

- Union has not included inflation in Table 2 below. Union proposes to use the Q2 GDP-IPI inflation factor, released at the end of August, to align with Union's annual rate setting process.

Table 2 - Residential Program Budget

Residential Program Budget ($000)			
Program Costs	**2012**	**2013**	**2014**
Promotion Costs	$2,049	$2,208	$2,092
Incentive Costs	$1,668	$1,688	$1,576
EM&V & Monitoring Costs	$20	$20	$20
Administrative Costs	$366	$366	$366
Total	**$4,103**	**$4,282**	**$4,054**

1.0.8 Residential Cost Effectiveness

Table 3 – Residential Program Cost Effectiveness

Measure	Participants	Total TRC Benefits	Total TRC Costs	Total Net TRC Before Program Costs	TRC Ratio
NHC - Faucet Aerator - Bath - 1.0gpm	280	$ 10,658	$ 111	$ 10,547	96.3
NHC - Faucet Aerator - Kitchen - 1.5gpm	280	$ 19,541	$ 242	$ 19,299	80.7
NHC - Showerhead - 1.25gpm	280	$ 59,398	$ 955	$ 58,443	62.2
Install - Faucet Aerator - Bath - 1.0gpm [1]	1,705	$ 27,328	$ 674	$ 26,654	40.5
Install - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm [1]	255	$ 1,807	$ 101	$ 1,706	17.9
Install - Faucet Aerator - Kitchen - 1.5gpm [1]	1,960	$ 85,837	$ 1,694	$ 84,143	50.7
Install - Pipe Insulation - 2m [1]	1,960	$ 57,369	$ 1,844	$ 55,525	31.1
Install - Showerhead - 1.25gpm [1]	1,705	$ 289,489	$ 5,816	$ 283,672	49.8
Install - Showerhead - 1.25gpm replacing existing 2.0 gpm [1]	255	$ 37,523	$ 869	$ 36,654	43.2
Pull - Faucet Aerator - Bath - 1.0gpm [1]	29,232	$ 564,105	$ 11,555	$ 552,549	48.8
Pull - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm [1]	4,368	$ 37,294	$ 1,727	$ 35,568	21.6
Pull - Faucet Aerator - Kitchen - 1.5gpm [1]	33,600	$ 1,662,189	$ 29,040	$ 1,633,148	57.2
Pull - Pipe Insulation - 2m [1]	33,600	$ 538,951	$ 31,611	$ 507,340	17.0
Pull - Showerhead - 1.25gpm [1]	29,232	$ 3,623,332	$ 99,710	$ 3,523,621	36.3
Pull - Showerhead - 1.25gpm replacing existing 2.0 gpm [1]	4,368	$ 469,656	$ 14,899	$ 454,757	31.5
Push - Faucet Aerator - Bath - 1.0gpm [1]	17,539	$ 252,977	$ 6,933	$ 246,044	36.5
Push - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm [1]	2,621	$ 16,725	$ 1,036	$ 15,689	16.1
Push - Faucet Aerator - Kitchen - 1.5gpm [1]	20,160	$ 794,601	$ 17,424	$ 777,177	45.6
Push - Pipe Insulation - 2m [1]	20,160	$ 310,214	$ 18,967	$ 291,247	16.4
Push - Showerhead - 1.25gpm [1]	17,539	$ 1,525,632	$ 59,826	$ 1,465,806	25.5
Push - Showerhead - 1.25gpm replacing existing 2.0 gpm [1]	2,621	$ 197,752	$ 8,940	$ 188,813	22.1
Thermostat - Programmable	6,000	$ 674,882	$ 85,500	$ 589,382	7.9
Attic Insulation	88	$ 27,163	$ 34,197	-$ 7,034	0.8
Basement Wall Insulation	87	$ 66,479	$ 96,412	-$ 29,932	0.7
Draft Proofing Kit [2]	56,000	$ 822,729	$ 504,000	$ 318,729	1.6
Total		**$ 12,173,630**	**$ 1,034,083**	**$ 11,139,546**	
		Promotion Costs	$ 2,048,417		
		Administration	$ 365,851		
		EM&V Costs	$ 20,000		
		Program Total		**$ 8,705,278**	
		Program TRC Ratio			**3.5**

1. TRC benefits adjusted based on 2010 verification study results. The adjustments reflect installation rates, persistance rates, percentage of showering under showerhead (for showerhead measures), and percentage of homes without gas water heaters.

2. Draft proofing kit includes: 1 Foam Can, 1 Caulking Tube, 3 Rolls of Foam Tape, 4 Energy Saver Gaskets with 2 Child Safety Inserts

1.0.9 Residential Program Targets

Table 4 – Residential Program Targets

2012 Residential Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Cumulative Natural Gas Savings (m3)	12,409,000	24,819,000	31,023,000
Deep Measures	88	175	219

2013 Residential Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Cumulative Natural Gas Savings (m3)	11,989,000	23,978,000	29,973,000
Deep Measures	155	310	388

2014 Residential Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Cumulative Natural Gas Savings (m3)	11,005,000	22,009,000	27,512,000
Deep Measures	155	310	388

1.0.10 Rationale for Targets

Consideration of Board's Guiding Objectives

- Maximization of cost effective natural gas savings
    - As ESK measures are cost effective on a $/cumulative m^3 basis, Union has maintained delivery of ESKs, and added draft proofing measures, to ensure significant m^3 savings are achieved within the DSM budget allocated to the residential Program.
- Prevention of lost opportunities, pursuit of deep energy savings
    - Union has introduced a deep measure home insulation offering that will drive significant savings for each participant.
    - Union has reduced the level of ESK distribution in 2012, 2013 and 2014 relative to previous years, as the measures in the ESK are low cost discretional retrofits and do not constitute deep measures or lost opportunities.

Context for ESK Targets

Cost Effectiveness

- Union has been offering the ESK in the market since 2000 and has seen great success over the years. With increasing penetration in major cities it is getting harder and more expensive to reach new customers. Though Union is focusing on using the most cost effective delivery methods, the cost of reaching new customers is rising.

- Over the past five years, the ESK has continued to become less cost effective due to the rising costs of reaching new customers who have not received an ESK as well as changes in input assumptions.

- Moving forward, however, Union is using historical performance data to refine its delivery channel mix to target a greater proportion of ESKs through the more cost-effective channels.

- An example of a cost-effective channel that will be used more moving forward is the 'Pull channel', specifically where customers receive a bill insert or direct mail and request an ESK on the Union website.

Targets

- Given Union's shift of focus to the delivery of deeper measures, Union will be decreasing its focus on basic measure delivery over the course of the Plan and ultimately the targets tied to the offering. This is reflected in the decreased budget allocated to basic measure delivery as shown in Table 3.

Table 5: Energy Savings Kit Delivery and Budget Over the Term of the Plan

Energy Savings Kit Participants and Budget			
	2012	**2013**	**2014**
Draft Proofing[1]			
Units	56,000	54,000	50,000
Cumulative m^3 (000)	2,974	2,867	2,655
Programmable Thermostats			
Units	6,000	5,500	5,000
Cumulative m^3 (000)	2,719	2,492	2,266
Water Saving Measures[2]			
Units	56,000	54,000	50,000
Cumulative m^3 (000)	18,622	17,723	16,192
Total ESKs (Units)	**56,000**	**54,000**	**50,000**
Total Cumulative m^3 (000)	24,315	23,082	21,113
ESK Budget ($000)[3]	**$3,219**	**$3,222**	**$2,994**
$ Spent/Cumulative m^3	$0.132	$0.140	$0.142

[1] Caulking, Foam Can, Foam Tape, Foam Cover for Electric Outlets, Energy Saver Gasket with Child Safety Insert
[2] Showerhead, Kitchen Aerator, Bathroom Aerator, Pipe Wrap (x2)
[3] Promotion and incentive costs have been included as they are specific to the Energy Savings Kit Offering.

- The effect of decreasing the basic measures over the course of the Plan is that the overall residential cumulative m^3 savings will decrease.

- Basic measures are still cost effective on a $/cumulative m^3 basis when compared to deep measures. To ensure significant m^3 savings are achieved within the DSM budget allocated to the Residential Program, Union has maintained delivery of basic measures (ESK and PSTAT), and added draft proofing measures.

Context for Attic & Wall Insulation Targets

- Over the 2007-2010 period, Union estimates that approximately 4,000 Union customers installed attic insulation as part of the federal *EcoEnergy Retrofit – Homes* program, while 2,200 installed basement wall insulation. Assuming that installations were evenly dispersed through the three year period, approximately 1,300 and 700 homeowners respectively installed attic and basement wall insulation each year of the program.

- Union believes these estimated annual participation levels *in EcoEnergy Retrofit—Homes* represent the maximum activity for attic and basement wall insulation in a given year. These estimates are also consistent with the 2017 static forecast for the home weatherization measure included in the 2007 Efficiency Potential Study completed by ICF Marbek.

- Using this maximum potential, Union adjusted annual targets downward to reflect the following:

    - As a result of *EcoEnergy Retrofit—Homes*, the "low-hanging fruit" for these measures is now gone. Remaining customers that qualify for the offering are likely not aware of the insulation deficiency and will require aggressive marketing and education to convert.

    - Compared to *EcoEnergy Retrofit – Homes*, the Union offering has more complicated qualification requirements, less scale (regional vs. national), a reduced budget, and also lacks the support of major federal and provincial agencies and government organizations.

    - The 2012 target takes into account a delay in launching the offering, as the *EcoEnergy Retrofit – Homes* program is not expected to conclude until March, 2012.

- Measure adoption has already reached a mature state, following support from *EcoEnergy Retrofit – Homes*. Therefore, adoption is expected to be flat once initial momentum has been built.

Table 6: Attic & Basement Wall Insulation Delivery and Budget

Attic & Basement Wall Insulation Participants and Budget			
	2012	**2013**	**2014**
Attic Insulation			
Units/Projects	88	155	155
Cumulative m^3 (000)	124	218	218
Basement Wall Insulation			
Units/Projects	87	155	155
Cumulative m^3 (000)	380	678	678
Total Insulation Units/Projects	**175**	**310**	**310**
Total Cumulative m^3 (000)	**504**	**896**	**896**
Insulation Budget ($000)	**$498**	**$674**	**$674**
$ Spent/Cumulative m^3	**$0.988**	**$0.752**	**$0.752**

1.0.11 Challenges Union Will Face in Achieving Residential Targets

Challenges in Achieving ESK Targets Include:

- Market acceptance – Customers who were most receptive to the ESK have already implemented it. Therefore, it will be more challenging for Union to drive the remaining market to adopt and install the measures in the kit.
- Cost to reach new customers is rising as a more targeted approach is required
- Changes in input assumptions as a result of the annual evaluation process would affect the m^3's earned per unit
- Offer is limited to customers with natural gas heaters; therefore, 10% of Union customers do not qualify
- Market opportunity – it is becoming increasingly challenging for channel partners to find and target customers who have not received an ESK as the offer has been delivered since 2000
- Targeting new locations with lower ESK saturation will require Union to establish new channel relationships over the term of the Plan

[5] Promotion and incentive costs have been included as they are specific to the attic and basement wall insulation offering

- Reduction in number of kits distributed through retail events due to higher level of penetration in major cities

- Ontario Power Authority ("OPA") launched a "Save on Energy" peasure that partners with retailers in May and October to promote discounts on electric products such as CFLs and Power Bars. Although these products don't compete directly with Union' offerings, there could be a conflict for retail channels that offer the OPA program

- With more focus on deep measures, there will be a shift in internal resources to accommodate this offering and fewer resources to accommodate ESK's

- Electricity CDM measures will also be targeted at Union customers, which will dilute the focus on Union's offerings

Challenges in Achieving Attic & Basement Wall Insulation Targets

- Changes in input assumptions that impact m^3 earned per unit

- Market acceptance – In order to make attic and basement wall insulation a prescriptive offering, qualification criteria will be stringent and will be challenging to explain to customers

- Union does not anticipate launching the offering until the The *EcoEnergy Retrofit-Homes* offering concludes. The program is expected to run until March, 2012.

- Additional market intelligence must be gathered and the development of new channels and relationships will take time.

- Given success of *EcoEnergy Retrofit-Homes*, Union anticipates facing challenges in identifying and targeting remaining qualifying homes for insulation measures. It is estimated that approximately one third of single-family homes within the Union franchise area will not qualify for the offering based on vintage alone (built in 1980 or after), while a further proportion will have already installed insulation or will not meet other eligibility requirements. Limits in market opportunity and the advanced stage of market adoption for these measures suggest a mass-market approach will not be sufficient to achieve the 100% target. A targeted approach will be required.

- Experience with Low Income Weatherization has revealed that insulation opportunities can vary dramatically across regions, suggesting a need for local cooperation, experimentation and analysis in order to effectively target homes on an individual or neighbourhood basis. The heterogeneous nature of the Ontario housing stock will also require that Union continually tailor its approach to market.

- A homeowner is more likely to undertake basement insulation as part of a broader basement renovation (for example: finishing the basement for extra living space). Major expenditures such as this will be impacted by the economic downturn.

1.1 *Commercial/Industrial Program*

1.1.1 Customer Class(es) Targeted

- Commercial / Industrial General Service and Commercial / Industrial Contract customers
- Targets market segments that include but are not limited to:
    - Manufacturing, Industrial Processing and Refining, Municipalities, Universities, Schools, Hospitals, Warehouse and Greenhouse
    - Commercial customers with multiple facilities in Union's franchise area that are managed by a single corporate entity (i.e. National Accounts)

1.1.2 Rate Classes Targeted

- Rate classes eligible: Rate M1, Rate M2, Rate 01, Rate 10, Rate M4, Rate M5, Rate M7, Rate 20

1.1.3 Program Goals

Program goals for the Commercial / Industrial Program consist of the following:

- Increase customer's awareness and knowledge of energy efficient practices, and provide education on how to operate in an energy-efficient manner
- Generate long term energy savings in commercial, institutional and industrial facilities
- Increase participation from customers who have not yet embraced a culture of conservation in their facility

1.1.4 Program Strategy

Program strategies to achieve Union's goals for the Commercial / Industrial Program include:

- Deliver a comprehensive suite of cost effective DSM initiatives across all sectors and customer types
- Provide customers with incentives, education and training to help them reduce their energy usage

- Expand the knowledge base and awareness of service providers including: HVAC contractors, architects, designers and engineers (key influencers) on energy efficiency technologies by motivating them to take action and market high efficiency technology
- Build strategic relationships with key organizations and service providers to maximize alliance opportunities to expand the reach of the Program.

1.1.5 Program Offerings

Union encourages the adoption of energy efficient technology and equipment targeting facilities in the commercial, institutional and industrial markets, using a segment focus. Union influences end-use customers, and the many stakeholders and trade allies in this market, to use best practices when operating or replacing equipment and when implementing energy efficiency projects. Offerings will continue to target end use customers and will be marketed both directly through an account management approach and indirectly through trade allies.

The offerings delivered in the Commercial / Industrial Program are outlined below.

Prescriptive Offering

The prescriptive offering will provide customers with a list of recommended technologies that have pre-determined incentive and savings amounts, defined by facility type and equipment size. The application process for the prescriptive offering promotes ease of participation as no additional analysis or savings calculations are required. This allows customers with multiple facilities the option of rolling out technologies to an entire portfolio in an efficient way. Program initiatives target space heating, water heating, ventilation, building controls, heat recovery and efficient equipment (for cooking, cleaning and laundry) applications.

Description

- The prescriptive offering consists of several energy efficient measures that target significant m^3 savings:
  - Condensing Boilers
  - Infrared Heating
  - Energy Recovery Ventilators
  - Heat Recovery Ventilators
  - Condensing Rooftop Units
  - Drain Water Heat Recovery Systems
  - Laundry Washing Equipment with Ozone
  - Condensing Unit Heaters
  - Condensing Gas Water Heaters
  - Demand Control Kitchen Ventilation
  - CEE Tier 2 Front-Loading Clothes Washers
  - Energy Star Dishwashers
  - Hot Water Conservation (Showerheads and Faucet Aerators)
  - Energy Star Convection Ovens
  - Energy Star Steam Cookers
  - Energy Star Fryers
  - High-Efficiency Under-Fired Broilers
  - Hydronic Boilers
  - Air Curtains (Pedestrian Doors & Shipping Docks)
  - Destratification Fans

- Union will explore additional measures to include in the prescriptive offering over the course of the Plan, including but not limited to:
  - Linkageless Controls
  - Non-Condensing Boilers
  - Boiler Economizers (Non Condensing & Condensing)
  - Greenhouse Energy Curtains
  - Demand Control Ventilation
  - High Performance Greenhouse Glazing
  - Boiler Tune-Up
  - Boiler Outdoor Reset Controls
  - Destratification Fans < 20 ft Diameter and/or < 25 ft Ceiling Height
  - Thermodynamic Process Controls
  - Commercial Weatherization and Insulation (Roof and Wall)

- Where appropriate, several of these commercial measures will also be delivered to the social housing sector as part of the Low-income Program. Further details on the Low-income Program can be found in Section 1.3.

Market Incentive

- Incentive levels for energy efficiency measures in the prescriptive offering are established based on the following criteria:
    - the m^3 savings generated
    - the incremental cost of the energy-efficient technology as compared to base case assumptions
    - the effectiveness of the incentive to increase uptake in the marketplace
- Incentives will be applied in a manner that will extend the reach of the Program to customers who have not participated in previous years because of hurdle rates, long project payback periods or lack of awareness and focus on energy efficiency initiatives
- Incentives are primarily directed towards the customer

Market Delivery

- For the past several years Union has focused on a segmented market approach consistent with marketing best practices. Through this framework, Union will continue to deliver Programs using a segmented market approach.
- Within each segment, Union identifies and targets the key players, segment leaders and service providers.
- Key economic drivers and decision making criteria common to the segment are identified to help establish complete energy solutions.
- Where applicable, measures will be targeted using a national account strategy to reach decision makers who are part of a centralized management decision making process for implementing energy improvements.
- Offers will be targeted directly to the customer, supported through Union's Account Management team.
- Indirect delivery channels consist of service providers including: HVAC contractors, design build contractors, engineers, building owners and managers

Barriers Addressed

Primary barriers preventing higher uptake in the market include the following:

- Lengthy payback periods
    - To address this barrier, Union offers incentives that reduce project payback time
- Economic conditions in the marketplace
    - To address this barrier, Union will benchmark past operating expenses and increase the customer's operating efficiency standard. Through this approach, Union demonstrates that saving energy reduces operating expenses year after year and will enable the customer to operate in a more sustainable manner.
- Customer awareness of Union's Program and of energy efficient options
    - In addressing this barrier, Union will focus on awareness and education through communication strategies including tradeshows, workshops, seminars, case studies, newsletters, website resources and other marketing collateral to improve penetration and Program take-up in commercial and industrial markets.

