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 – Responses to Interrogatories

Please find attached Union's responses to the EB-2011-0327 interrogatories.

Should 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

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 15 – Section 2.1: Budget

Union states that its 2012 budget will be $30.091 million, adjusted annually for inflation. Union notes that the DSM Guidelines allow the utilities to increase their 2011 budget by inflation each year.

a) Please explain why Union feels it is appropriate to apply inflation to its 2012 DSM budget and not begin to escalate its DSM budget starting in 2013, the second year of this new term.

b) Please discuss the changes, if any, that Union would make to its DSM Plan if the Board did not allow the requested escalation for inflation in 2012.

Response:

a) Union applied inflation to the 2011 DSM budget level to calculate the 2012 budget in accordance with the Demand Side Management Guidelines for Natural Gas Utilities. The Guidelines state the 2011 budget level should remain in effect subject to the annual escalation of inflation as follows:

"The 2011 DSM budgets for Enbridge and Union are $28.1 million and $27.4 million, respectively. The Board has expressed the view that 2011 approved budgets should remain in effect for the 2012 to 2014 DSM plan term, subject to section 8.3. The budgets should be escalated annually using the previous year's Gross Domestic Product Implicit Price Index ("GDP-IPI") issued by Statistics Canada in the third quarter and published at the end of November.[1]"

The Board's letter that accompanied the Guidelines further noted that the Guidelines provide for a three-year term that maintains the current level of funding inflated annually[2]. Should inflation not be applied for 2012, the current 2011 level of funding would not be maintained as the real value of the DSM budget would be reduced by the rate of inflation.

[1] Ontario Energy Board. *Demand Side Management Guidelines for Natural Gas Utilities.* (EB-2008-0346). June 30, 2011. p.25.
[2] Ontario Energy Board. *Demand Side Management Guidelines for Natural Gas Utilities – Issuance of DSM Guidelines.* (EB-2008-0346). June 30, 2011. p.2.

b) As the DSM budget and targets are interrelated, a reduction in the DSM budget would necessitate a reassessment of the scorecard targets.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 15 – Section 2.1: Budget

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.

In the DSM Guidelines, it notes at Section 8: Budgets, that the budgets should be escalated annually using the previous year's GDP-IPI issued in the third quarter and published at the end of November.

a) Please discuss any challenges Union faces in using the method outlined in the DSM Guidelines.

b) Please use 2011 as a proxy and provide an example of how the different methods for applying GDP-IPI would have affected Unions proposed 2012 DSM budget.

Response:

a) As indicated on Exhibit A, page 15, the Q3, 2011 GDP-IPI was not available until November, 2011 which was after Union filed its 2012-2014 DSM Plan and 2012 Rates application. 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. Using the four quarter rolling average of the GDP-IPI will account for any large swings in the quarterly GDP-IPI value in a given year.

b) Using the Q3 2011 GDP-IPI would have increased the 2012 DSM budget by $0.159 million relative to using the four quarter rolling average of the GDP-IPI at Q2 2011 as proposed in Union's application.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 9-14, Justification for Large Industrial Rate T1/Rate 100 Program

Union mentions that it surveyed all Rate T1 and Rate 100 customers to determine if it should continue to offer DSM programming to large industrial customers and that based on the survey results, Union determined it should continue to offer these programs.

a) Please discuss if Union based its decision to proceed with developing and applying for approval of the large industrial program on anything other than the survey results and feedback from large industrial customers. If Union has relied on any accompanying studies or reports that support the delivery of large industrial programs, please provide these.

Response:

a) The decision to proceed with developing and applying for approval of the large industrial program was influenced primarily by the result of our DSM Program Survey for Rate T1 and Rate 100 Customers. The results of the survey identified for Union the program areas customers felt offered the greatest value. Coupling the survey results, with the Board's guiding objectives, Union Gas has developed, a cost-effective program to drive energy efficiency that can be considered on its own merits.

Union also based its decision on its first-hand experience as energy experts for our large industrial customers. Union has been actively promoting and delivering energy efficiency programs since 1997. During this time Union has developed valuable insight into its customers, their operations use of natural gas to fuel their processes. Union understands the challenges they face to keep energy costs down, due to the increased pressure of competing in the global economy, and strongly feels that energy efficiency must continue to be emphasized and promoted, as a solution, to offset these pressures.