Custom Offering

Union focuses on advancing customer energy efficiency and productivity through providing a mix of custom incentive offerings to customers in the commercial, institutional and industrial markets. These offerings are applicable to both contract and non-contract customers and are described below.

Description

Union provides a mix of energy efficiency initiatives that can be customized to meet the distinct needs of different customers. These initiatives include the following elements:

- Communication and Education
    - Union offers a wide variety of materials 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 identifying energy conservation opportunities and supplying them with the resources to research and evaluate possible solutions.

- Industrial Process Studies
    - Assist industrial customers in determining the optimal equipment operating efficiency, or process method that realizes the highest level of production for the lowest energy consumption.
    - These studies identify and quantify energy and cost saving opportunities, establish implementation costs and calculate payback periods for projects that include:
        - Steam generation systems
        - Steam trap surveys
        - Process Furnaces
        - Thermal fluid heaters
        - Vaporizers
        - Process Heaters
        - Other combustion equipment
- Energy Efficiency Feasibility Studies
    - Supports engineering feasibility studies, engineering simulations, energy audits, onsite energy managers, and metering and targeting assessments. All of these tools supply Union's customer contacts with the detailed engineering and ROI information needed to support customer senior management's decision to invest in energy efficiency measures.
- Equipment Incentives
    - Incentives are targeted at energy saving opportunities that improve the utilization of natural gas. Incentives are available for installations identified with or without an audit. Equipment incentives are designed to promote the installation of:
        - New and retrofit high-efficiency equipment
        - Higher efficiency process improvements
        - Equipment Improvements
        - Heat recovery devices
        - Energy management and controls

- Demonstration of New Technology
    - Encourages the adoption of new market-ready, repeatable, gas-fired technologies, limited to commercially available energy efficient products that do not have penetration in Ontario.
- Building Optimization
    - Research has shown that increases in energy efficiency can be realized by taking a whole building, whole systems approach to optimizing the performance of existing building systems.
    - This approach provides building operator training, best practices information, supports facility assessments, and supplies energy performance benchmarking to help commercial customers realize real energy reductions compared to predictive consumption modeling.
    - Union will proactively target larger commercial buildings in the institutional and office segments. By working directly with building operational staff, Union will assist in identifying and changing ineffective or problematic behavioural and operational practices within the structure to improve the overall building energy performance. By emphasising adjustments to existing equipment, Union will help customers realize the most effective operating circumstances. Union will influence behaviour changes through the following approach:
        - Union will assist customers by providing education on how to identify energy saving opportunities, through a number of optimization strategies
        - Customers will then implement the optimization strategies provided by Union
        - Union will incent the customer based on measured savings, via a CUSUM analysis[6] after year 1.

[6] A Cumulative Summary (CuSum) analysis isolates the affects of known variables (such as weather) to create a predictive model of anticipated natural gas consumption. The methodology then compares the actual natural gas consumption to the expected consumption based on this predicted baseline. By adding the series of differentials values over a set length of time: (i.e. monthly results for a year) the resulting cumulative total represents the total (in this example) annual avoided natural gas consumption.

Market Incentive

- Incentive levels for custom measures are established based on the m3 savings generated by the project
- Incentives will be directed to the customer

Market Delivery

- The custom offering is communicated and delivered directly to the customer by their Union Account Manager. The account management team has over a decade of experience in assisting customers to identify and address energy conservation opportunities, establishing a solid foundation of energy expertise and advice for customers to leverage.
- Delivery will be supported through collaboration with key organizations and service providers. This is required to:
    - Expand the reach of Union's Program offerings by targeting key market segments
    - Build strategic relationships with key organizations and service providers that influence the customer's energy decisions
- The engineering expertise of Union's Project Managers is utilized to provide technical support for new technologies, operating efficiency opportunities, and energy efficiency initiatives. Customers recognize the value of Union's technical project management expertise, which allows Union experts the opportunity to learn the details of specific processes and identify opportunities to influence where energy efficiency investments are made.

Barriers Addressed

Primary barriers preventing higher uptake in the market include the following:

- Lengthy project cycles and payback periods
    - To address this barrier, Union will offer incentives that reduce project payback time.
- Access to capital
    - Union will provide engineering calculations, business cases, best practise information and ROI data to assist the customer in positioning their internal business case to gain the support of customers' senior management for capital projects.

- Economic conditions in the marketplace
    - To address this barrier, Union educates customers on how saving energy reduces operating expense year after year to help customers operate in a more sustainable manner. To do this, Union will benchmark past operating expenses and identify opportunities to increase the customer's operating efficiency standard.
- Customer's awareness of Union's Programs and of energy efficient options
    - Union will focus on awareness and education through communication strategies including tradeshows, workshops, seminars, case studies, technical newsletters, website resources and other marketing collateral to improve penetration and Program take-up in commercial and industrial markets.

1.1.6 Program Duration

- All Program offerings in the Commercial / Industrial Program will be delivered throughout the three year DSM Plan.
- The specific measures within the offerings may vary should new measures be introduced or customer needs change over the course of the Plan.

1.1.7 Program Budget

- Union has not included inflation in the table below. Union proposes to use the Q2 GDP-IPI inflation factor, released at the end of August, to align with Union's annual rate setting process.

Table 7 – Commercial / Industrial Program Budget

2012 Commercial / Industrial Program Budget ($000)		
Program Cost	**Commercial / Industrial General Service**	**Commercial / Industrial Contract**
Promotion Costs	$ 924	$ 50
Incentive Costs	$ 3,714	$ 1,850
EM&V & Monitoring Costs	$ 20	$ 40
Administrative Costs	$ 1,937	$ 646
Total	**$ 6,595**	**$ 2,586**

2013 Commercial / Industrial Program Budget ($000)		
Program Cost	**Commercial / Industrial General Service**	**Commercial / Industrial Contract**
Promotion Costs	$ 924	$ 50
Incentive Costs	$ 3,714	$ 1,850
EM&V & Monitoring Costs	$ 20	$ 40
Administrative Costs	$ 1,937	$ 646
Total	**$ 6,595**	**$ 2,586**

2014 Commercial / Industrial Program Budget ($000)		
Program Cost	**Commercial / Industrial General Service**	**Commercial / Industrial Contract**
Promotion Costs	$ 849	$ 50
Incentive Costs	$ 3,714	$ 1,850
EM&V & Monitoring Costs	$ 20	$ 40
Administrative Costs	$ 1,937	$ 646
Total	**$ 6,520**	**$ 2,586**

1.1.8 Cost Effectiveness

Table 8 – Commercial/Industrial Program Cost Effectiveness

	Measure	Participants	Total TRC Benefits	Total TRC Costs	Total Net TRC Before Program Costs	TRC Ratio
Retrofit	Air Curtains - Double Door	5	$ 24,748	$ 11,875	$ 12,873	2.1
Retrofit	Air Curtains - Single Door	5	$ 9,620	$ 7,838	$ 1,783	1.2
Retrofit	Building Optimization [55]	30	N/A	N/A	N/A	
New Build/Retrofit	CEE Tier 2 Front-Loading Clothes Washer (Multi Family)	1,000	$ 1,300,674	$ 540,000	$ 760,674	2.4
New Build/Retrofit	Commercial Custom [56]	100	$ 15,375,615	$ 3,564,214	$ 11,811,400	4.3
New Build	Condensing Boiler - Space Heating 300 to 999 MBtu/h [1]	35	$ 684,688	$ 213,088	$ 471,600	3.2
Retrofit	Condensing Boiler - Space Heating 300 to 999 MBtu/h [2]	120	$ 2,413,101	$ 751,003	$ 1,662,098	3.2
New Build	Condensing Boiler - Space Heating over 1,000 Mbtu/h [3]	35	$ 2,042,778	$ 635,752	$ 1,407,027	3.2
Retrofit	Condensing Boiler - Space Heating over 1,000 Mbtu/h [4]	55	$ 2,964,985	$ 922,760	$ 2,042,225	3.2
New Build	Condensing Boiler - Space Heating up to 299 MBtu/h [5]	65	$ 489,562	$ 149,065	$ 340,497	3.3
Retrofit	Condensing Boiler - Space Heating up to 299 MBtu/h [6]	140	$ 987,308	$ 396,872	$ 590,436	2.5
New Build/Retrofit	Condensing Gas Water Heater (1,000gal/day) - Purchase	15	$ 55,773	$ 31,778	$ 23,996	1.8
New Build/Retrofit	Condensing Gas Water Heater (100gal/day)	15	$ 11,939	$ 31,778	-$ 19,839	0.4
New Build/Retrofit	Condensing Gas Water Heater (500gal/day)	15	$ 31,393	$ 31,778	-$ 385	1.0
New Build	Condensing Rooftop Units (MUA) All other Commercial Efficiency + 2 speed > 6000 cfm [7]	1	$ 31,001	$ 9,120	$ 21,881	3.4
New Build	Condensing Rooftop Units (MUA) All other Commercial Efficiency + 2 speed 1700 - 5999 cfm [8]	1	$ 13,199	$ 4,357	$ 8,841	3.0
New Build	Condensing Rooftop Units (MUA) All other Commercial Efficiency + VFDs > 6000 cfm [9]	1	$ 51,235	$ 9,206	$ 42,030	5.6
New Build	Condensing Rooftop Units (MUA) All other Commercial Efficiency + VFDs 1700 - 5999 cfm [10]	1	$ 22,040	$ 4,431	$ 17,609	5.0
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + 2 speed > 6000 cfm [11]	1	$ 48,756	$ 9,136	$ 39,621	5.3
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + 2 speed 1700 - 5999 cfm [12]	1	$ 21,186	$ 4,437	$ 16,749	4.8
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + VFDs 1700 - 5999 cfm [13]	1	$ 34,079	$ 4,477	$ 29,602	7.6
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + VFDs> 6000 cfm [14]	1	$ 78,381	$ 9,222	$ 69,159	8.5
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency > 6000 cfm [15]	1	$ 19,443	$ 6,275	$ 13,168	3.1
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency 1700 - 2999 cfm [16]	1	$ 5,061	$ 2,245	$ 2,816	2.3
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency 3000 - 5999 cfm [17]	1	$ 10,388	$ 3,738	$ 6,650	2.8
New Build/Retrofit	Condensing Unit Heater [18]	5	$ 16,362	$ 11,804	$ 4,559	1.4
New Build/Retrofit	DCKV Dinner House (10000 - 15000 cfm)	1	$ 92,507	$ 19,000	$ 73,507	4.9
New Build/Retrofit	DCKV Fast Casual (< 5000 cfm)	2	$ 48,762	$ 19,000	$ 29,762	2.6
New Build/Retrofit	DCKV Full Menu (5000 - 9999 cfm)	12	$ 685,068	$ 171,000	$ 514,068	4.0
New Build	Destratification Fan [19]	10	$ 164,776	$ 63,189	$ 101,587	2.6
Retrofit	Destratification Fan [20]	20	$ 673,580	$ 126,378	$ 547,202	5.3
New Build	DWHR - Ent - Arena [21]	1	$ 16,485	$ 8,846	$ 7,638	1.9
Retrofit	DWHR - Ent - Arena [22]	1	$ 16,485	$ 13,783	$ 2,702	1.2
New Build	DWHR - Hospital - Dishwashing [23]	1	$ 6,234	$ 1,682	$ 4,552	3.7
Retrofit	DWHR - Hospital - Dishwashing [24]	1	$ 16,105	$ 2,575	$ 13,530	6.3
New Build	DWHR - Hospital - Laundry [25]	1	$ 153,255	$ 35,388	$ 117,868	4.3
New Build	DWHR - Laundromat	1	$ 173,408	$ 35,350	$ 138,057	4.9
Retrofit	DWHR - Laundromat	1	$ 173,408	$ 38,770	$ 134,637	4.5
New Build	DWHR - Nursing Home - Dishwashing [26]	1	$ 4,477	$ 1,681	$ 2,796	2.7
New Build	DWHR - University/College Cafeterias - Dishwashing [27]	1	$ 8,324	$ 1,681	$ 6,643	5.0
Retrofit	DWHR - University/College Cafeterias - Dishwashing [28]	1	$ 20,991	$ 3,086	$ 17,904	6.8
New Build/Retrofit	Energy Star Convection Ovens - Full Size	10	$ 16,184	$ 7,000	$ 9,184	2.3
New Build/Retrofit	Energy Star Dishwasher - Rack Conveyor - Multi Tank - High Temperature - Purchase	5	$ 148,860	$ 1,051	$ 147,809	141.6
New Build/Retrofit	Energy Star Dishwasher - Rack Conveyor - Multi Tank - High Temperature - Rental	5	$ 77,489	$ 4,463	$ 73,026	17.4
New Build/Retrofit	Energy Star Dishwasher - Rack Conveyor - Single Tank - High Temperature - Purchase	30	$ 540,266	$ 52,013	$ 488,253	10.4
New Build/Retrofit	Energy Star Dishwasher - Rack Conveyor - Single Tank - High Temperature - Rental	5	$ 46,872	$ 4,463	$ 42,410	10.5
New Build/Retrofit	Energy Star Dishwasher - Stationary Rack - High Temperature - Purchase	5	$ 26,297	-$ 1,400	$ 27,697	NA [58]
New Build/Retrofit	Energy Star Dishwasher - Stationary Rack - High Temperature - Rental	5	$ 12,491	$ 3,987	$ 8,504	3.1
New Build/Retrofit	Energy Star Dishwasher - Stationary Rack - Low Temperature - Purchase	30	$ 128,324	-$ 8,400	$ 136,724	NA [58]
New Build/Retrofit	Energy Star Dishwasher - Stationary Rack - Low Temperature -Rental	5	$ 10,159	$ 3,806	$ 6,353	2.7
New Build/Retrofit	Energy Star Dishwasher - Undercounter - Low Temperature - Purchase	50	$ 51,629	-$ 390	$ 52,019	NA [58]
New Build/Retrofit	Energy Star Fryer	200	$ 415,830	$ 164,480	$ 251,350	2.5
New Build	Energy Star Steam Cookers	10	$ 59,729	$ 16,000	$ 43,729	3.7

New Build	ERV 1 - up to 1000CFM - Multi Family, Health Care, Nursing [29]	20	$ 200,196	$ 41,146	$ 159,050	4.9
Retrofit	ERV 1 - up to 1000CFM - Multi Family, Health Care, Nursing [30]	20	$ 164,322	$ 31,841	$ 132,481	5.2
New Build	ERV 2 - over 1000CFM - Multi Family, Health Care, Nursing [31]	10	$ 351,887	$ 72,323	$ 279,564	4.9
Retrofit	ERV 2 - over 1000CFM - Multi Family, Health Care, Nursing [32]	15	$ 647,544	$ 125,477	$ 522,066	5.2
New Build	ERV 3 - up to 2000CFM - Hotel, Restaurant, Retail [33]	15	$ 112,846	$ 41,690	$ 71,157	2.7
Retrofit	ERV 3 - up to 2000CFM - Hotel, Restaurant, Retail [34]	15	$ 113,160	$ 39,469	$ 73,690	2.9
New Build	ERV 4 - over 2000CFM - Hotel, Restaurant, Retail [35]	15	$ 419,494	$ 154,977	$ 264,517	2.7
Retrofit	ERV 4 - over 2000CFM - Hotel, Restaurant, Retail [36]	10	$ 218,697	$ 76,280	$ 142,417	2.9
New Build	ERV 5 - up to 2000CFM - Office, Warehouse, School [37]	20	$ 130,556	$ 75,525	$ 55,031	1.7
Retrofit	ERV 5 - up to 2000CFM - Office, Warehouse, School [38]	20	$ 94,970	$ 51,901	$ 43,069	1.8
New Build	ERV 6 - over 2000CFM - Office, Warehouse, School [39]	20	$ 360,126	$ 208,328	$ 151,798	1.7
Retrofit	ERV 6 - over 2000CFM - Office, Warehouse, School [40]	20	$ 433,722	$ 237,028	$ 196,694	1.8
New Build	High Efficiency Under-Fired Broilers	4	$ 12,812	$ 4,064	$ 8,748	3.2
New Build	HRV >2,000cfm-Hotel, Restaurant, Retail, Rec [41]	10	$ 121,319	$ 68,624	$ 52,694	1.8
Retrofit	HRV >2,000cfm-Hotel, Restaurant, Retail, Rec [42]	10	$ 133,043	$ 68,624	$ 64,418	1.9
Retrofit	HRV ≥2,000cfm-School,Office, Warehouse, Man [43]	10	$ 85,127	$ 68,624	$ 16,503	1.2
New Build	HRV 500 to 2,000cfm-Hotel, Restaurant, Retail, Rec [44]	20	$ 121,258	$ 68,590	$ 52,668	1.8
Retrofit	HRV 500 to 2,000cfm-Hotel, Restaurant, Retail, Rec [45]	10	$ 51,661	$ 26,647	$ 25,014	1.9
New Build	HRV Multi Family, Health Care, Nursing [46]	10	$ 78,720	$ 24,761	$ 53,959	3.2
Retrofit	HRV Multi Family, Health Care, Nursing [47]	10	$ 71,000	$ 20,337	$ 50,663	3.5
Retrofit	HWC - Faucet Aerator - Bath - 1.0gpm (Multi Family) [59]	2,300	$ 29,859	$ 1,221	$ 28,638	24.4
Retrofit	HWC - Faucet Aerator - Kitchen 1.5gpm (Multi Family) [59]	1,000	$ 40,676	$ 1,161	$ 39,515	35.0
Retrofit	HWC - Showerhead - 1.25gpm (Multi Family) [59]	4,300	$ 553,389	$ 14,667	$ 538,722	37.7
Retrofit	HWC - Showerhead - 1.25gpm replacing existing 2.0gpm (Multi Family) [59]	1,333	$ 137,620	$ 4,547	$ 133,073	30.3
New Build/Retrofit	Industrial Custom [57]	90	$ 59,544,225	$ 10,878,227	$ 48,665,998	5.5
New Build	Infrared Heating - 101 to 300 MBtu/hr [48]	225	$ 1,311,949	$ 288,011	$ 1,023,938	4.6
Retrofit	Infrared Heating - 101 to 300 MBtu/hr [49]	100	$ 583,817	$ 128,173	$ 455,644	4.6
New Build	Infrared Heating - 20 to 100 MBtu/hr [50]	150	$ 509,871	$ 107,701	$ 402,170	4.7
Retrofit	Infrared Heating - 20 to 100 MBtu/hr [51]	150	$ 460,286	$ 96,240	$ 364,046	4.8
New Build/Retrofit	Laundry Washing Equipment with Ozone - <= 120 lbs & >= 200,000 lbs/yr [52]	20	$ 482,157	$ 201,848	$ 280,309	2.4
New Build/Retrofit	Laundry Washing Equipment with Ozone - > 120 lbs & 1,000,000 lbs/yr [53]	1	$ 120,539	$ 27,848	$ 92,691	4.3
New Build/Retrofit	Laundry Washing Equipment with Ozone - > 120 lbs & 260,000 - 1,000,000 lbs/yr [54]	5	$ 379,698	$ 139,242	$ 240,456	2.7
New Build/Retrofit	New Measure 2012 [60]	220	N/A	N/A	N/A	N/A
Retrofit	Prescriptive Schools - Elementary (hydronic boilers with 83%+)	2	$ 58,622	$ 12,623	$ 45,999	4.6
Retrofit	Prescriptive Schools - Secondary (hydronic boilers with 83%+)	2	$ 237,407	$ 21,126	$ 216,281	11.2
	Total		**$ 98,903,882**	**$ 21,583,622**	**$ 77,320,260**	
			Promotion Costs	$ 974,220		
			Administration	$ 2,582,842		
			EM&V Costs	$ 60,000		
			Program Total Net		**$ 73,703,198**	
			Program TRC Ratio			**3.9**

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1 Condensing Boiler - 300 to 999 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 534,055 Btu/hr from 2010 year results
2 Condensing Boiler - 300 to 999 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 548,979 Btu/hr from 2010 year results
3 Condensing Boiler - over 1000 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 1,593,363 Btu/hr from 2010 year results
4 Condensing Boiler - over 1000 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 1,471,707 Btu/hr from 2010 year results
5 Condensing Boiler - up to 299 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 198,000
6 Condensing Boiler - up to 299 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 185,394
7 Condensing Rooftop Units (MUA) All other Commercial Efficiency + 2 speed > 6000 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 8,644 CFM from marketing forecast
8 Condensing Rooftop Units (MUA) All other Commercial Efficiency + 2 speed 1700 - 5999 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 3,680 CFM from marketing forecast
9 Condensing Rooftop Units (MUA) All other Commercial Efficiency + VFDs > 6000 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 8,647 CFM from marketing forecast
10 Condensing Rooftop Units (MUA) All other Commercial Efficiency + VFDs 1700 - 5999 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 3,720 CFM from marketing forecast
11 Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + 2 speed > 6000 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 8,660 CFM from marketing forecast
12 Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + 2 speed 1700 - 5999 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 3,763 CFM from marketing forecast
13 Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + VFDs 1700 - 5999 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 3,767 CFM from marketing forecast
14 Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + VFDs> 6000 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 8,664 CFM from marketing forecast
15 Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency > 6000 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 8,690 CFM from marketing forecast
16 Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency 1700 - 2999 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 2,262 CFM from marketing forecast
17 Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency 3000 - 5999 cfm measure is quasi-prescriptive. Savings are based on an average capacity of 4,643 CFM from marketing forecast
18 Condensing Unit Heater measuer is quasi-prescriptive. Savings are based on an average capacity of 183,000 Btu/hr from Page 29 of NGTC report "DSM Opportunities Associated with Unit Heaters" April 22, 2009
19 Destratification Fan measure is quasi-prescriptive. Savings are based on an average capacity of 13,089 sqrft from 2010 year results
20 Destratification Fan measure is quasi-prescriptive. Savings are based on an average capacity of 26,753 sqr.ft from 2010 year results
21 DWHR - Ent - Arena measure is quasi-prescriptive. Savings are based on an average capacity of 12 showerheads from marketing forecast
22 DWHR - Ent - Arena measure is quasi-prescriptive. Savings are based on an average capacity of 12 showerheads from marketing forecast
23 DWHR - Hospital - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
24 DWHR - Hospital - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
25 DWHR - Hospital - Laundry measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
26 DWHR - Nursing Home - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 107 beds from marketing forecast
27 DWHR - University/College Cafeterias - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 519 meals served per day from marketing forecast
28 DWHR - University/College Cafeterias - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 519 meals served per day from marketing forecast
29 ERV 1 - up to 1000CFM - Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 681 CFM from 2010 year results
30 ERV 1 - up to 1000CFM - Multi Family, Health Care, Nursingis quasi-prescriptive. Savings are based on an average capacity of 527 CFM Btu/hr from 2010 year results
31 ERV 2 - over 1000CFM - Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 2,394 CFM from 2010 year results
32 ERV 2 - over 1000CFM - Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 2,769 CFM from 2010 year results
33 ERV 3 - up to 2000CFM - Hotel, Restaurant, Retail is quasi-prescriptive. Savings are based on an average capacity of 920 CFM from 2010 year results
34 ERV 3 - up to 2000CFM - Hotel, Restaurant, Retail is quasi-prescriptive. Savings are based on an average capacity of 871 CFM from 2010 year results
35 ERV 4 - over 2000CFM - Hotel, Restaurant, Retail is quasi-prescriptive. Savings are based on an average capacity of 3,420 CFM from 2010 year results
36 ERV 4 - over 2000CFM - Hotel, Restaurant, Retail is quasi-prescriptive. Savings are based on an average capacity of 2,525 CFM from 2010 year results
37 ERV 5 - up to 2000CFM - Office, Warehouse, School is quasi-prescriptive. Savings are based on an average capacity of 1,250 CFM from 2010 year results
38 ERV 5 - up to 2000CFM - Office, Warehouse, School is quasi-prescriptive. Savings are based on an average capacity of 859 CFM from 2010 year results
39 ERV 6 - over 2000CFM - Office, Warehouse, School is quasi-prescriptive. Savings are based on an average capacity of 3,448 from 2010 year results
40 ERV 6 - over 2000CFM - Office, Warehouse, School is quasi-prescriptive. Savings are based on an average capacity of 3,923 CFM from 2010 year results
41 HRV >2,000cfm-Hotel, Restaurant, Retail, Rec is quasi-prescriptive. Savings are based on an average capacity of 2,001 CFM from 2010 year results
42 HRV >2,000cfm-Hotel, Restaurant, Retail, Rec is quasi-prescriptive. Savings are based on an average capacity of 2,001 CFM from 2010 year results
43 HRV ≥2,000cfm-School, Office, Warehouse, Man is quasi-prescriptive. Savings are based on an average capacity of 2,001 CFM from 2010 year results
44 HRV 500 to 2,000cfm-Hotel, Restaurant, Retail, Rec is quasi-prescriptive. Savings are based on an average capacity of 1,000 CFM from 2010 year results
45 HRV 500 to 2,000cfm-Hotel, Restaurant, Retail, Rec is quasi-prescriptive. Savings are based on an average capacity of 777 CFM from 2010 year results
46 HRV Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 722 CFM from 2010 year results
47 HRV Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 593 CFM from 2010 year results
48 Infrared Heating - 101 to 300 MBtu/hr is quasi-prescriptive. Savings are based on an average capacity of 156,600 Btu/hr from 2010 year results
49 Infrared Heating - 101 to 300 MBtu/hr is quasi-prescriptive. Savings are based on an average capacity of 156,806 Btu/hr from 2010 year results
50 Infrared Heating - 20 to 100 MBtu/hr is quasi-prescriptive. Savings are based on an average capacity of 87,840 Btu/hr from 2010 year results
51 Infrared Heating - 20 to 100 MBtu/hr is quasi-prescriptive. Savings are based on an average capacity of 78,493 Btu/hr from 2010 year results
52 Laundry Washing Equipment with Ozone - <= 120 lbs & >= 200,000 lbs/yr is quasi-prescriptive. Savings are based on an average capacity of 200,000 lbs based on bottom of bucket (NGTC)
53 Laundry Washing Equipment with Ozone - > 120 lbs & 1,000,000 lbs/yr is quasi-prescriptive. Savings are based on an average capacity of 1,000,000 lbs based on bottom of bucket (NGTC)
54 Laundry Washing Equipment with Ozone - > 120 lbs & 260,000 - 1,000,000 lbs/yr is quasi-prescriptive. Savings are based on an average capacity of 630,000 lbs based on midpoint of bucket (NGTC)
55 Building Optimization. TRC generated by a market scoping and potential study conducted by Portland Energy Conservations Inc (PECI) and through consultation with Enbridge Gas Distribution. PECI reviewed Union customer and project data for the past three years for each targeted market segment and built on their own best practices and the Canmet Energy Recommissioning Guide for Building Owners and
56 Commercial Custom. TRC Benefits and TRC Costs based on 3 year historical average of commercial custom results
57 Industrial Custom. TRC Benefits and TRC Costs based on 3 year historical average of indsutrial custom results
58 TRC ratio not applicable since incremental cost is negative
59 TRC benefits adjusted based on 2010 verification study results. The adjustments reflect installation rates, persistance rates, percentage of showering under showerhead (for showerhead measures), and
60 Input assumptions for New measures in 2012 are being developed and the screening will be provided in the annual report

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1.1.9 Commercial/Industrial Program Targets

- Targets will remain consistent each year of the Plan

Table 9 – Commercial/Industrial Program Targets

2012 - 2014 Commercial/Industrial Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Cumulative Natural Gas Savings (m3)	266,611,000	533,222,000	666,528,000
Deep Measures	1,658	3,315	4,144

1.1.10 Rationale for Targets

Targets for the C/I Program were established using the Board's stated objectives, budget required to deliver results and the associated rate impacts. Union has provided the following information to provide context for its C/I Program targets.

History

- Union has been delivering DSM to commercial and industrial customers since 1997 and will continue delivering Union's established and successful Programs. The C/I Program is expected to generate 533,222,000 m^3 of cumulative natural gas savings annually for the duration of the 2012-2014 framework.

Consideration of Board's Guiding Objectives

Maximization of Cost Effective Natural Gas Savings

- Union will maximize the cost effectiveness of the C/I Program by focusing on those offerings that deliver the highest m^3 savings for every dollar spent. This will be done through the following:
    - By continuing to deliver a custom offering to industrial customers. History has shown this market is the most cost effective for DSM Programs as Program spend is relatively small in relation to the cumulative m3 savings
    - Continuing to leverage existing infrastructure, delivery channels and market knowledge in Program design, avoiding duplication of existing services and resources

- Focusing on existing measures that have been successful in generating deep energy savings and have remaining market potential

Prevention of Lost Opportunities

- Union has prevented lost opportunities though the following:
  - Providing continual customer engagement, education and training on matters relating to energy efficiency ensures the implementation of energy efficiency initiatives when opportunities arise and accelerates Program take up
  - Partnering with trade allies and stakeholders to teach, share and promote best practises
  - Working with customer Energy Teams to maximize their effectiveness on all matters relating to energy efficiency
  - Educating the marketplace on energy efficiency best practises through various methods of communication. These include Union account management expertise and media such as the Union website, customer testimonials, case studies, editorials, and Program materials
  - Identifying a variety of new deep measures that will be incorporated into the prescriptive offering

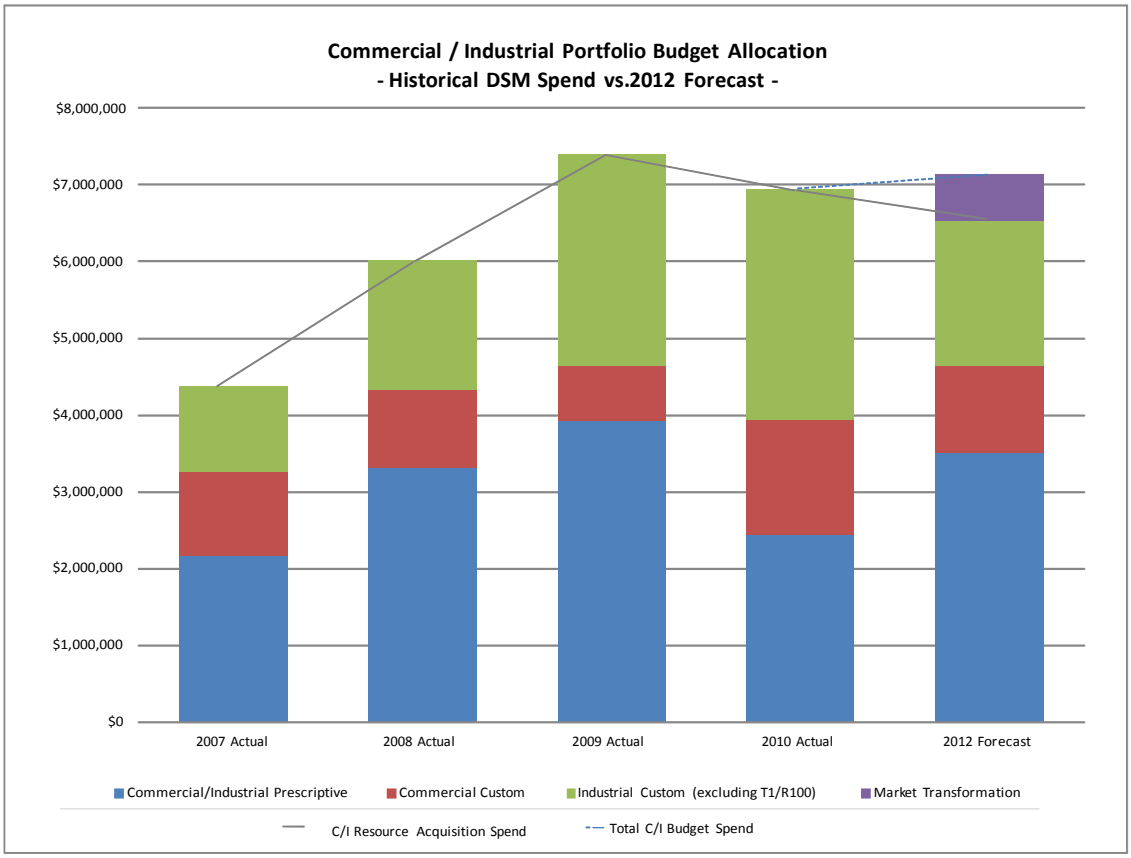
Pursuit of Deep Energy Savings

- Union will emphasize deep energy savings through the following:
  - Measures that do not meet the definition of deep measures will be phased out or eliminated in the 2012 framework; these measures include Low Flow Spray Valves, Programmable Thermostats, Low Flow Showerheads and Aerators.
  - Union will introduce new prescriptive measures that will drive deep energy savings over the course of the next three years.
  - The top six deep measures that Union will focus on include, Condensing Boilers, Energy Recovery Ventilators, Infrared Heaters, Destratification Fans, Condensing Make Up Air Units, and Drain Water Heat Recovery Systems; each has a measure life greater than (or equal to) 14 years.

Context for Targets

As displayed in Figure 1 below, the forecasted 2012 budget for the C/I Program portfolio remains consistent with the total C/I budget spend in 2009 and 2010. The overall C/I Resource Acquisition budget has decreased when compared to 2009 and 2010; this is a result of budget reallocation to the C/I Market Transformation Program. In addition, other factors that have affected the Resource Acquisition budget include the increased focus on deep measures, the introduction of the Building Optimization initiative and the increased focus on obtaining deeper market penetration.

Figure 1: Historical C/I DSM Spending vs. 2012 Forecast



*Excludes administrative and evaluation costs.

The 2012 forecasted cumulative natural gas savings for the C/I Program portfolio are lower than the cumulative natural gas results that were generated in 2009 and 2010. This is primarily due to the re-allocation of budget to Market Transformation resulting in a reduction in the Resource Acquisition budget and subsequently, a reduction in cumulative natural gas savings. Since customers in the Distribution Contract customer class provide the highest level of m^3 savings for every dollar of budget spend, even minor reductions in budget can have significant impacts on the total cumulative natural gas targets in the C/I Program portfolio.

Table 5 below demonstrates the reduction in the Resource Acquisition budget, and the resulting decrease in cumulative natural gas savings, for the Distribution Contract customer class (Non-Rate T1 and Rate 100) in 2012 when compared to prior years.

Table 10 - Cumulative Natural Gas Savings and Resource Acquisition Budget by Customer Class

Resource Acquisition Budget by Customer Class (Program and Incentive Costs Only)					
Customer Class	2007 Actual ($000)	2008 Actual ($000)	2009 Actual ($000)	2010 Actual ($000)	2012 Forecast ($000)
Residential	2,160	3,044	2,838	2,888	3,717
C/I General Service	3,256	4,332	4,638	3,932	4,638
Distribution Contract (Non-Rate T1/R100)	1,111	1,693	2,762	3,001 ⇔	1,900
Total	6,527	9,069	10,238	9,821	10,255

Cumulative Natural Gas Savings by Customer Class					
Customer Class	2007 Actual (000 m3)	2008 Actual (000 m3)	2009 Actual (000 m3)	2010 Actual (000 m3)	2012 Forecast (000 m3)
Residential	85,942	77,083	52,184	31,014	24,819
C/I General Service	221,923	220,812	369,679	201,875	211,691
Distribution Contract (Non-Rate T1/R100)	193,381	222,089	302,740	577,125 ⇔	321,531
Total	501,246	519,984	724,603	810,014	558,041

⇔ Represents significant change

Budgets

- The budget allocation for 2012 was derived by:
  - Analysing a breakdown of historical budget spend
  - Adhering to the Board's direction as set forth in the Guidelines
  - Analysing potential market opportunities for deeper savings
  - Considering rate impacts to customers

Table 11 – Commercial/Industrial Budget (Program and Incentive Costs Only)

Budget (Program and Incentive Costs Only)					
Offering	**2007 Actual ($000)**	**2008 Actual ($000)**	**2009 Actual ($000)**	**2010 Actual ($000)**	**2012 Forecast ($000)**
Commercial/Industrial Prescriptive	2,173	3,304	3,924	2,440	3,515
Commercial Custom	1,082	1,028	714	1,492	1,123
Industrial Custom *	1,111	1,693	2,762	3,001	1,900
C/I Program Total	**4,366**	**6,025**	**7,400**	**6,933**	**6,538**

* Non T1/R100
Assumes 44% of all DC budget was spent on non T1/R100 customers. This is consistent with breakdown in budget spend for 2008.