In addition, Union considered two recent Ontario studies that identify there still exists a large economic potential for natural gas savings in the industrial sector.[1] Union's large industrial programs will continue to ensure customers focus on their attention on energy and the achievement of these savings.

[1] ICF Marbek. *Natural Gas Energy Efficiency Potential, Summary Report – Update 2011*. July 2011(Exhibit A, Appendix K) and Canadian Manufacturers & Exporters in Associate with Stantec Consulting, Marbek, and ODYNA. *Advancing Opportunities in Energy Management in Ontario and Manufacturing Sector: Final Report*, March 31, 2010, Revision 2.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 13

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 including steel, automotive, hospitals, greenhouses and chemical companies form part of the Rate M4, Rate M5 and Rate 20 rate classes.

a) Please provide a table that lists all industrial/commercial customers within the Rate M4, Rate M5 and Rate 20 rate classes who have participated in Union's DSM programs from 2007-2011. In the table include the number of programs each customer has participated in, the year(s) they were a participant, if the program was a standard resource acquisition program or a large industrial/commercial specific program, the amount of incentive dollars received by each participant (divided by year), and the cumulative natural gas savings achieved each year. (redact the names of the customers if necessary)

Response:

Please see the attached table.

	2008			2009			2010			3 year Totals		
Rate Class / Customer	Number of Projects	Cumulative m3 claimed	Incentive $	Number of Projects	Cumulative m3 claimed	Incentive $	Number of Projects	Cumulative m3 claimed	Incentive $	Number of Projects	Cumulative m3 claimed	Incentive $
Rate 20	16	33,978,845	273,813	51	109,580,974	463,481	30	129,343,608	394,484	97	272,903,427	1,131,778
R20 Customer A							3	46,480,750	32,613	3	46,480,750	32,613
R20 Customer B	3	2,000,000	27,130	7	8,026,812	40,306	7	19,682,051	31,878	17	29,708,863	99,314
R20 Customer C							2	17,000	17,000	2	17,000	17,000
R20 Customer D	1		4,425	4		39,844	1	10,000	10,000	6	10,000	54,269
R20 Customer E							1	5,462	5,462	1	5,462	5,462
R20 Customer F							1	8,251,460	29,678	1	8,251,460	29,678
R20 Customer G							3	20,438,025	56,527	3	20,438,025	56,527
R20 Customer H				3	195,097	13,354	2	7,546,460	43,396	5	7,741,557	56,750
R20 Customer I	3	4,563,120	24,368	2	1,536,836	3,175	1	10,500,000	18,181	6	16,599,956	45,724
R20 Customer J				1		3,200	1	3,450	3,450	2	3,450	6,650
R20 Customer K	2	637,500	147,500				4	8,464,138	111,338	6	9,101,638	258,838
R20 Customer L							1	674,324	632	1	674,324	632
R20 Customer M	1		6,000	5	21,282,620	62,739	1	10,000	10,000	7	21,292,620	78,739
R20 Customer N							1	5,487,388	17,337	1	5,487,388	17,337
R20 Customer O				3	2,989,980	22,676				3	2,989,980	22,676
R20 Customer P				1		3,229				1		3,229
R20 Customer Q				1	5,162,684	4,400				1	5,162,684	4,400
R20 Customer R				1		7,200				1		7,200
R20 Customer S				1		7,200				1		7,200