- Additional factors that have impacted the 2012 budget (shown above) include:
  - The commercial/industrial prescriptive budget has increased by approximately $1,000,000 from 2010 to 2012; this is due to:
    - An increased focus on deeper measures, which are inherently more costly to deliver
    - The introduction of additional deep measures (as identified in 4.2.5 – Program Offerings)
    - Higher costs in targeting customers who have not participated in previous years and are more challenging to reach and influence
  - The commercial custom budget has decreased by approximately $370,000 from 2010 to 2012; this is due to:
    - A number of technologies that are currently included through the custom offering, will be included in the prescriptive offering in 2012 and beyond (as identified in 4.2.5 – Program Offerings)

- Commercial custom offering now includes building optimization, which affects the offering mix and budget spend
- The industrial custom budget in the Commercial/Industrial Resource Acquisition Program has decreased by approximately $1,100,000 from 2010 to 2012; this is due to:
  - Approximately $600,000 allocated to Market Transformation for Integrated Energy Management Systems which will be targeted to industrial customers (4.7.8 – IEMS Program Budget excluding Administrative costs)
  - Budget from institutional contract customer have been removed from the industrial custom total and applied to commercial custom

Cumulative m^3 Targets

- Cumulative m^3 targets for 2012 were established using a bottom up analysis:
  - Units for all measures were forecasted using market fundamentals, historical data, current input assumptions and projected budgets

Table 12 – Historical Cumulative m^3 Savings

Historical Cumulative m3 Savings					
Offering	**2007 Actual (000)**	**2008 Actual (000)**	**2009 Actual (000)**	**2010 Actual (000)**	**2012 Forecast (000)**
Commercial/Industrial Prescriptive	147,517	143,164	252,597	169,032	129,013
Commercial Custom	74,405	77,648	117,081	32,843	82,678
Industrial Custom *	193,381	222,089	302,740	577,125	321,531
C/I Program Total	**415,304**	**442,901**	**672,419**	**779,000**	**533,222**

* Non T1/R100

Assumes 33% of all DC custom m3's were driven from non T1/R100 customers. This is consistent with other years where T1/R100's were tracked separately.

- Additional factors that have impacted the 2012 cumulative m^3 forecast include:
  - The commercial/industrial prescriptive target has decreased by approximately 40,000,000 cumulative m^3s; this is due to:
    - Commercial/Industrial prescriptive is impacted by changes in input assumptions, which were more favourable in past years
    - Commercial/Industrial prescriptive is impacted by phasing out shallow measures

- The commercial custom target has increased by approximately 50,000,000 cumulative m^3s; this is due to:
  - Savings from institutional contract customers are now being accounted for under commercial custom savings (as opposed to industrial custom in 2010)
  - The introduction of the building optimization offering
- The industrial custom target has decreased by approximately 256,000,000 cumulative m^3s; this is due to:
  - Refocusing from custom to Market Transformation to drive sustainable behaviours in the market
  - Natural gas savings from institutional contract customer have been removed from the industrial custom total and applied to commercial custom

Deep Measures

- The number of deep measures were established using a bottom up analysis:
  - Units for all measures were forecasted using market fundamentals, historical data, and budget availability

Table 13 – Commercial/Industrial Deep Measures

Deep Measures					
Offering	**2007 Actual**	**2008 Actual**	**2009 Actual**	**2010 Actual**	**2012 Forecast**
Commercial/Industrial Prescriptive	2,275	2,457	3,748	2,090	3,095
Commercial Custom	515	341	198	263	130
Industrial Custom *	117	123	221	274	90
C/I Program Total	**2,907**	**2,921**	**4,167**	**2,627**	**3,315**

* Non T1/R100
Assumes 66% of all DC custom projects were from non T1/R100 customers. This is consistent with other years where T1/R100's were tracked separately.

- Additional factors that have impacted the 2012 deep measure forecast include:
  - The number of deep measures in commercial/industrial prescriptive have increased by 1005 units; this is due to :
    - A change in measure mix (as identified in Section 1.1.5 – Program Offerings)

- There will be increased emphasis on deep measures than in 2010 as Union phases out shallow measures

- Commercial prescriptive is also impacted by measures that have been phased out over the past several years (i.e. Rooftop Units were a significant contributor in 2009)

- The number of deep custom projects in commercial has decreased by 133 units; this is due to:
  - The makeup of commercial custom has changed to include Building Optimization
  - A decrease in the commercial custom budget
- The number of deep custom measures in industrial has decreased by 184 units; this is due to:
  - Units from institutional contract customers are now forecasted under commercial custom (as opposed to industrial custom in 2010)
  - A decrease in industrial custom resource acquisition as Union reallocates resources to Market Transformation

1.1.11 Challenges Union will Face in Achieving Commercial / Industrial Program Targets

- Challenges exist through limited support and participation from service providers in extending Union Program information and establishing awareness with customers
- A diminished number of large industrial projects which historically provide significant contribution to the overall savings achieved
- Union expects slower take-up in the first year with the introduction of new prescriptive measures and building optimization, as new offers need to build momentum in the market.
- Input assumption risk for several deep measures in the prescriptive offering due to the risk of changes to input assumptions based on selected measure evaluation, on an annual basis
- The potential for reduced customer interest in natural gas conservation as a result of:
  - Rising electricity prices
  - Projected stable natural gas prices
  - Incentives dollars being offered through CDM programming

- The effects of an unstable economic environment could have on:
  - Equipment improvements and the deployment of capital
  - New construction and real estate investments
  - Commodity prices and affiliated ROI calculations for energy efficiency improvements
  - Manufacturing and industrial production

1.2 *Large Industrial Rate T1 and Rate 100 Program*

The Large Industrial Rate T1 and Rate 100 Program is designed to focus this customer group on energy management toward increased activity in process improvements, through assessment and feasibility studies, measured performance benchmarks and operational and maintenance improvements. This Program seeks to maximize customer participation, relies heavily on Union personnel expertise, and leverages Union's direct one-on-one customer interaction.

1.2.1 Customer Class(es) Targeted

- Large Commercial / Industrial firm service contract customers
- This group of customers is comprised of large volume manufacturing operations, power plants, institutional clients, greenhouse operations and industrial process customers

1.2.2 Rate classes Targeted

- Rate T1 - Storage and Transportation Rates for Contract Carriage Customers (Union South)
- Rate 100 - Large Volume High Load Factor Firm Service (Union North)

1.2.3 Program Goals

Program goals for the Large Industrial Rate T1 and Rate 100 Program consist of the following:

- To provide Rate T1 and Rate 100 customers with the tools and support to assess their energy usage as compared to industry best practices
- To demonstrate the long term value of process and equipment improvements through sustainable reductions in energy consumption
- To encourage the adoption of behavioural and process changes that supports a continual focus on energy management
- To provide valued tools and services that leverage Union's expertise in the area of energy efficiency in a cost effective manner

1.2.4 Program Strategy

Program strategies to achieve Union's goals for the Large Industrial Rate T1 and Rate 100

Program consist of the following:

- Utilize a series of foundational steps that build on each other. Union's Program strategy begins with creating awareness of energy efficiency, followed by engineering assessment and analysis of potential projects and cumulates with the installation of high efficiency equipment and the establishment of better operating practices.
- Engage the customer across a broad section of touch points to increase the awareness of the positive benefits achieved through active energy management. This includes plant sites, corporate offices and senior management levels.
- Provide financial incentives that are beneficial and add value to the customer, by encouraging customers to continual focus on energy management in their regular maintenance plans. These plans are developed and budgeted at the local level, where continual pressure on expenditures often results in cuts to maintenance budgets that would improve the energy efficiency of a facility. Incentives targeted to this equipment have the greatest impact on the local facility.

1.2.5 Program Offerings

The offerings delivered in the Large Industrial Rate T1and Rate 100 Program are outlined below.

Customer Engagement

- Provides a targeted and connected set of offerings that will afford Union's Rate T1 and Rate 100 customers with improved cost effectiveness
- Provides education, training and technical expertise to Rate T1 and Rate 100 customers

Site Energy Assessments

- Evaluation of a facility's energy use to identify the most cost-effective, energy saving opportunities in their processes

Process Improvement Studies

- Gather and analyze data on process related equipment, to quantify opportunities for energy and cost savings

O&M Optimization Incentives

- Identify new areas for operational efficiencies and drive the implementation of O&M related energy improvements

Description

1. Customer Engagement

The Customer Engagement offering consists of the following elements:

- Capacity and Knowledge Building
  - Provides education, technical expertise and training opportunities through on-site or off-site sessions conducted by third-party subject-matter experts or Union staff, to increase overall energy management knowledge and capacity for our customers
  - Provides offsite technical training activities - localized sessions, webinars, focused editorials, and modeling
- Energy Team Support
  - Assists in the formation and implementation of a customer Energy Team and the provision of resources to increase customer's effectiveness at identifying, evaluating and implementing energy-saving projects
  - Assistance provided in the form of ongoing participation in customer-centered Energy Teams, involving technical expertise, experience and supportive information
  - Improvement to existing energy teams by providing technical expertise, sharing best practices, creating forums and working to improve overall effectiveness.=
- Corporate Recognition
  - Valuable recognition for top performers of energy efficiency and environmental stewardship projects.

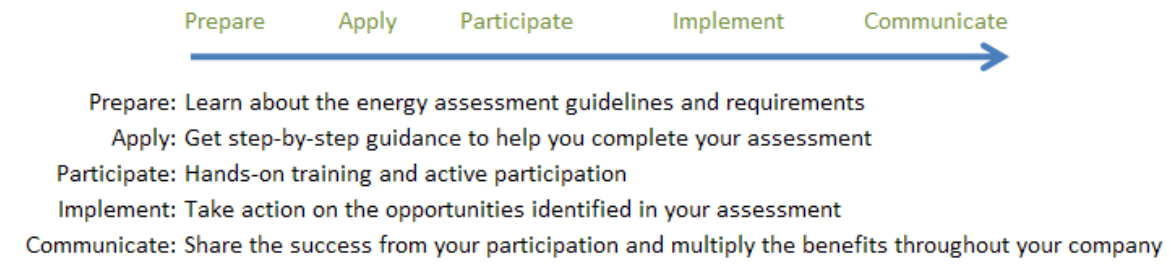
2. Site Energy Assessments

- Assessments are conducted by Union experts, who play a pivotal role in the identification of cost-effective energy saving opportunities for customer consideration. Union experts will utilize industry-recognized software tools available from the U.S. Department of Energy:

- Steam System Tool Suite: Steam System Assessment Tool, 3EPlus
- Combined Heat & Power Application Tool
- Process Heating Assessment and Survey Tool
- Mechanical Insulation Assessment and Design Tools

- Installation of temporary wireless metering devices will be made available for the duration of the assessment at no charge to the customer.
- Assessments identify low and no cost savings opportunities for energy savings
- Assessments also identify target areas that require additional and more in-depth analysis, via a Process Improvement Study.

Site Energy Assessment Road Map



3. Process Improvement Studies

Union supports third party studies, where Union pays a percentage of the cost, for the purpose of:

- Quantifying specific in-depth opportunities for reduced natural gas consumption or increased production
- Conducting a focused effort to gather & analyze data on process related equipment
- Supplying the customer with metering for baseline, at no cost
- Demonstrating results of energy saving expectations ($/m^3), implementation costs and ROI calculations
- Implementing projects that include, but are not limited to:
  - Steam plant/system surveys, insulation survey, combustion optimization, and process changes

4. O&M Optimization Incentives

- Financial incentives are directed towards performance improvement actions that are typically contained within an operation and maintenance (O&M) budget. Focus is on the implementation of high energy saving activities, where emphasis includes:
    - Raising customer awareness of the energy and productivity saving opportunities of performance improvements from their existing systems
    - Common performance improvement opportunities that can save natural gas
- Financial incentives influencing performance improvement target:
    - Steam / Thermal Systems
    - HVAC Systems
    - Combustion Systems
    - Process Heating Systems
    - Other Natural Gas Consuming Equipment, Systems and Processes
- Incentives are available with or without an audit. Under both circumstances, Union's role is that of a knowledgeable third party with cross-sector expertise in performance improvement opportunities.

Market Incentive (O&M Optimization Incentives)

- Incentive levels are established to drive operational and maintenance improvement within the customer's facility
- Incentives will be directed to the customer

Market Delivery

- This energy efficiency Program is delivered directly to customers in these rate classes by dedicated Union Account Managers and Project Managers. Union experts are knowledgeable about individual customers' businesses and have background and training in energy efficiency and natural gas applications.
- Collaboration with key organizations, original equipment manufacturers, vendors and consultants is required to:
    - Expand the reach of Union's Program offerings.
    - Educate and influence energy saving best practices with customers.

- Develop customers' capacity to make energy efficiency decisions
- Promote the investigation and implementation of energy efficiency projects.

Barriers Addressed

Primary barriers preventing higher uptake in the market include the following:

- In this customer group, the focus is on their core manufacturing competency. Energy use is not considered a core production management system metric as energy consumption is widely viewed as a "cost of doing business". Increasing the efficiency of energy use is a significant challenge in many industrial plants due to its broad scope and that it is not as vital as production or quality control issues.
  - Union's support for energy teams through training, energy assessments and recognition addresses this barrier.
- Some customers demonstrate a low priority on important maintenance for energy-using equipment and energy systems, allowing inefficient energy use to continue without management awareness.
  - To address this barrier, Union provides support through financial incentives for cost-effective performance improvement implementation action addresses this barrier.
  - In addition, Union's educational forums, which present customers with best practices and promote knowledge sharing.
- Difficulty for operations and maintenance personnel to obtain resources to devote to energy saving projects.
  - Undertaking Site Energy Assessments completed by Union personnel and co-funding Process Improvement Studies provides information required to strengthen customers' business cases for projects which save natural gas.

1.2.6 Program Duration

- All Program offerings in the Rate T1 and Rate 100 Program will be delivered over the course of the three year Plan
- The offerings may vary should new measures be introduced or market conditions change over the course of the Plan

1.2.7 Program Budget

- Union has not included inflation in the table below. Union proposes to use the Q2 GDP-IPI inflation factor, released at the end of August, to align with Union's annual rate setting process.

Table 14 – Rate T1 / Rate 100 Customer Program Budget

2012 T1/R100 Customer Program Budget ($000)			
Program Cost	**2012**	**2013**	**2014**
Promotion Costs	$ 360	$ 360	$ 360
Incentive Costs	$ 1,840	$ 1,840	$ 1,840
EM&V & Monitoring Costs	$ 40	$ 40	$ 40
Administrative Costs	$ 907	$ 907	$ 907
Total	**$3,147**	**$3,147**	**$3,147**

1.2.8 Cost Effectiveness

Table 15 – Large Industrial Rate T1/Rate 100 Program Cost Effectiveness

Measure	Participants	Total TRC Benefits	Total TRC Costs	Total Net TRC Before Program Costs	TRC Ratio
T1/R100 Offering (Custom) [1]	54	$ 81,448,235	$ 8,173,465	73,274,770	10.0
Total		**$ 81,448,235**	**$ 8,173,465**	**$ 73,274,770**	
		Promotion Costs	$ 360,000		
		Administration	$ 906,511		
		EM&V Costs	$ 40,000		
		Program Total Net TRC		**$ 71,968,259**	
		Program TRC Ratio			**8.6**

1. T1/R100 Offering (Custom). TRC Benefits and TRC Costs based on 3 year historical average of T1/R100 custom results

1.2.9 Large Industrial Rate T1 and Rate 100 Program Targets

- Targets will remain consistent each year of the Plan

Table 16 – Large Industrial Rate T1 / Rate 100 Targets

2012 - 2014 Large Industrial T1/R100 Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Cumulative Natural Gas Savings (m3)	250,000,000	500,000,000	625,000,000
Percentage of Customers Participating	30%	55%	65%

1.2.10 Rationale for Targets

A key consideration in developing targets for this market has been a detailed analysis of historical achievement levels for similar projects completed with customers in these rate classes. On that basis, targets have generally been developed based on average historical achievement levels. Targets have also been adjusted to reflect the increased participation and savings derived from O&M related projects in 2010 and 2011.

Consideration of Board's Guiding Objectives

Maximization of Cost Effective Natural Gas Savings

- Union will maximize the cost effectiveness of the Program for large industrial customers by:
    - Continuing to drive O&M efficiency upgrades to Rate T1 and Rate 100 customers. History has shown this market is the most cost effective as Program spend is relatively small in relation to the cumulative m^3 savings achievable.
    - Continuing to leverage existing infrastructure, delivery channels and internal expertise to drive more energy savings for the given budget.
    - By directing attention to the assessment of heating systems, Union provides a pivotal solution in the form of knowledge and expertise needed by our customers to assist in the identification of cost-effective energy saving strategies.

Prevention of Lost Opportunities

- Lost opportunities are prevented through the following:

- Union has designed a targeted and complementary set of offerings for Rate T1 and Rate 100 customers that take customers from the initial identification stage, to actual idea implementation. This ensures opportunities are not just identified, but are implemented using best practises and best available information.

- Provide support, information, experience and expertise required to create and implement energy teams. Union's focus on establishing energy teams in large industrial facilities helps identify opportunities that otherwise would have been lost where customers may not have recognized the potential for efficiency gain.

- For companies who already have an existing energy team Union will provide technical expertise, share best practices, create forums and work to improve the teams overall effectiveness.

- Educating Rate T1 and Rate 100 customers on energy efficiency best practises, through various methods of communication, including direct-to-customer through Union account and project management expertise, and forms of media including: website, case studies, editorials, technical resources, etc.

- Partnering with trade allies and stakeholders to teach, share and promote best practices to maximize their effectiveness on all matters relating to energy efficiency

Pursuit of Deep Energy Savings

- In pursuit of long term deep energy savings, the Rate T1 and Rate 100 Program's four offerings – Customer Engagement, Site Energy Assessments, Process Improvement Studies and Operation & Maintenance Optimization Incentives – have been established. This is a comprehensive approach shift where Union's staff, through influence and demonstration of expertise, enable energy conservation to become an imbedded component of the customer's organizational culture.