R20 Customer T				1	13,008,000	30,000				1	13,008,000	30,000
R20 Customer U				1	775,920	1,577				1	775,920	1,577
R20 Customer V	4	26,270,900	61,469	1		1,380				5	26,270,900	62,849
R20 Customer W				4	8,821,440	58,255				4	8,821,440	58,255
R20 Customer X				1		1,855				1		1,855
R20 Customer Y				2		2,064				2		2,064
R20 Customer Z				1		413				1		413
R20 Customer AA				7	43,444,385	76,579				7	43,444,385	76,579
R20 Customer BB				2		15,783				2		15,783
R20 Customer CC				2	4,337,200	68,252				2	4,337,200	68,252
R20 Customer DD	2	507,325	2,921							2	507,325	2,921
R20 Customer EE							1	1,773,100	6,993	1	1,773,100	6,993
M4	48	191,061,730	799,556	60	104,313,956	958,503	57	225,227,541	647,772	165	520,603,227	2,405,831
M4 Customer A							1	797	797	1	797	797
M4 Customer B							1	5,090	5,090	1	5,090	5,090
M4 Customer C				1	1,971,340	3,449	1	7,500	7,500	2	1,978,840	10,949
M4 Customer D	1		4,915				2	5,243,221	15,916	3	5,243,221	20,831
M4 Customer E	1	7,880,000	9,983				1	5,755,001	7,705	2	13,635,001	17,688
M4 Customer F							1	7,966,380	40,000	1	7,966,380	40,000
M4 Customer G							1	1,307,670	11,666	1	1,307,670	11,666
M4 Customer H	1	4,231,300	19,121				1	1,702,740	4,651	2	5,934,040	23,772
M4 Customer I							1	391,480	4,805	1	391,480	4,805
M4 Customer J	3	91,659,280	388,255	2	1,748,544	14,459	4	21,859,098	72,213	9	115,266,922	474,927
M4 Customer K							4	4,125,145	47,420	4	4,125,145	47,420
M4 Customer L							3	3,662,410	23,629	3	3,662,410	23,629
M4 Customer M							2	14,604,060	49,646	2	14,604,060	49,646
M4 Customer N				1		9,791	1	7,500	7,500	2	7,500	17,291
M4 Customer O	1		10,000				2	34,108,780	15,653	3	34,108,780	25,653
M4 Customer P				1	1,538,480	28,279	4	12,286,093	56,308	5	13,824,573	84,587
M4 Customer Q	1		1,575	1		1,575	3	3,382,215	5,253	5	3,382,215	8,403
M4 Customer R				2	2,577,480	30,304	4	1,331,277	20,398	6	3,908,757	50,702
M4 Customer S							2	20,300,000	7,131	2	20,300,000	7,131
M4 Customer T				2		10,800	2	3,595,154	19,485	4	3,595,154	30,285
M4 Customer U							3	69,524,020	84,510	3	69,524,020	84,510
M4 Customer V	2	417,400	2,235				1	1,587,615	16,570	3	2,005,015	18,805
M4 Customer W	1		1,788				2	7,072	7,072	3	7,072	8,860
M4 Customer X				3	29,486,400	44,289				3	29,486,400	44,289
M4 Customer Y	3		18,000				1	5,740	5,740	4	5,740	23,740
M4 Customer Z				6	4,668,720	22,648	4	4,749,913	19,553	10	9,418,633	42,201
M4 Customer AA							3	5,986,760	85,000	3	5,986,760	85,000
M4 Customer BB				1		7,200	1	1,721,740	3,490	2	1,721,740	10,690
M4 Customer CC				1		877	1	3,071	3,071	2	3,071	3,948
M4 Customer DD				1	3,658,031	23,798				1	3,658,031	23,798
M4 Customer EE	2	1,888,020	18,826	2	8,276,550	47,484				4	10,164,570	66,310
M4 Customer FF	1		1,556	1	927,840	10,062				2	927,840	11,618
M4 Customer GG				2	2,107,021	1,791				2	2,107,021	1,791
M4 Customer HH				6	9,046,340	40,346				6	9,046,340	40,346
M4 Customer II				3		23,602				3		23,602
M4 Customer JJ	2		1,543	3	1,335,000	20,420				5	1,335,000	21,962
M4 Customer KK				1		788				1		788
M4 Customer LL				1	970,760	9,300				1	970,760	9,300
M4 Customer MM				1		1,045				1		1,045
M4 Customer NN				1		907				1		907

Rate Class / Customer	Number of Projects	Cumulative m3 claimed	Incentive $	Number of Projects	Cumulative m3 claimed	Incentive $	Number of Projects	Cumulative m3 claimed	Incentive $	Number of Projects	Cumulative m3 claimed	Incentive $
M4 Customer OO				2	4,125,160	90,000				2	4,125,160	90,000
M4 Customer PP	2	5,379,540	25,488	1	2,216,540	25,526				3	7,596,080	51,014
M4 Customer QQ				2	372,400	751				2	372,400	751
M4 Customer RR	7	29,631,700	32,410	3	12,820,520	9,573				10	42,452,220	41,983
M4 Customer SS	2	2,692,600	8,292	1		8,500				3	2,692,600	16,792
M4 Customer TT	1		10,000	3	2,557,620	15,177				4	2,557,620	25,177
M4 Customer UU				3	7,924,840	413,781				3	7,924,840	413,781
M4 Customer VV				1	1,203,800	11,982				1	1,203,800	11,982
M4 Customer WW	1		11,937							1		11,937
M4 Customer XX	1	7,200,000	19,834							1	7,200,000	19,834
M4 Customer YY	2	12,737,720	18,443							2	12,737,720	18,443
M4 Customer ZZ	1		5,267							1		5,267
M4 Customer AAA	1	7,986,440	30,000							1	7,986,440	30,000
M4 Customer BBB	2	4,308,000	21,840							2	4,308,000	21,840
M4 Customer CCC	2		22,000							2		22,000
M4 Customer DDD	1	5,872,000	6,542							1	5,872,000	6,542
M4 Customer EEE	1	4,257,990	19,945							1	4,257,990	19,945
M4 Customer FFF	2	2,192,460	30,500							2	2,192,460	30,500
M4 Customer GGG	2		12,025							2		12,025
M4 Customer HHH	1	2,727,280	47,236							1	2,727,280	47,236
M4 Customer III				1	4,780,570	30,000				1	4,780,570	30,000
M5	34	152,648,025	348,681	70	146,712,817	681,419	58	160,451,315	620,536	162	459,812,156	1,650,636
M5 Customer A							4	6,103,800	47,625	4	6,103,800	47,625
M5 Customer B				3	27,115,220	24,862	1	20,519,430	40,000	4	47,634,650	64,862
M5 Customer C	1	2,187,740	14,544	1	1,917,540	30,000	3	87,989	8,399	5	4,193,269	52,943
M5 Customer D				2	2,740,000	21,651	4	20,295,310	55,753	6	23,035,310	77,404
M5 Customer E				6	13,982,190	22,516	2	1,356,040	7,782	8	15,338,230	30,298
M5 Customer F							1	3,500	3,500	1	3,500	3,500
M5 Customer G	1	101,250	1,097	2	1,497,038	15,721	2	1,527,495	7,987	5	3,125,783	24,805
M5 Customer H							1	5,000	5,000	1	5,000	5,000
M5 Customer I							2	98,262	1,657	2	98,262	1,657
M5 Customer J				3	228,216	16,637	1	814,740	4,542	4	1,042,956	21,178
M5 Customer K							1	1,172,695	6,980	1	1,172,695	6,980
M5 Customer L							1	10,000	10,000	1	10,000	10,000
M5 Customer M							1	1,688	1,688	1	1,688	1,688
M5 Customer N				1	5,256,000	47,000	5	11,380,218	65,258	6	16,636,218	112,258
M5 Customer O				4	983,300	42,000	4	45,140,011	128,885	8	46,123,311	170,885
M5 Customer P							1	5,000	5,000	1	5,000	5,000
M5 Customer Q							2	2,254,245	30,078	2	2,254,245	30,078
M5 Customer R				7	20,189,380	108,498	2	3,892,430	11,983	9	24,081,810	120,481
M5 Customer S	3	6,192,000	13,053				1	8,387	8,387	4	6,200,387	21,440
M5 Customer T	2		12,263	2	4,105,206	13,089	7	28,191,572	80,403	11	32,296,778	105,755
M5 Customer U							1	429	429	1	429	429
M5 Customer V							1	10,000	10,000	1	10,000	10,000
M5 Customer W				2		6,687	1	3,955,820	2,154	3	3,955,820	8,841
M5 Customer X							1	12,000	12,000	1	12,000	12,000
M5 Customer Y	4	3,811,900	48,574	3	4,763,160	49,800	3	1,873,588	16,088	10	10,448,648	114,462
M5 Customer Z							3	11,628	11,628	3	11,628	11,628
M5 Customer AA							2	11,720,040	37,330	2	11,720,040	37,330
M5 Customer BB				1		1,275				1		1,275
M5 Customer CC				2	8,741,520	36,150				2	8,741,520	36,150
M5 Customer DD				1		921				1		921
M5 Customer EE				1		1,332				1		1,332
M5 Customer FF				1		1,500				1		1,500
M5 Customer GG	7	116,915,440	113,370	2	5,979,660	16,128				9	122,895,100	129,498
M5 Customer HH				1	172,800	1,324				1	172,800	1,324
M5 Customer II				1	5,077,880	11,441				1	5,077,880	11,441
M5 Customer JJ				1		2,295				1		2,295
M5 Customer KK				1		1,346				1		1,346
M5 Customer LL				1	3,952,445	4,630				1	3,952,445	4,630
M5 Customer MM				1		3,500				1		3,500
M5 Customer NN				2	1,706,950	21,577				2	1,706,950	21,577
M5 Customer OO	2	2,721,320	14,466	7	9,421,035	83,427				9	12,142,355	97,893
M5 Customer PP				1		10,245				1		10,245
M5 Customer QQ				1	3,911,300	30,000				1	3,911,300	30,000
M5 Customer RR				1		2,182				1		2,182
M5 Customer SS				6	24,806,887	50,473				6	24,806,887	50,473
M5 Customer TT				2	165,090	3,214				2	165,090	3,214
M5 Customer UU	1		2,100							1		2,100
M5 Customer VV	1		5,250							1		5,250
M5 Customer WW	1		3,250							1		3,250
M5 Customer XX	1	948,400	5,126							1	948,400	5,126
M5 Customer YY	1	1,140,000	815							1	1,140,000	815
M5 Customer ZZ	2	8,577,875	44,084							2	8,577,875	44,084
M5 Customer AAA	1		8,500							1		8,500
M5 Customer BBB	1		700							1		700
M5 Customer CCC	1	6,958,000	17,270							1	6,958,000	17,270
M5 Customer DDD	2	233,600	21,493							2	233,600	21,493
M5 Customer EEE	1	976,500	3,333							1	976,500	3,333
M5 Customer FFF	1	1,884,000	19,393							1	1,884,000	19,393
Grand Total	**98**	**377,688,600**	**1,422,050**	**181**	**360,607,747**	**2,103,403**	**145**	**515,022,463**	**1,662,792**	**424**	**1,253,318,810**	**5,188,245**