- Financial incentives are directed towards O&M performance improvement actions. Focus is on the implementation of significant energy and productivity saving opportunities, where deep savings can be realized with our large industrial customers.

Context for Targets

Budgets

- The budget allocation for 2012 was derived by:

  - Analysing a breakdown of historical budget spend

- Adhering to the board's direction as set forth in the guidelines
- Considering rate impacts to Rate T1 and Rate 100 customers
- Analysing market opportunities for deeper savings

Table 17 – Rate T1/Rate 100 Budget Breakdown

Budget Breakdown		
Offering	**Program Cost ($000)**	**Incentive Cost ($000)**
Engagement	110	0
Process Improvement Studies	30	786
Site Energy Assessments	150	0
O&M Performance Incentives	70	1,054
Total	**360**	**1,840**

Budget Breakdown	
Resource Acquisition Scorecard Total ($000)	**2,200**

- Additional factors that have impacted the 2012 budget forecast include:
  - The reallocation of approximately $1,100,000 from equipment incentives, to Engagement, Process Improvements Studies and Site Energy Assessments
  - The forecasted incentive budget for Rate T1 and Rate 100 customers has been reduced from the average incentive spend of $1,870,000 (2008 – 2010) to reduce the rate impact on this customer segment

Cumulative m^3 Targets

- Cumulative m^3 targets for 2012 were established using a bottom up analysis:
  - Units for all measures were forecasted using market fundamentals, historical data, current input assumptions and projected budgets

Table 18 – Rate T1 / Rate 100 Information

T1/R100 Information					
Project Type	**2008-2011* Total Number of Projects**	**2008-2011* Average Number of Projects Per Year**	**Average Cumulative Savings Per Project**	**2012 Forecasted Number of Projects**	**2012 Forecasted Cumulative m3 Savings**
Combustion Optimization	16	4.0	1,366,501	4	5,466,004
Condensate Return	4	1.0	4,261,023	1	4,261,023
Economizer Repair	4	1.0	1,336,337	1	1,336,337
Heat Exchanger	19	4.8	10,697,495	4	42,789,982
Insulation	35	8.8	2,551,060	8	20,408,479
Steam Leak Repairs	30	7.5	18,000,856	7	126,005,994
Steam Reduction	9	2.3	16,294,978	2	32,589,956
Steam Trap Repairs	53	13.3	5,122,814	13	66,596,579
Other	56	14.0	7,606,237	14	106,487,314
Stretch	-	-	-	-	94,058,332
Total	**226**	**56.5**		**54**	***500,000,000***

*2011 Projects, as of November 21st, 2011

- Additional factors that have impacted the 2012 cumulative m^3 forecast include:
  - The Rate T1 and Rate 100 target has been impacted by a change in offering mix; specifically incentives will no longer be provided for capital projects
  - Union Gas focused more heavily on O&M projects in 2011 to maximize cost effectiveness, to respond to customers' needs and to generate incremental savings; this generated greater m3 savings than 2008, 2009 and 2010
  - Based on historical averages, Union Gas forecasts 405,941,669 cumulative m3s in 2012; plus an additional stretch of 94,058,332 cumulative m3s (see Table 18)
  - In 2011, Union Gas's drove an estimated 476 cumulative m3's for every incentive dollar spent on O&M projects (Notes: this data includes YTD results as of November 21, 2011; values include an estimated free-rider rate)
  - The 2012 incentive budget of $1,054,000 multiplied by a cost effectiveness of 476 m3/$ yields approximately 500,000,000 cumulative m3's

Participation Rates

- The participation rate is the proposed metric for Rate T1 and Rate 100 customers in lieu of a metric that tracks the number of deep measures installed
  - This ensures Union reaches a high proportion of customers within the Rate T1 and Rate 100 rate class and reduces cross subsidization between customers in a rate class, as all will be actively encouraged to participate
  - The participation rates were established using a bottom up analysis
  - Rates were forecasted using market fundamentals, historical data and current offerings

Table 19 – Rate T1/Rate 100 Participation Rate

Participation Rate					
Deep Measure Participants	2008	2009	2010	2011	2012
Total Number of Participants (Education, Studies, & O&M Incentives)	23	22	37	42	39
Total Number of T1/R100 Customers*	71	71	71	71	71
Participation Rate	32%	31%	52%	59%	55%

* Every contract (or specific Service Agreement Number) counts as one customer

* Excludes those who are DSM ineligible because they are transmission customers

* Excludes those customers who do not have gas

* Includes R100 /25

- Additional factors that have impacted the 2012 participation rate include:
  - On average, 44% of customers have been participants for qualifying projects from 2008 to 2011
  - On average, 55% of customers have been participants for qualifying projects from 20010 to 2011
  - Union Gas focused more heavily on O&M projects in 2011 to maximize cost effectiveness, to respond to customers' needs and to generate incremental savings; this generated greater participation rates than 2008, 2009 and 2010
  - Incentives will no longer be provided for capital projects.
  - A reduction in the variety of incentives being offered for Rate T1 and Rate 100 customers, may have a negative effect on participation rates

1.2.11 Challenges Union will face in Achieving Rate T1 and Rate 100 Targets

- The targets will be challenging as they require an optimal economic environment, broader customer participation, and highly cost effective projects.
- Broad customer participation can only be accomplished through optimal implementation of energy assessments, training sessions and energy team participation.
- Require customers advocate on behalf of Union's energy expertise both within their organization and potentially to other organizations.
  - Customers have to convince their senior management of the value energy efficiency upgrades provide
- Union has a diverse set of customers in the Rate T1 and Rate 100 rate classes including hospitals, greenhouse growers, power marketers, and manufacturing facilities. Since Union will be offering a new Program, Union will have to gain awareness, educate and create traction in each of these markets in the first year.

- Union will need to provide appropriate resources across all markets despite geographic challenges.
- Union will be able to obtain customers attention and influence behaviour, but are still exposed to risks around capital spending cycles (projects and budgets are cyclical and are difficult to predict one year to the next).
- Customers have very specialized processes and Union will have to find the precise industry experts to provide the information required.

Low-income

1.3 *Low-income Program*

1.3.1 Customer Class(es) Targeted

- Residential, C/I General Service

1.3.2 Rate Classes Targeted

- Rate M1, Rate M2, Rate 01, Rate 10

1.3.3 Goals

Program goals for the Low-income Program consist of the following:

- To reduce the energy burden of Union's low income customer base
- To provide offerings to Union's low income customer base that adhere to the Guiding Principles outlined in section 4.2 of the Guidelines
- To continue to develop the breadth and the depth of the low income offerings throughout the term of the multi-year Plan
- To minimize the barriers that low income customers face in participating in energy conservation programs

1.3.4 Program Strategy

Program strategies to achieve Union's goals for the Low-income Program include:

- Address all measures and natural gas savings opportunities in the dwellings that lead to an overall cost-effective Program
- Grow the offering's infrastructure across Union's franchise area
- Provide customers with the education required to continue conservation in their home after measure installation has been performed
- Address universality by expanding the Program to new low income markets (i.e. Social and Affordable Housing Multi-Family Offering)

- Foster relationships with key influencers in the low income community (i.e. social service agencies)

1.3.5 Program Offerings

The following offerings will be delivered to Union's low income customer base.

Helping Homes Conserve

Description

- Provides the free installation of up to two energy efficient showerheads, two metres of pipe wrap and a programmable thermostat. Kitchen and bathroom aerators are left behind for self installation.
- Education material, including an easy to read "how to use your programmable thermostat" guide and an energy saving guide with no-cost and low-cost tips, are left behind for the customer.

Target Market

- Customers who reside at or below 135% of the most recent Statistics Canada pre-tax Low-income Cut-Offs ("LICO") for communities of 500,000 or more, as updated from time to time.
- Any household that pays their own natural gas bills and resides within a community in which greater than or equal to 40% of households qualify for the LICO threshold listed above.
- Any social or assisted housing tenant residing in a Part 9[7] or Part 3[8] building.
- Further eligibility criteria is outlined on page 8 & 9 of EB -2008-0346.

[7] A Part 9 building is one that is three or fewer storeys in building height, having a building area not exceeding 600 square metres.
[8] A Part 3 building is one that is three or more storeys in building height, or one having a building area exceeding 600 square metres.

Market Incentive

- The offering is delivered at no cost to the customer

Market Delivery

- The offering will primarily be delivered through a neighbourhood strategy where postal codes with high-propensities of low income customers (40% or greater) are targeted. Customers will receive pre-notification of a visit by a direct mail notification sent one week prior to the visit and a reminder flyer sent 72 -24 hours prior to a visit. A toll-free number is included on all material for customers to book an appointment or if they have any questions or concerns.
- A secondary delivery approach will involve working with community partners such as social service agencies to help refer their clientele into the Program. Union will pass these leads on to their contracted delivery agent who will then contact the customer to book an appointment for an install.
- To reach tenants residing within social or assisted housing, Union will work directly with social and assisted housing providers to deliver the offering to their tenant base.
- All measures will be installed by contracted delivery agents and all programmable thermostats will be installed by licensed gas fitters.

Barriers Addressed

- Cost of measures
    - Union has addressed this barrier as measures are offered at no-cost to the customers to provide access for customers who would otherwise not have the financial means to participate.
- Customer awareness
    - Union uses a targeted approach to addresses awareness and up-take by reaching a large breadth of low-income customers through a neighbourhood approach. This approach brings the offering right to the customers' door instead of putting the burden of pursuing the Program on the customers' shoulders.

- Installation requirements
    - Union provides free installation for the measures to address any issues that customers may face in installing measures, such as programmable thermostats (i.e. seniors).

Home Retrofit Offering

Description

- Provides a free home energy audit ("A Audit") to qualified homeowners and tenants to determine the building envelope upgrade needs of the home, and to undertake those upgrades that meet the qualifying criteria.
- Potential upgrades include; attic insulation, wall insulation, basement insulation and draft-proofing measures. In addition, an assessment will be performed on the home's furnace and water heater to establish whether the customer qualifies for an upgrade.
- If health and safety issues are discovered during the "A audit" stage that would prevent a measure from being installed (i.e. venting issues) then Union will assess whether the issues fall within their Health & Safety protocols and, if qualified, will address the issues within the home to allow for measure installations. Union will work with industry experts to define appropriate Health & Safety protocols.
- Once all of the eligible upgrades have been performed in the home, a follow-up home energy audit ("B Audit") will be performed to evaluate the energy savings realized in the home by the installation of the measures.
- During all stages of the offering, customers will receive one-on-one education from the auditors and contractors, and education materials tailored for this customer base will be left behind for the customers.

Target Market

- Customers who reside at or below 135% of the most recent Statistics Canada pre-tax Low-income Cut-Offs ("LICO") for communities of 500,000 or more, as updated from time to time.
- Private homeowners, or tenants who pay their utility bill, who were a recipient of one of the following social benefits within the last twelve months:

I. The National Child Benefit Supplement;
II. Allowance for the Survivor;
III. Guaranteed Income Supplement;
IV. Allowance for Seniors;
V. Ontario Works;
VI. Ontario Disability Support Programs; or
VII. LEAP Emergency Financial Assistant Grant.

- Any social or assisted housing tenant residing in a Part 9 building[9]
- Further eligibility criteria is outlined on page 8 & 9 of EB -2008-0346.

Market Incentive

- The offering is delivered at no cost to the customer
- Health and Safety incentive caps will be set once Union has properly assesses what issues may need to be addressed in the home and what their average costs may be (i.e. average costs of installing new vents)

Market Delivery

- This offering will be delivered using a multi-channel approaching including, but not limited to the following:
  - Social Service Agencies
    - Union will foster relationships with social service agencies within the community to inform them about the Program and how it can benefit their clients.
    - Union will seek to establish more formalized relationships with strategic agencies wherein the agency would actively recruit customers into the Program by educating the customer on the Program and asking them some

[9] A Part 9 building is one that is three or fewer storeys in building height, having a building area not exceeding 600 square metres.

pre-qualifying questions (i.e. age of the home). Union will provide education for the front-line staff of strategic social agencies and will provide a financial incentive to the agency for each qualified customer lead.

- o Social and Assisted Housing Providers
  - Union will work directly with social and assisted housing providers to bring the home retrofit offer to their tenant base.
  - The housing providers will qualify tenants that meet the income eligibility criteria by referring to the data they have on tenants that receive rent subsidies. Providers also can help pre-qualify which homes would be eligible for measures based on building stock information such as, age of the home, structure of the home, maintenance history, etc.
  - Union will reach out to providers through municipalities, Organizations and Associations (i.e. Ontario Not-For- Profit Association) and direct marketing activities
- o Direct Marketing
  - Union will reach out to pre-identified low income customers using direct marketing mediums (i.e. direct mail) to drive awareness and take-up.
  - Customers will be pre-identified by data analysis that will look at demographics such as the postal code income level and penetration, the age of the home, the square footage of the home and historical m^3 consumption.
- o Education Workshops, Community Groups & Events
  - Union will host education workshops at social service agency partners' locations to teach customers about low cost and no cost conservation tips they can perform in their home. During these workshops Union will make the audience aware of the home retrofit offering and will sign-up interested participants.
  - A number of community groups and events are hosted for low income residents (i.e. church groups) in order to assist them with many of their day-to-day struggles. Union will seek to support these groups and events and to provide them with the necessary support to educate their attendees with information on the offering.
- o Through Helping Homes Conserve Offering
  - While performing basic measure installations through Union's Helping Homes Conserve offering, technicians will assess whether the home would

be a prime candidate for the Home Retrofit offering. Technicians will perform this assessment by asking the customer some basic questions about their home (i.e. age of the home) and by assessing the structure of the home (i.e. double brick home).

- Union will provide training to technicians who perform basic measure installations to teach them how to properly asses the home.

- All audits ("A and B") will be performed by Certified Energy Auditors.

Barriers Addressed

- Cost of the measures
  - Union has addressed this barrier as measures are provided at no-cost to the customer. This approach provides access for customers who would otherwise not have the financial means to participate.
- Access to the offering
  - Union works directly with housing providers to counter any barrier tenants may face if the burden is put on them to get their housing provider on board.
- Awareness of the offering
  - Union will reach out to trusted partners in the community to address awareness by leveraging the channels low income customers go to for information and guidance.
- Managing the installation process
  - Provide a direct install offering for the measures in the home to remove any onus on the customer to source out qualified contractors. This will also provide them with the comfort that the installations in their home are being performed by quality controlled professionals.

Social and Assisted Housing Multi-Family Offering

Description

- Support Social and Assisted Housing Providers to address energy efficient upgrades in their buildings

- Eligible Upgrades may include:
  - Prescriptive measure upgrades, such as Condensing Boilers and Condensing Gas Water Heaters
  - Custom measure upgrades including building envelope upgrades and Building Optimization

- Provides social and affordable housing providers with "enhanced" incentives for any Commercial prescriptive or custom offering for multi-family buildings
- Comprehensive education will be offered to all influencers on the energy usage in the building including, housing providers, builder operators and tenants
- Offering addresses both technology requirements as well as operational and building operator changes, through identifying best practices and optimizing maintenance procedures that will result in reduced natural gas usage

Target Market

- Social Housing Providers that operate part 3 buildings with tenants who reside at or below 135% of the most recent Statistics Canada pre-tax Low-income Cut-Offs ("LICO") for communities of 500,000 or more, as updated from time to time.
- Further eligibility criteria is outlined on page 8 & 9 of EB -2008-0346.

Market Incentive

- The enhanced incentives include the following:
  - 50% of the eligible costs* of the project up to a maximum of 55% of the estimated eligible costs
  - 50% of the incentive can be provided in advance of the project if required by the social or assisted housing provider
  - Free site assessment and eligible low-cost/no-cost upgrades for Building Optimization
  - Comprehensive education and training for social housing providers, building operators and tenants

**Eligible Costs include; the cost of the measure, the cost of the installation of the measure and the cost of any assessment required determining the upgrade needs of the given measure.*

Market Delivery

- Union will work directly with Social and Assisted Housing Providers to assess the needs of their buildings. Union will reach out to providers through multiple channels including:
    - Municipalities
    - Organizations and Associations (i.e. Ontario Not-For- Profit Association)
    - Direct Marketing mediums

Barriers Addressed

- Access to capital to fund measures
    - To address this barrier Union offers enhanced incentives to reduce the financial burden that housing providers face trying to purchase measures by allowing providers to realize their return on investment earlier by reducing the payback on the measures.
- Lack of decision making abilities around conservation upgrades by the low income tenants who reside in the building as property managers must agree to any Program uptake.
    - To address this barrier, Union works directly with social and affordable housing providers who manage Part 3 buildings, to remove the barrier of access to conservation for low income tenants residing in these buildings.

1.3.6 Program Duration

- All offerings in the low income Program will be delivered throughout the 2012 -2014 DSM Plan
- The measures within the offerings may vary should new measures be introduced or market conditions change over the course of the Plan

1.3.7 Program Budget

- Union has not included inflation in the table below. Union proposes to use the Q2 GDP-IPI inflation factor, released at the end of August, to align with Union's annual rate setting process.