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 16, Table 1 – 2012 DSM Budget Calculation

Union notes that it has increased its budget by 10% in response to the allowance made in the DSM Guidelines.

a) Please discuss the rationale and appropriateness for increasing the low-income budget by 10%.

b) Please discuss the need for the additional $2.736M for the low-income program.

c) Please provide a table that shows the number or participants, cumulative natural gas savings and the number (and type) of measures installed for Union's low-income program in 2007, 2008, 2009, 2010 and 2011.

Response:

a) In 2011, Union increased its activities around low-income DSM programming by entering into an incremental plan that provided an additional $2.4 million in budget to drive more results for low-income energy consumers. With the existing 2011 budget of $1.9M within the general DSM framework, Union's total low-income budget for 2011 totals $4.3 million.

The final Guidelines released by the Board stated that the annual low-income DSM budget shall be no less than 15% of the total DSM budgets, which equals to $4.1 million in total budget. This in effect would reflect a decrease in low-income budget for Union from its current $4.3 million spend. Union feels that there is a significant need for conservation efforts for this customer base and that this should be met with increased programming.

By accessing the additional budget available, Union can continue to develop and incorporate the Guiding Principles outlined by the Board within our low-income program design, including:

i. Increasing accessibility to low-income customers by expanding our geographic reach.

ii. Cover more segments of the market by designing an offering for housing providers who operate Social and Assisted Housing.

iii. Provide integrated, coordinated delivery, wherever possible, with electricity distributors.

iv. Be a direct install program.