Table 20 – Low Income Program Budget

2012 Low Income Program Budget ($000)		
Program Cost	**Residential**	**C/I General Service**
Promotion Costs	$1,116	$200
Market Incentive Costs	$3,293	$1,218
EM&V & Monitoring Costs	$10	$30
Administrative Costs	$602	$370
Total	**$5,021**	**$1,818**

2013 Low-income Program Budget ($000)		
Program Cost	**Residential**	**C/I General Service**
Promotion Costs	$1,014	$155
Market Incentive Costs	$3,288	$1,370
EM&V & Monitoring Costs	$10	$30
Administrative Costs	$602	$370
Total	**$4,914**	**$1,925**

2014 Low-income Program Budget ($000)		
Program Cost	**Residential**	**C/I General Service**
Promotion Costs	$1,078	$155
Market Incentives	$3,656	$938
EM&V & Monitoring Costs	$10	$30
Administrative Costs	$602	$370
Total	**$5,346**	**$1,493**

1.3.8 Cost Effectiveness

Table 21 – Low Income Cost Effectiveness

Measure	Participants	Total TRC Benefits	Total TRC Costs	Total Net TRC Before Program Costs	TRC Ratio
Attic Insulation (Weatherization) [3]	550	$ 349,994	$ 412,676	-$ 62,682	0.8
Basement Insulation (Weatherization) [3]	550	$ 1,302,870	$ 959,783	$ 343,087	1.4
Building Optimization [5]	70	N/A	N/A	N/A	N/A
CEE Tier 2 Front-loading Clothes Washer (Multi Family)	88	$ 114,459	$ 47,520	$ 66,939	2.4
Condensing Boiler - up to 299 Mbtu/h [1]	5	$ 35,261	$ 14,174	$ 21,087	2.5
Condensing Gas Water Heater (1000gal/day) - Purchase	15	$ 55,773	$ 31,778	$ 23,996	1.8
Early Furnace Replacement - 60% AFUE	28	$ 16,540	$ 14,504	$ 2,036	1.1
Early Furnace Replacement - 70% AFUE	82	$ 28,902	$ 42,476	-$ 13,574	0.7
Early Hot Water Heater Replacement (0.575 to 0.62 EF)	28	$ 1,660	$ 4,704	-$ 3,044	0.4
HHC - Faucet Aerator - Bath - 1.0gpm [4]	10,000	$ 587,411	$ 5,841	$ 581,570	100.6
HHC - Faucet Aerator - Kitchen - 1.5gpm [4]	10,000	$ 1,398,217	$ 12,771	$ 1,385,446	109.5
HHC - Pipe Insulation - 2m [4]	10,000	$ 350,291	$ 9,702	$ 340,589	36.1
HHC - Showerhead - 1.25gpm exist 2.0-2.5 [4]	3,000	$ 743,888	$ 11,256	$ 732,632	66.1
HHC - Showerhead - 1.25gpm exist 2.6+ [4]	7,000	$ 2,926,815	$ 26,265	$ 2,900,550	111.4
HHC - Thermostat - Programmable	6,000	$ 1,172,163	$ 160,083	$ 1,012,080	7.3
HWC - Faucet Aerator - Bath - 1.0gpm (Multi Family) [4]	5,000	$ 64,911	$ 2,655	$ 62,256	24.4
HWC - Faucet Aerator - Kitchen - 1.5gpm (Multi Family) [4]	5,000	$ 203,380	$ 5,805	$ 197,575	35.0
HWC - Showerhead - 1.25gpm (Multi Family) [4]	5,000	$ 643,475	$ 17,055	$ 626,420	37.7
HWC - Showerhead - 1.25gpm replacing existing 2.0gpm (Multi Family) [4]	5,000	$ 516,203	$ 17,055	$ 499,148	30.3
Sealing Measures (Weatherization) [3]	550	$ 375,901	$ 148,126	$ 227,775	2.5
Social and Assisted Housing Multi-Family Offering (Custom) [2]	12	$ 232,473	$ 332,500	-$ 100,027	0.7
Wall Insulation (Weatherization) [3]	550	$ 562,081	$ 437,481	$ 124,600	1.3
Total		**$ 11,682,669**	**$ 2,714,210**	**$ 8,968,459**	
		Promotion Costs	$ 1,315,648		
		Administration	$ 971,549		
		EM&V Costs	$ 40,000		
		Program Total Net TRC		**$ 6,641,262**	
		Program TRC Ratio			**2.3**

1. Condensing Boiler measure is quasi-prescriptive. Savings are based on an average capacity of 185,394 Btu/hr from 2010 year results

2. Social and Assisted Housing Multi-Family Offering (Custom). Input assumptions based on driving a TRC ratio of 0.7 by funding 50% of the full cost, up to the budgeted

3. Weatherization (Attic Insulation, Basement Insulation, Sealing Measures, Wall Insulation). 1220 m3 saved per home is the expected average derived from 150 work plans created for Union Gas by EnviroCentre in 2010 & 2011 (the m3 saved by each measure were totaled to comprise of the 1220 m3 average). 180 kWh saved per home derived from the 150 work plans. Average retrofit cost of $3483.10 based on the sum of average cost/m3 saved in each measure in 150 work plans. 20 year measure life for

4. TRC benefits adjusted based on 2010 verification study results. The adjustments reflect installation rates, persistance rates, percentage of showering under showerhead (for showerhead measures), and percentage of homes without gas water heaters.

5. Building Optimization savings and total resource costs will not be realized until 2013, from all participants in the 2012 year.

1.3.9 Low-income Program Targets

Table 22 – Low-Income Program Targets

2012 Low-Income Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Cumulative Natural Gas Savings (m3)	18,204,000	36,409,000	45,511,000
Residential Deep Measure Participants	275	550	688
Multi-Family Deep Measures	95	190	238

2013 Low-Income Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Cumulative Natural Gas Savings (m3)	15,924,000	31,848,000	39,809,000
Residential Deep Measure Participants	325	650	813
Multi-Family Deep Measures	113	225	281

2014 Low-Income Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Cumulative Natural Gas Savings (m3)	15,570,000	31,141,000	38,926,000
Residential Deep Measure Participants	375	750	938
Multi-Family Deep Measures	85	170	213

1.3.10 Rationale for Targets

Union established its Low-income targets on a bottom-up basis based on market conditions, the DSM budget, and the Board's Guidelines for Natural Gas Distributors. Union has provided the following information to provide context for its Low-income Program targets.

History

- Union delivered Helping Homes Conserve since 2007
- Union has delivered the Home Weatherization since 2009

- Union will be offering a Social Housing Multi-Family offering for the first time in 2012
    - Union's historic Low-income participation and budget in relation to the targets for 2012 are included for reference in Table below

Table 23 - Low-Income Historic Results and 2012 Target

Low Income Participants and Budget						
	2007 Actual	**2008 Actual**	**2009 Actual**	**2010 Actual**	**2011 Forecast**	**2012 Target**
HHC Participants[10]	6,363	7,694	18,478	14,508	15,000	10,000
Weatherization Participants	-	-	75	134	400	550
Multi-Family Units	-	-	-	-	-	190
Low Income Budget ($000) Promotion/Incentive Costs[11]		$1,445	$2,170	$1,575	$4,368	$5,827

Consideration of Board's Guiding Objectives

- Union has addressed lost opportunities in the home by expanding the deep measure offering to address furnaces and water heaters in need of retirement
- Union has increased the focus on deep measures by expanding deep measure offerings to Part 3 buildings and by increasing targets around deep measures while decreasing targets around basic measures
- Union has considered the CDM program offerings in the market when developing their DSM Program offerings in order to create a platform for collaboration
- Union has included an education and training strategy in all offerings put forward

Context for Helping Homes Conserve Targets

- Union has been delivering Helping Homes Conserve in the market since 2007 and has seen great success over the years. Given the saturation in the market and Union's shift of focus to the delivery of deeper measures, Union will be decreasing its focus on basic measure delivery over the course of the Plan and ultimately the targets tied to the offering.
- The effect of decreasing basic measure delivery over the course of the Plan is that the overall cumulative m^3 target will decrease with it. The reason for this is that while basic

[10] Participants are based on homes that received a kitchen aerator.
[11] Only promotion and incentive costs have been included as this is how program costs have historically been reported.

measures do not provide deep savings, they are inexpensive and therefore can drive a lot of m^3 savings from a volumetric standpoint.

Context for Home Retrofit Targets

- In 2011, Union is targeting to weatherize 400 single family homes (100% target) while developing its internal and external infrastructure to continue to expand over the next three years. Increasing the number of homes to 550 single family homes (100% target) in 2012, and increasing the 100% target by 100 homes year over year in subsequent years will be a significant increase for Union considering the unique challenges faced in delivering this offering in the market.

- Although growth is an important element of a low income Program, it is critical to grow the Program at a manageable level given the intricacies involved with this programming and the sensitivities of working in a customers' home. Quality assurance is integral to provide the customer with a positive experience and to ensure that the proper protocols are met when installing measures in the home.

- Union feels that it's in the customers' best interests to focus not only on depth in the Program but also breadth. Although the overall m^3 energy savings from smaller footprint may be relatively less than a larger footprint home, the impact those savings have on the customer are just as significant (typically an average of 25% - 30% savings in a home, regardless of size of the footprint). Incenting Union to simply drive m^3 savings would shift focus away from customers who are residing in smaller footprint homes due to the smaller extraction of m^3's available.

- In order to develop the cumulative m^3 target for the custom weatherization component of the home retrofit offering, Union started by assessing the current average annual savings of 1,220 m^3's. Consensus had been reached with a sub-committee of interveners representing the broader consultative that this annual average m^3 was a stretch for Union as part of the Low Income Incremental Plan filing. Union then calculated the typical proportion of m^3's that are derived from the suite of measures in the home (assumed 50% basement insulation, 15% attic insulation, 20% wall insulation and 15% draft-proofing) and multiplied them out by their given measure life.

Context for Social and Assisted Housing Multi-Family Offering

- 2012 will be the first year Union will be delivering an offering specifically designed for Social Housing Multi-Family providers. Union believes it will take time to assess and grow traction in this market. Based on current market knowledge, the maximum number of buildings that would qualify for this offering in Union's franchise area is 225 buildings, which is a relatively small target market and will make the targets Union put forward quite challenging. Union will invest time in 2012 to further assess this market and to gain further

insights on the needs of the market, including timelines for including projects in their capital budgets.

- Social Housing Providers have limited access to funds to perform upgrades to their buildings. Often conservation upgrades are not considered due to conflicting priorities of other upgrades that are needed on the buildings (i.e. in-suite repairs). Union will continue to be challenged to ensure that conservation upgrades are prioritized with the limited capital funds social and assisted housing providers have available to them.

1.3.11 Challenges Union will Face in Achieving Low-income Targets

Helping Homes Conserve

- The aggressive basic measure targets that the LDC's are working towards as part of the CDM Home Assistance Program may shift the focus of Union's existing delivery infrastructure given Union's decrease in targets from previous years.

- As Union continues to drive this Program in the market, the saturation levels continue to increase. There are only a limited number of low income customers who qualify for this offering in Union's franchise area and not all of these customers are receptive to participating. Union is reaching maturity in this offering and believes the remaining potential will be the most challenging in the market to achieve (no more "low hanging fruit).

- Union will need to expand into harder to reach communities in order to achieve this level of traction given Union's current saturation rate in the market. Delivering the offering in more remote areas has proven to be challenging given the staffing requirements to deliver the offering locally. Often it is quite costly and resource intensive for delivery agents to enter these areas and the requests to do so are often met with resistance.

Home Retrofit Offering

- Union will be competing with all of the LDC's to secure delivery agents to perform weatherization installations. This may prove to be challenging given the relatively small number of delivery agents in the Ontario market. While Union has been working with LDC's to seek program collaboration, Union questions whether the market can bear such a significant ramp-up in the demands of the market in such a short time frame.

- The Federal Governments *EcoEnergy Retrofit - Homes* Program will require a significant amount of Certified Energy Auditors to perform both their basic audit and blower door test audit in 2012. There will also be competing demand in the market from the Home Energy Savings Program in Ontario. Availability of resources in the market may cause delays for Union to get the required number of audits performed to reach the targets.

- The targets represent a continual stretch for Union over the course of the three years. This will require Union to focus not only on the targets at hand but to continue to grow infrastructure and efficiencies to drive continual growth over the years.

- Union believes that collaborating with LDC's in the communities where the home retrofit offering is being delivered is an important element of the Program; however, these efforts will take time and resources and may slow down Union's ability to enter into a new market given the considerations required for a partnership agreement.

- It is often a lengthy process to bring a customer through all stages of the Program given the need to not only to qualify their home but to income qualify them as well. Throughout these qualification stages there can be many hurdles such as customers ability to accurately answer pre-qualifying questions (i.e. historical upgrades in home) which can lead to a long process prior to installations even commencing. Once customers are qualified for the Program, additional challenges may be faced such as missed appointments or health and safety concerns that can prolong the process even further.

- The targets set represent a significant stretch for Union given the history with this Program to date. There are many barriers faced with this Program including; identifying the customer, building trust with the customer, educating customers on the Program, qualifying the customers, screening the homes, prepping the home for installations, performing installations and measuring the results. Although Union can continue to get more effective at addressing these barriers, the barriers will none the less continue to exist. Therefore, the targets put forward will be challenging to achieve.

Social Housing Multi-Family Offering

- It will take time to grow traction in this market due to Union's limited experience with the market to date.

- Union anticipates that even when traction is achieved in this market that the opportunity in the market will be limited due to the small market share that Multi-Family buildings have in Union's franchise area.

- Even with enhanced incentives, Social Housing Providers have limited access to capital and often face conflicting priorities when making decisions on how to invest that capital into their buildings.

- Social Housing Providers are often resource constrained and may have challenges with having the proper support in place to participate in offering such as Building Optimization.

- Given the capital and resource challenges that this segment of the market faces when it comes to operating and maintaining their buildings, the ability to achieve aggressive targets in this market will be a significant challenge for Union.

Market Transformation

Union is recommending three Market Transformation Programs – a residential High Efficiency Water Heater Program, a residential New Home Efficiency Program, and an industrial Integrated Energy Management System Program. Each is outlined below. In the prior DSM framework Union had one Market Transformation Program related to drain water heat recovery equipment in residential new home construction. This Program is being discontinued due to findings that have significantly reduced expected savings from the equipment. Union's drain water heat recovery cumulative m^3 savings per unit were 7,930 m^3 as approved in the Generic Proceeding Phase 2 (EB-2006-0021). Using best available data, Union has assessed the cumulative m^3 savings have fallen to 1,609 - 916 m^3 depending on whether it is used in conjunction with typical showerheads in use today or the energy efficient showerheads delivered by Union. The change in savings was driven by new calculation methods and values developed by Natural Resources Canada ("NRCAN"), as well as shower use data collected in showerhead studies and applied in Union's energy efficient showerhead input assumptions.

In exiting this Program, Union must honour commitments already made by builders. Therefore, funding for a Program exit has been included within the High Efficiency Water Heating Program budget as outlined below.

1.4 *High Efficiency Water Heating Program [Energy Factor (EF) of 0.80 or higher]*

NRCAN's Office of Energy Efficiency has proposed amending the Energy Efficiency Regulations for water heaters to be sold or leased in Canada. Union's understanding is that these revised

regulations, as currently drafted, propose to increase the minimum efficiency for gas fired water heaters from the existing minimum efficiency of EF 0.57 to EF 0.80 for a 151 litre storage tank water heater. Timing for these changes at this point is uncertain; available information suggests this change will take place between 2016 and 2020. In response to these expected changes in minimum efficiency regulations, Union has developed a new High Efficiency Water Heater Program to remove existing barriers and promote the creation of market conditions in the new home market that support these significantly increased standards.

1.4.1 Customer Class(es) Targeted

- Residential new building construction single family detached homes and individually metered town-homes

1.4.2 Rate Classes Targeted

- Rate M1, Rate 01

1.4.3 Goals

The goals of the High Efficiency Water Heating Program are:

- To remove market barriers currently preventing adoption of high efficiency water heaters (0.80 EF and above) and build a competitive market for these measures
    - Transformation: Increase the market share of high efficiency water heaters in the new build market
- To support the development of market conditions necessary to support future building code changes and/or federal regulations regarding water heater efficiency
    - Transformation: Increase experience with and acceptance of high efficiency water heaters by residential home builders
- To support the development of a market such that a sufficient volume of water heaters are produced and sold into the Ontario marketplace to reduce the overall cost of the product to home buyers
    - Transformation: Decrease incremental costs to home buyers of purchasing/renting a high efficiency water heater

1.4.4 Strategy

- Work cooperatively with residential home builders and their sales agents to:
    - Effectively promote the benefits of high efficiency water heaters to home buyers
    - Enhance home buyer knowledge to increase uptake and reduce call-backs to the home builders and potential dissatisfaction related to high efficiency water heaters
    - Facilitate training for installers of high efficiency water heaters with the goal of increasing quality of installations, and increasing comfort with these products
- Offset the incremental cost to home builders and home buyers using a financial incentive

1.4.5 Program Offerings

Description

- The High Efficiency Water Heater Program seeks to transform the new build market for high efficiency natural water heaters with an EF of 0.80 or higher.
- In Canada, commercially available models meeting this efficiency standard are currently limited to tankless and condensing tankless technologies in the residential market. The Program will support additional technologies as they become available in the market.
- Union will seek opportunities to support the commercialization of new 0.80 EF (or higher) technologies, including storage tank models. These efforts will include collaboration with third parties such as: manufacturers, rental providers, other utilities, energy efficiency agencies and associations.
- Union will facilitate training of builders, builder sales centres, installers and rental companies to ensure they understand the key benefits of high efficiency water heaters and can promote them to customers.

Target Market

- The High Efficiency Water Heating Program will target residential new build, single family detached homes and individually metered town-homes. New housing starts in the Union franchise area are currently forecasted to be approximately 15,500 to 18,000 annually over the term of the Plan.
- In the water heater market, customers have the choice of renting or purchasing their unit; therefore, this Program will seek to transform both the new build rental and purchase markets.

Market Incentive

- The High Efficiency Water Heating Program will offer an incentive of $250 for each new home with a water heater that has an EF of 0.80 or above. The incentive will be divided between the builder and home buyer as required to mitigate the incremental cost of installation and the high efficiency water heater.
- For purchased water heaters, this incentive will cover a portion of the incremental cost of purchasing a higher efficiency water heater.
- For rental water heaters, this incentive will cover roughly two years of incremental rental fees, depending on the model installed.
- For both rental and purchase incentives, proof of purchase/rental will be required.
- The incentive will be adjusted throughout the life of the Program based on market acceptance.

Market Delivery

- This energy efficiency Program will be targeted to multiple distribution channels in the market, including, but not limited to;
    - Residential home builders and their sales agents
    - Sub-contracted water heater installers
        - Union will work with installers (generally plumbers) sub-contacted by builders to increase builder comfort with the measures, as well as ensuring high quality installations.
    - Rental providers
        - Union will work with builder account managers employed by rental providers as a secondary method to reach builders and promote the measure.
    - Manufacturers
        - Union will work with manufacturers of high efficiency water heaters in developing promotional and educational materials aimed at both home builders and home buyers.

- A direct-to-consumer approach will also be employed through attendance at consumer and industry events targeted at prospective home buyers such as home shows.

Barriers

- The primary barrier faced by the High Efficiency Water Heater Program is reluctance amongst builders to install water heating technologies that have the potential to increase call-backs and customer dissatisfaction.
- This reluctance stems from performance differences between tankless and storage tank units. These differences, such as delays waiting for hot water, can create customer dissatisfaction.
    - Union will address this barrier by providing marketing support and training to builders and their sales agents on establishing customer expectations prior to move-in, which will lead to greater comfort with the measure.
    - Union will also address this barrier by developing information on the ideal design location for optimal performance of tankless units.
- Higher costs for high efficiency units
    - Union will address this barrier by providing an incentive for new homes with a high efficiency water heater installed.
- General lack of familiarity/interest from new home buyers who often focus any increased spend on aesthetic upgrades, such as granite counter tops or cathedral ceilings, as opposed to enhanced energy performance upgrades hidden in the basement.
    - Union will address this barrier by providing marketing support and training to builders and their sales agents to effectively promote the benefits of high efficiency water heaters.
        - The financial incentive will help build initial interest in this measure and provide an opportunity for builders to promote the value of high efficiency water heaters.
        - A direct-to-consumer approach through consumer/industry event attendance by Union will also address this barrier.
- Increased maintenance required for tankless units. If this maintenance is not undertaken, performance problems can emerge from issues such as scaling and liming.

- Union will address this barrier though education provided to home buyers through builders and rental providers.

- Past builder experience with an older generation of high efficiency models that had performance issues. Builders prefer to use proven, reliable options.
    - With the support of manufacturers, Union will address this barrier with education and training sessions.

- Installers require specialized training in order to install tankless units. If not installed correctly, quality issues could emerge.
    - Union will work with installers employed or sub-contracted by builders to build capacity and competency in installing high efficiency water heaters.
    - Union will explore opportunities with trade associations to enhance awareness of high efficient water heaters and the installation requirements to its members.

1.4.6 **Program Duration**

- Union anticipates that intervention in the market will be required for six years, with 25% market penetration achieved in the final year.

- The Program timeline is aggressive given the following market characteristics:
    - Minimum efficiency water heaters currently dominate the market. Moving the market from 0.57 EF to 0.80 EF represents a significant shift.
    - The introduction of a new 2012 Ontario Building Code establishes new requirements around energy efficiency; this change represents a significant challenge for builders in terms of understanding and awareness of the new Code requirements. Home and plumbing designs will potentially be affected and require modifications to meet the new building code. The various option packages which have been developed to make it easier for builders to comply with the code do not include 0.80 EF water heaters. Installing a high efficiency water heater therefore represents going above code during a period in which builders will be stretched to meet the new requirements.
    - Since this product is relatively new to the new build market and many builders are unfamiliar with both the benefits and adjustments required to install a high efficiency water heater in their home design, momentum at the early stages of this Program will be slow.

- After 6 years, and 25% market share, Union will have transformed this market, as it will be at a place where:

- take up will continue absent a Program
- market conditions will be such that a change in federal efficiency regulations or the Ontario Building Code regarding water heater efficiency can occur more easily

- Experience from other New Build programs, such as the *ENERGY STAR For New Homes* program, suggests that a measure has the necessary momentum to be included in the Building Code or regulated federally when the following conditions exist:
  - A significant pool of builders have experience with the measure
  - Costs associated with the measure can be accurately estimated
  - The long term quality/reliability of the measure has been proven in the field
- These conditions come into place as take-up increases and the market gains experience with the measure. In the case of *ENERGY STAR for New Homes*, this level of experience was achieved at a market penetration of approximately 25% and subsequently many program elements were adopted into the Ontario Building Code.

Program Evolution

- The primary market barrier preventing higher uptake of high efficiency water heaters is builder reluctance to install measures that have the potential to increase call-backs and customer dissatisfaction. The evolution of the strategy therefore is shaped around the elimination of this barrier in the following phases:

Table 24 – High Efficiency Water Heating Program Evolution

Phase	Description of Interventions and Market Effects	Estimated Market Share for High Efficiency Water Heaters
Phase 1 - Builder Awareness	• Union educates customers, builders and manufacturers on the measure, using incentives as a means to build interest • Early adopters participate in the Program	• < 16%
Phase 2 - Builder Acceptance	• Builders gain familiarity and comfort with the measure • Builders learn how to educate customers in order to mitigate call-backs • As "early adopters" develop comfort with the measure, interest is generated amongst additional, more risk-adverse builders	• 16-20%
Phase 3 - Withdrawal	• Union gradually reduce incentives and builder support while builders start to promote high efficiency water heaters without marketing assistance from Union • Builders begin to position high efficiency water heaters as a selling point for their homes, allowing interest to be maintained in the absence of a full incentive	• 21-25%
Phase 4 - Exit	• Union completely withdraws incentives and Program support. Market penetration is maintained through builder promotion of measures	• > 25%

1.4.1 High Efficiency Water Heater Program Budget

- Union has not included inflation in the table below. Union proposes to use the Q2 GDP-IPI inflation factor, released at the end of August, to align with Union's annual rate setting process.

Table 25 – High Efficiency Water Heating Program Budget

High Efficiency Water Heating Program Budget ($000)			
Program Costs	**2012**	**2013**	**2014**
DWHR Sunset costs	$550	$0	$0
Promotion Costs	$200	$222	$200
Incentive Costs	$583	$797	$1,087
Administrative Costs	$219	$219	$219
Total	**$1,552**	**$1,238**	**$1,506**

1.4.2 High Efficiency Water Heating Program Targets

Table 26 – High Efficiency Water Heating Program Targets

2012 High Efficiency Water Heating Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Market Uptake	14%	15%	16%
Participating Builders	40	50	60
Education Sessions & Consumer/Industry Shows	8	15	22

2013 High Efficiency Water Heating Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Market Uptake	2012 actual result + 0%	2012 actual result + 2%	2012 actual result + 4%
Participating Builders	2012 actual result + 5%	2012 actual result + 10%	2012 actual result + 15%
Education Sessions & Consumer/Industry Shows	15	22	29

2014 High Efficiency Water Heating Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Market Uptake	2013 actual result + 0%	2013 actual result + 2%	2013 actual result + 4%
Participating Builders	2013 actual result + 5%	2013 actual result + 10%	2013 actual result + 15%
Education Sessions & Consumer/Industry Shows	15	22	29

1.4.3 Rationale for Targets

Consideration of Board's Guiding Objectives

Pursuit of deep energy savings

- After furnaces, water heaters represent the second largest natural gas consumption in a residential dwelling, accounting for an average of 20-25% of annual consumption. Once installed, high efficiency water heaters result in substantial, long lasting savings over the life of the measure.

Maximization of cost effective natural gas savings

- The Program becomes more cost effective over the term of the Plan, with the \$/cumulative m^3 decreasing from \$0.16/m^3 in 2012 to \$0.13/m^3 in 2014.
- High efficiency water heaters save customers a significant amount of natural gas per year as compared with 0.57 storage water heaters

Prevention of lost opportunities

- High efficiency (EF=0.80) water heaters have a useful life of 15 years or more, depending on the model; therefore, ensuring the highest efficiency water heaters are installed in new construction prevents significant lost opportunities.

Context for Targets

- Targets for market uptake were developed as follows:
    - The baseline market share was informed by internal research by Union, which estimated the market share of tankless water heaters to be approximately 14% in

2010. A target market share of 15% has been set for the 100% achievement level in 2012.

- For the 2013 and 2014 Program years, Union will be in Phase 1 of the Program Evolution strategy, with an expectation of linear growth in market uptake as interest and awareness in the technology grows. The target therefore reflects an increase in market share of 2% over the achievement in the previous year (i.e. the 100% target for 2013 = 2012 actual results + 2%).

- Targets for builder participation were developed as follows:
  - In Phase 1 of the Program Evolution strategy, Union expects participation to come predominantly from the builders that are market leaders in energy efficiency.
  - At the 50%, 100%, and 150% achievement levels, the builder participation target increases by 5%, 10% and 15% respectively in the 2013 and 2014 Plan years, with the expectation that participation will grow linearly in Phase 1 of the strategy.
- Targets for education sessions and customer/industry shows were developed as follows:
  - The 2012 target is based on facilitating builder education sessions across the Union franchise area to gauge initial measure interest as well as attending consumer/industry trade shows.
  - For the 2013 and 2014 Plan years, targets reflect an increase in events. Based on experience gained in 2012, Union will be in a better position to identify the builders that present the greatest opportunity for participation in the Program and will host sessions accordingly.
  - With a new building code being introduced, 2012 will be a challenging year for builders and Union will have to compete against other priorities for their time. The changes to the building code will require many builders to make significant changes to their building designs, and as a result it will be very challenging to convince builders to attend training sessions on measures not required under the code.

1.4.4 Challenges Union will Face in Achieving High Efficiency Water Heating Program Targets

- With a new building code being introduced, 2012 will be a challenging year for builders and Union will have to compete against other priorities to gain Program participants.
- The 2012 target will also be challenging as many of the homes built in the first half of the year will have been designed and /or under construction, and the water heater decision made, before the Program has been introduced.

- High efficiency water heating is more expensive and some builders will be reluctant to pass on additional costs to home buyers in a competitive marketplace.

- The builder sales teams are not experienced with selling the benefits of high efficient water heaters and education and training components are key to the success of this Program.

- Installers (generally plumbers) must receive specialized training to ensure high efficiency water heaters are installed correctly. Many installers are sub-contracted (not employed directly by the builder) and contracts will potentially be re-negotiated to take into account the change in installation requirements. Contracts are typically negotiated only once a year, potentially leading to a lag in participation. Installers may also attempt to negotiate higher prices.

- Currently, high efficiency water heaters are perceived as a niche technology to be used only in homes with high water use or space considerations. In order to increase market share, Union will have to address this perception.

- Builders are reluctant to have call backs and some have had previous poor experiences with high efficiency water heaters. They may be reluctant to venture into this field again.

1.5 *New Home Efficiency Program*

The New Home Efficiency Program is a new Program that has been proposed following input from the Consultative. Union has additionally consulted with a number of home builders and has received favourable comments on the value this Program would bring to the market. Given the significant change in the Ontario Building Code in 2012, the introduction of this new Program will be extremely important in continuing to encourage new home builders to build above code.

1.5.1 Customer Class(es) Targeted

- Residential new build market, both single family detached homes as well as individually metered town-homes

1.5.2 Rate Classes Targeted

- Rate M1, Rate 01

1.5.3 Goals

The goals of the New Home Efficiency Program are for residential new home production builders to:

- Review their key business functions and building practices with the purpose of identifying areas where efficiencies can be gained.
    - Transformation: Union will address the underlying drivers of business performance in order for builders to successfully adopt energy efficiency.
- Integrate the identified new best practices into their daily business functions and new housing starts.
    - Transformation: Builders incorporate more efficient processes in the way they are running their business and operating their design practices
- Incorporate high efficiency measures into their new home designs to improve overall house efficiency by at least 15% above Ontario Building Code (OBC) 2012.

- Transformation: Each participating builder will increase the percentage of housing starts built to the higher efficiency standard during the Program and beyond, with the ultimate goal of complete transformation.

- Utilize the savings identified through the New Home Efficiency Program to reduce the incremental costs associated with the energy efficient upgrades.

  - Transformation: By ensuring these upgrades result in minimal incremental cost, this will result in more competitiveness for the builder, creating a desire within the organization to transform their business model to build to a higher efficiency.

- Educate builders on how to promote energy efficient homes to ensure there is customer demand for their product.

  - Transformation: By educating and providing tools to builder sales teams, this will ensure their ability to sell these homes will be more effective.

- By 2016, those builders that were introduced to the Program in year one (2012) will have the majority of their housing starts at 15% above OBC 2012 and those introduced in year two will have half of their housing starts at 15% above OBC 2012.

  - Transformation: Increase the market share of higher efficiency homes such that market conditions are acceptable for increased minimum efficiency standards in future building codes.

1.5.4 **Program Strategy**

Strategies to achieve Union's Program goals for the New Home Efficiency Program include:

Builder Strategy

- Educate and build awareness amongst residential builders about the benefits/savings of taking a 'whole home approach' to building more efficiently. Through a consultative approach, those cost savings identified through refined building practices will assist in reducing the incremental costs associated with building to a higher energy efficiency standard – 15% above current building practices – improving their competitiveness and profitability in the marketplace.

Sales Agent Strategy

- Educate and provide sales and marketing tools to builder sales teams to improve their relative effectiveness in selling higher efficiency homes to new home buyers.

Consumer Strategy

- Educate and build awareness amongst new home buyers about the benefits of higher efficiency homes – this will heighten their understanding of the energy savings they will experience and will increase both their desire and demand for these new homes, which will drive builder commitment to this Program

1.5.5 Program Offerings

The offering that will be delivered in the New Home Efficiency Program is outlined below.

Description

- This Program utilizes the Building Canada model which is based on the philosophy of Total Quality Management ("TQM") to help builders run their business functions more effectively and to build their new homes more efficiently.

- Over a three-year period, Union and a third-party consultant will review a builder's key business functions from start to finish, including analyzing and designing/re-designing management controls, operating procedures, purchasing, contracts, and construction practices in order to optimize operating efficiencies, improve customer satisfaction and increase product quality.

- In exchange, participating builders will re-invest the accrued savings to improve the energy efficiency of their homes.

Process Flow

- Phase 1: (one year in duration)
    - Expression of interest/agreement by builder to participate
    - Corporate commitment - alignment across the company including the builder's corporate head office. Experienced consultants will require a cross-functional team of senior managers, led by the CEO or his/her designated "champion" to address the company's management issues that stand in the way of broader implementation of energy efficiency across the builders' entire production.
    - Contract - Union and each builder will sign a contract for participation for three years.
    - Consultative process - extensive modelling using Natural Resources Canada approved modelling software, on-site analysis, benchmarking current construction,

work with trades, identify "best" practice, audits, set management goals and priorities.

- Builder will build a prototype home and evaluate lessons learned into future builds. This is constructed as a field laboratory to demonstrate, de-bug and ultimately resolve issues relating to construction.

- Phase 2 : (one year in duration)
  - Develop a process map and critical path to process alignment
  - Integrated design process (architectural design, scopes of work, establish best practices)
  - Introduce and coach builder on opportunities to integrate high efficiency homes into sales and marketing materials and sales agent training
  - Goal is to have 10% of housing starts as high efficiency homes (15% above OBC 2012)
- Phase 3 : (one year in duration)
  - Encourage builder team to embrace new philosophy into company culture
  - Implement increased focus on integrating high efficiency homes into sales and marketing materials and sales agent training
  - Develop maintenance plan to facilitate independence from Program
  - Goal is to have 25% of housing starts as high efficiency homes (15% above OBC 2012)

Target Market

There are two target audiences in the New Home Efficiency Program:

- Primary target market is production builders in the Union franchise area (builders with 50 or more housing starts per year on average will be the target).
- Secondary target market is home builders not eligible for this Program. Training and education will be provided through regional workshops.

Market Incentive

The builder incentive is outlined below for each phase of participation. The incentive will come in the form of consulting services, education and training:

- Phase 1 - $29,000 per builder

- Phase 2 – $25,000 per builder
- Phase 3 – $21,000 per builder

Market Delivery

- This energy efficiency Program will be delivered through Union Residential Account Managers and will require collaboration with third party consultants and channel partners who will be required to:
  - Deliver required consulting services
  - Leverage manufacturing and channel partner relationships to provide product knowledge and education

Barriers

- The primary barrier is builder's concerns over the incremental costs associated with energy efficiency upgrades
  - To address this, Union will utilize the "whole home approach" to production to address all of the builders concerns through the consultative process. Union will leverage the experience of industry experts to provide the solutions that builders will be comfortable with and profitable implementing.
- A secondary barrier is new technologies or processes that are more energy efficient, but builders are unfamiliar with and reluctant to use.
  - To address this, Union will include in the Program offering education, a "train the trades" component and sales team training.
- A third barrier is addressing the difficulties that builders have in selling energy efficiency upgrades to their home buyers
  - To address this, Union will assist the builder with sales training and marketing materials.

1.5.6 Program Duration

- Union will enrol builders over the duration of the three-year Plan and provide support and incentives. The Program will run for five years to recognize builders that enrol in years two and three require support through the "sunset period".

Program Evolution

- The New Home Efficiency Program is a three-year commitment for the builder with a specified metric at the end of each phase:
  - Phase 1 – one prototype home built and certified
  - Phase 2 – 10% of housing starts that year will be 15% above code
  - Phase 3 – 25% of housing starts that year will be 15% above code
- Following the three phases of the Program Union will withdraw financial support. Builders will continue to use what they have learned to build homes which are 15% above OBC 2012.

1.5.7 New Home Efficiency Program Budget

- Union has not included inflation in the table below. Union proposes to use the Q2 GDP-IPI inflation factor, released at the end of August, to align with Union's annual rate setting process.

Table 27 – New Home Efficiency Program Budget

New Home Efficiency Program Budget ($000)			
Program Cost	**2012**	**2013**	**2014**
Promotion Costs	$300	$350	$300
Incentive Costs	$232	$316	$326
Administrative Costs	$194	$194	$194
Total	**$726**	**$860**	**$820**

1.5.8 New Home Efficiency Program Targets

Table 28 – New Home Efficiency Program Targets

2012 New Home Efficiency Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
New Participating Builders	6	8	10
Prototype Homes Built	20% of Participating Builders	30% of Participating Builders	40% of Participating Builders

2013 New Home Efficiency Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
New Participating Builders	2	4	6
Prototype Homes Built	50% of Participating Builders	60% of Participating Builders	70% of Participating Builders
Homes Built (>15% above OBC 2012) by Participating Builders	2%	4%	6%

2014 New Home Efficiency Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
New Participating Builders	1	2	3
Prototype Homes Built	70% of Participating Builders	80% of Participating Builders	90% of Participating Builders
Homes Built (>15% above OBC 2012) by Participating Builders	2013 actual result + 4%	2013 actual result + 6%	2013 actual result + 8%

1.5.9 Rationale for Targets

Consideration of Board's Guiding Objectives

Maximization of Cost Effective Natural Gas Savings

- To maximize cost effectiveness this Program yields a better $/m^3$ over time. In the first year the focus is a review of current building processes and identifying energy efficiency measures, resulting in the creation of a prototype home. As a result, in the first year costs will be relatively high per m^3 saved. However by year three, the builder will have incorporated these new building practices in more homes realizing greater cost effectiveness of the Program.

Deep Measures

- Union is taking a "whole home approach" that focuses on deep measures that will drive extensive savings. These measures will primarily have longer life cycles (e.g. thermal envelope improvements).

Prevention of Lost Opportunities

- By working with builders to construct to a higher efficiency (15% above OBC 2012) this is the essence of preventing lost opportunities since the energy conservation technologies are installed at the beginning of the lifespan of the home, when it is most cost effective.

Context for Targets

Targets for builder participation were developed as follows:

- There are approximately 40 production builders in Union's franchise area that build 50 or more houses each year. With the new building code coming into place next year, most builders will be focused on adjusting their building practices to meet code, not exceed it, making it challenging to gain the focus and time required to commit to this Program. Signing up 8 participating builders in the first year of this new Program is a very aggressive target.

Targets for Prototype Homes Built were developed as follows:

- The phases do not begin until the contract is signed by a participating builder, which is expected to result in a time lag between the signing of the contract and building of the prototype home in Phase 1, which may not coincide with the calendar year (i.e. a contract to participate could be signed in December 2012, resulting in the prototype home being built in 2013 or potentially early 2014.)

Targets for Homes Built were developed as follows:

- For homes built the momentum will grow as the Program rolls out and participating builders complete the phases. This is demonstrated by the increase in the percentage of homes built 15% above OBC 2012 over the course of the Plan. In the early stages of the Program, a lag is also expected due to the extended sales cycle of larger builders.

1.5.10 Challenges Union will Face in Achieving New Home Efficiency Program Targets

- Acceptance of Program by builders and signing a three-year contract and committing to the Program goals.

- Current energy efficiency requirements in the Ontario Building Code will come into effect on January 1, 2012 and many builders are not ready for the new code which is a significant change, let alone going to 15% above.
- Ability of builders to work to the aggressive timeline of completing a prototype house in the first year enrolled in the Program (phase 1).
- Ability of sales agents to effectively sell value of energy efficiency
- Ability of builders to transition from a prototype home to production of homes that meet the Program requirements

1.6 *Integrated Energy Management Systems Program*

Integrated Energy Management Systems ("IEMS") seeks to generate energy savings from opportunities that do not qualify for support through Union's current DSM offerings. Building on Union's "Continuous Energy Management" platform, IEMS will focus on the utilization of energy management techniques to maximize the energy performance of industrial manufacturing facilities.

The IEMS approach will encourage the adoption of a management technique that utilizes a company's energy data to analyze historic and present day energy performance, set energy baselines and reduction targets with the goal to improve energy efficiency and the existing operating procedures. It builds on the principle "you can't manage what you don't measure". IEMS essentially combines the principles of energy use and statistics.

The IEMS Market Transformation Program offers Union the opportunity to actively influence customers in adopting and nurturing a culture of conservation and continuous energy improvement.

By adopting IEMS, customers will be able to:

- Recognize energy efficiency opportunities that would otherwise go unnoticed.
- Establish and sustain Energy Team(s), and embrace continuous energy efficiency improvement.
- Proactively manage their natural gas consumption through real-time measurement and analytical tools.

- Systematically baseline, track, and report energy intensity and carbon footprint performance, establish goals and ensure environmental compliance.
- Quantify, implement, and validate behaviour based, process based, and equipment based energy efficiency improvements.

1.6.1 Customer Class(es) Targeted

- Commercial / Industrial General Service and Commercial / Industrial Contract customers

1.6.2 Rate Classes Targeted

- Rate classes target: Rate M2, Rate 10, Rate M4, Rate M5, Rate M7, Rate 20

1.6.3 Program Goals

The goals of the new IEMS Program are:

1. To integrate energy conservation into customers' existing management systems and to foster a culture of continuous energy improvement consistent with the principles of ISO 50001.
   - Transformation: Customer adoption of ISO 50001[12] principles or certification.
2. To assist customers in identifying, quantifying and prioritizing opportunities for implementation of energy savings.
   - Transformation: Target to generate adoption in 50% of the target group of customers after 10 years.
3. To develop synergies between assessment consulting firms and measurement systems integration companies for holistic delivery of energy management principles.
   - Transformation: One source for integrated data capture and analysis - third party delivery of whole service energy measurement and management systems (integrators and consultants, and consultants packaging energy management services).
4. To educate and promote energy management best practices to all levels of the customer organization.

[12] ISO 50001: International Standards Organization's Management System Standard for energy efficiency, which is expected to stimulate significant long-term increases in energy efficiency for certified organizations.

- Transformation: Energy monitoring, targeting and continuous improvement activities integrated into plant management and reporting system – including but not limited to monthly/weekly reporting metrics and yearly goals.

1.6.4 Program Strategy

Program strategies to achieve the Program goals for the IEMS Program will include:

1. Enable customer access to ongoing energy management expertise through dedicated time with Union Project Managers or third party funded evaluations.
2. Provide incentive to customers to quantify, implement and validate behaviour and process based energy efficiency improvements.
3. Facilitate capacity building and cooperation between energy management consulting firms and metering and monitoring system suppliers.
4. Encourage baseline measurements of process related equipment to effectively track and report both energy intensity and carbon footprint performance.

1.6.5 Program Offerings

The offerings that will be delivered in the IEMS Program are outlined below.

Description

Union will provide education, coaching and incentives to industrial customers through the development, implementation and persistence phases of a process energy monitoring and tracking system. The following three elements will be key components required from customers who participate in this Program:

- Completion of an IEMS Plan
- Completion of measurement system implementation
- Regular reports showing system persistence

Development, Implementation & Persistence Phases

1. Development & Assessment

- Customer Identification
    - Union Industrial manufacturing customers
    - Minimum annual natural gas usage of 1,000,000 m^3
    - Multi-utility consumption
    - Annual utility expenditures of over $1,500,000
    - Natural gas usage must be for both process and heating loads
    - Customer shows organizational characteristics with strong executive support for energy efficiency and registration in organizational management standard (ISO 9001[13], TS 16949[14], ISO 14001[15])
- Define performance requirements which must be met by participating customers
- Develop minimum standards
- Develop criteria for selection of a qualified service provider
    - Develop metrics to understand and grade service provider capabilities
    - Identify essential data points required for process tracking minimum requirements

2. Baseline Data Collection, Plan Approval & Implementation

- Standardize reporting structure and requirements
- Develop 3rd party service assessment service providers and sensor/meter integrators
- Utilize existing 3rd Party Certifications (i.e. CEM, CMVP)
- Engage OPA and other utility energy management initiatives and incorporate synergistic opportunities involving EM&T data collection systems

[13] ISO 9001: International Standard Organization's Standardized Requirements for a Quality Management System
[14] TS 16949: International Standard Organization's Technical Specifications for Quality Management System
[15] ISO 14001: International Standard Organization's Standardized Requirements for an Environmental Management System

- Leverage existing Union systems (i.e. Unionline) to keep Program costs manageable
- Plan approval and implementation

3. Persistence

- Participants are required to share energy experiences related to the Program undertaken through various means including and not limited to site visitations, advisory groups, testimonials and / or published papers

The market implementation approach will involve the following marketing support elements:

- Program communication
  - Program sales information for Account Managers
  - In-person presentations to targeted customers and service providers
  - RFP templates and minimum report standards
- Program provides education and communication through:
  - Program Launch Meeting
    - Union staff: Account Managers, Project Managers
    - Service Providers
    - Customers
  - Program Information Package
    - Presentation
    - Letter of Introduction
    - RFP Template
    - Minimum Report Standards
    - Program Terms and Conditions

- Training (Internal Union Staff and External)
    - Account Manager specific training
    - Project Manager specific training
    - Customer Specific training
    - Service provider roles and responsibilities

Market Incentive

- Incentive levels for Integrated Energy Management Systems will be up to 75% of the incurred customer study cost and up to 50% of the incurred implementation cost. Specific incentive details are as follows:
    - 75% of assessment report costs up to a cap of $20,000
    - 50% of project implementation expenditures up to a cap of $100,000
        - 20% upon approval of plan
        - 20% after 50% of costs incurred
        - 20% after 75% of costs incurred
        - 10% upon completion of implementation
        - 30% during plan persistence phase to ensure continued use of system
- Incentives will be directed towards end use customers and will be paid at the completion of defined milestones.

Market Delivery

- This offering will be delivered directly to industrial customers by dedicated Union Account Managers and Project Managers. Union personnel are knowledgeable about individual customers' businesses and have background and training in energy efficiency and natural gas applications.
- Collaboration with key organizations and third-party consultants will be required to:
    - Expand the reach of Union's Program offering
    - Educate and influence energy saving best practices with customers
    - Develop customers' capacity to make energy efficiency decisions

- Promote the investigation and implementation of energy monitoring and tracking

Barriers Addressed

Primary barriers preventing higher uptake in the market include the following:

- High cost of monitoring system equipment and long payback period
  - Union will address this barrier through identification of no cost / low cost energy savings opportunities and quantify business case requirements for capital investment decisions, based on actual process data.
- Energy costs are often a small fraction of total production costs and are generally accepted as O&M expenses with little connection to management metrics
  - To address this barrier, Union will provide incentive funding and coaching during the process of developing the system – a long term commitment between Union and the customer, not just a single transactional arrangement.
- Customer' awareness of Union's Program and of energy management best practices
  - Integrate energy performance into the corporate culture of the facility through the ability to track and validate production improvements and energy improvements.

1.6.6 Program Duration

- The Program should have a total length of approximately 10 years with customers passing through the planning, implementation and establishing persistence over a three year timeframe.

Program Evolution

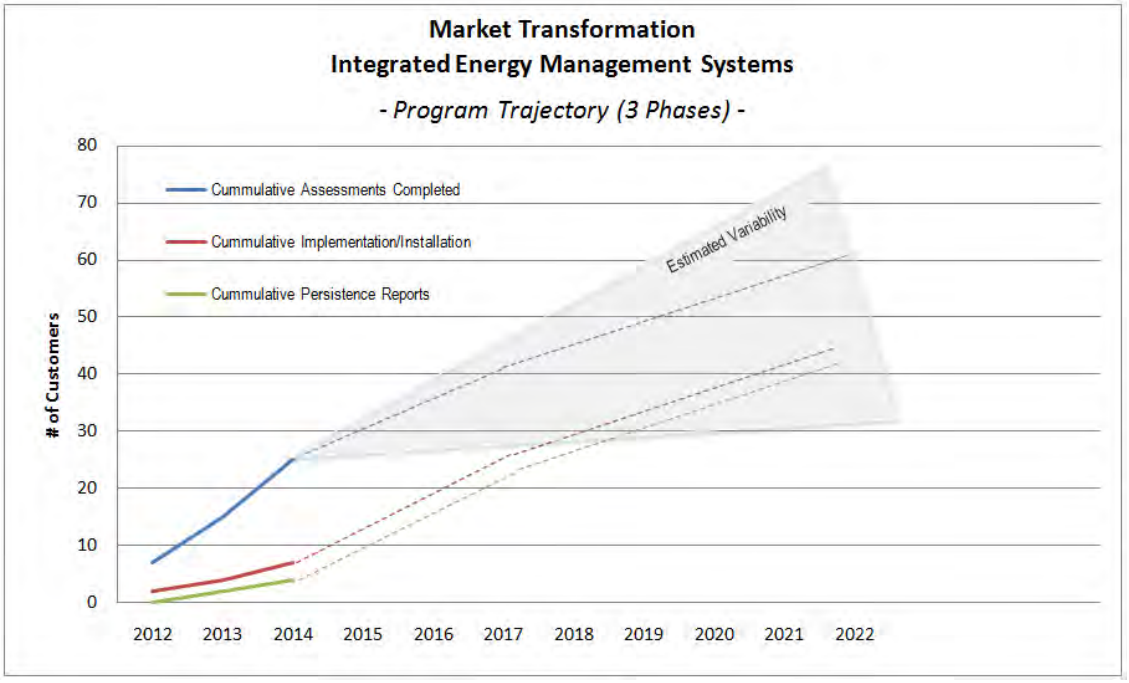
- As the IEMS Market Transformation Program is a 10 year Program, tied to the acceptance and adoption of ISO 50001 standards in the market, there is no planned exit of the Program during the 2012 – 2014 timeframe.
- Over the term of the Plan, Union will end its Program involvement with individual customers as they complete the persistence phase of the Program and no longer require Union's market intervention.
- Individual customer engagement is planned for the following timelines:
  - 6 months in the Development & Assessment phase
  - 12 months in Baseline Data Collection & Implementation Phase

- 18 to 24 months in Persistence Phase

- Persistence → Transformation:
  - During the persistence phase, the customer fully integrates monitoring of energy usage and tracking continuous energy improvement activities into their management system and the behaviour becomes innate in their ongoing plant operation.

- Union will support customers who have entered the Program through to the persistence phase and withdraw further financial incentives and Program support for IEMS from the market.

Figure 2 – Market Transformation Integrated Energy Management Systems Program Trajectory (3 Phases)



1.6.7 Program Budget

- Union has not included inflation in the table below. Union proposes to use the Q2 GDP-IPI inflation factor, released at the end of August, to align with Union's annual rate setting process.

Table 29 – IEMS Program Budget

2012 IEMS Program Budget ($000)			
Program Cost	**2012**	**2013**	**2014**
Delivery and Start Up Costs	$150	$50	$50
Promotion Costs	$150	$100	$75
Market Incentives	$300	$450	$550
Administrative Costs	$90	$90	$90
Total	**$690**	**$690**	**$765**

1.6.8 Integrated Energy Management Systems Program Targets

Table 30 – IEMS Program Targets

2012 Integrated Energy Management Systems Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Assessments Completed	4	7	10
Implementation/Installation	1	2	3

2013 Integrated Energy Management Systems Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Assessments Completed	4	8	12
Implementation/Installation	1	2	4
Persistence Reports	1	2	3

2014 Integrated Energy Management Systems Program Targets			
Metric	**Metric Target Levels**		
	50%	**100%**	**150%**
Assessments Completed	5	10	15
Implementation/Installation	1	3	5
Persistence Reports	1	2	3

1.6.9 Rational for Targets

- 2012 will be the first year that Union will be offering IEMS and will be targeting energy management through the form of monitoring and targeting.

- Market transformation Programs are focused on facilitating fundamental changes that lend to greater market shares of energy-efficient products and services, and on influencing consumer behaviour and attitudes that strengthen a culture of conservation over the long term within workplaces. They are designed to make a permanent change in the marketplace over a long period of time. While these Programs promote the energy efficiency message through the culture of conservation, their savings may be indirect.

- Within the IEMS Program incentives are paid on demonstration of changes in customer behaviour and for persistence of these changes as they are integrated into the customer management culture. Over the term of its ten year duration, the Program will educate and, encourage customers to implement energy tracking methods, and reward customers who adopt energy tracking and improvement into their management system.

Consideration of Board's Guiding Objectives

Maximization of Cost Effective Natural Gas Savings

- Union will maximize cost effectiveness:
    - By aligning Union's Program and field expertise with consulting firms to provide comprehensive assessments.
    - By collaborating with measurement system integration companies in creating a holistic delivery for energy management principles.
    - By integrating data capture and analysis through third party delivery of whole service energy measurement and management systems (integrators and consultants, and consultants packaging energy management services).

Prevention of Lost Opportunities

- Union will prevent lost opportunities through:
    - Assisting customers in identifying, quantifying and prioritizing opportunities for implementation of energy savings. Once integrated into plant management and reporting systems, this changes cultural behaviour thus preventing lost energy saving opportunities.

- Providing education and promotion reinforces energy management best practices to all levels of the customer organization, accelerating the identification and implementation of energy saving strategies.

Deep Measures

- Through integration of energy conservation into customers' existing management systems and through fostering a culture of continuous energy improvement consistent with the principles of ISO 50001, the IEMS Program demonstrates a pursuit of long term deep energy savings.

Context for Targets

Assessment Metric

- The number of assessments for 2012 -2014 was derived by:
  - Analyzing the level of incentive required to influence and conduct each assessment
  - Analyzing the potential number of assessments that can be conducted with the given budget and with the given number of resources
  - Considering rate impacts to distribution contract customers
  - Analyzing market opportunities for deeper savings

Table 31 – IEMS Assessment Metric

IEMS Assessment Metric			
Year of Assessment	**50%**	**100%**	**150%**
2012	4	7	10
2013	4	8	12
2014	5	10	15
Total	**13**	**25**	**37**

- Additional factors that have impacted the 2012 assessment forecast include:
  - Union will need to approach, educate and influence customers in the first year of the Program in order to move to implementation phase and gain traction

Implementation Metric

- The number of implementation/installations for 2012 -2014 was derived by:
  - Analyzing the level of incentive required to influence each installation
  - Analyzing the potential number of installations that can be conducted with the given budget
  - Considering rate impacts to distribution contract customers

Table 32 – IEMS Implementation/Installation Metric

IEMS Implementation/Installation Metric			
Year of Implementation/Installation	**50%**	**100%**	**150%**
2012	1	2	3
2013	1	2	4
2014	1	3	5
Total	**3**	**7**	**12**

- Additional factors that have impacted the 2012 implementation forecast include:
  - Typical ramp up time for implementation of a new Program
  - The time require to move from assessment phase to the implementation and installation phase

Persistence Metric

- The number of persistence reports for 2012 -2014 was derived by:
  - Analyzing the level of incentive required to influence each installation
  - Analyzing the lag time from installation to actual reporting

Table 33 – IEMS Persistence Report Metric

IEMS Persistence Report Metric			
Year of Persistence	**50%**	**100%**	**150%**
2012	0	0	0
2013	1	2	3
2014	1	2	3
Total	**2**	**4**	**6**

- Additional factors that have impacted the 2012 persistence forecast include:
    - The number of installations that can be conducted with the budget allocated to this Program will limit the number of persistence reports

1.6.10 Challenges Union will Face in Achieving IEMS Targets

- The cost of natural gas sub-meters will limit the participants to those customers who consume a large enough volume of gas and can justify the expenditure on an IEMS. Many customers at that level will find commitment to the persistence phase a challenge, where they will need to commit ongoing time to generating and analyzing reports.
- A challenge will be educating customers and overcoming their objections when they initially do not understand the potential benefits of having an IEMS in place as part of their daily operations.
- Union will require commitment from service providers and/or third party consultants to help drive the success of this Program.
- Union will need to train and certify a larger number of service providers and/or third-party consultants (or helping them train their staff) to partner with these customers.
- In the targeted customer group, there are a limited number of plants with sufficient complexity and energy intensity to see value in the expenditure on an IEMS.
- Union will need to carefully screen and pre-qualify for an IEMS to ensure that plants are in a position to move from assessment to implementation based on volume and opportunity.