Please refer to B1.5 b) for more detail on how the budget increase speaks to the Guiding Principles.

b) By accessing the additional $2.76 million, Union can continue to grow its Low-income Program to provide further benefits to this customer base. By accessing this budget, Union is able to:

i. Increase the Home Retrofit targets in 2012 by 37% at the 100% level and by 52% at the 150% level. This means an additional 150 – 235 customers would receive comprehensive upgrades to their homes through deep measure installations that will be save them, on average, between 25% - 30% on their gas consumption. This will also provide Union with the scale to start entering into more communities within our franchise.

ii. Add appliance replacements to the Home Retrofit offering to provide upgrades to customers who are currently using outdated furnaces and water heaters that are not running at optimal efficiency. In addition to saving m^3 consumption, this will prevent low-income customers from being forced into a rental contract where the customer will have to add an additional monthly cost to their expense and will, in effect, pay more for that appliance over the course of its life than they would in a purchase scenario.

iii. Create a new offering for Social and Affordable Housing Providers who are responsible for the up-keep of multi-family buildings that house low-income tenants. This brings program accessibility to customers who reside in this segment of the low-income housing market.

iv. Further develop harmonization in the market with the electric utilities on their Home Assistance Program. With increased funding, Union will be able to respond to more building envelope upgrades that may be uncovered through collaborative delivery in the market. With 94% penetration of gas space heating in the market, the majority of insulation upgrades will rest on the shoulders of the gas utilities. Union does not want to be in a position where they cannot respond to identified customer demand.

v. Include Health & Safety funding to address issues within the home, within reason, to allow for inclusion in the program. Union currently has over 50 homes “on hold” due to Health & Safety issues that are precluding the safe installation of measures.

c) The table attached shows the number or participants, cumulative natural gas savings and the number (and type) of measures installed for Union’s low-income program in 2007, 2008, 2009, 2010 and the outlook for 2011.

Low Income Program	Participants					Cumulative Natrual Gas Savings (m^3)				
	2007	2008	2009	2010	2011 Outlook	2007	2008	2009	2010	2011 Outlook
HHC - Faucet Aerator - Bath - 1.0gpm	-	-	-	14,443	26,000	-	-	-	1,209,659	2,177,604
HHC - Faucet Aerator - Bath - 1.5gpm	6,519	7,694	18,478	-	-	387,230	457,024	450,562	-	-
HHC - Faucet Aerator - Kitchen - 1.5gpm	6,363	7,694	18,478	14,508	26,000	692,930	1,751,924	2,457,987	2,918,948	5,231,089
HHC - Pipe Insulation - 2m	6,442	7,291	18,667	14,542	26,000	1,626,285	1,948,884	3,326,459	2,435,901	4,355,208
HHC - Low Flow Showerhead	7,338	-	-	-	-	278,840	-	-	-	-
HHC - Showerhead - 1.25gpm exist 2.0-2.5	-	2,756	5,963	4,317	8,060	-	1,718,917	2,605,831	1,635,668	3,053,876
HHC - Showerhead - 1.25gpm exist 2.6+	-	5,132	14,098	10,067	18,200	-	3,200,828	11,785,928	7,296,896	13,192,059
HHC - Thermostat - Programmable	1,590	5,132	11,790	6,395	5,989	4,306,734	4,039,141	9,279,320	5,033,185	4,713,642
Weatherization	-	-	75	134	450	-	-	1,498,542	2,212,002	11,615,000
Total =	**28,252**	**35,699**	**87,549**	**64,406**	**110,699**	**7,292,019**	**13,116,717**	**31,404,629**	**22,742,259**	**44,338,478**

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 17 – Section 2.1: Budget

Union notes that it proposes to allocate the 2012 low-income DSM budget of $8.068 million to rate classes in proportion to the most recent Board-approved allocation of rate base.

a) Please discuss the appropriateness of allocating the 2012 low-income DSM budget to rate classes in proportion to the most recent Board-approved allocation of rate base as opposed to rate classes in proportion to the rate classes' contribution to overall distribution revenue.

b) Please provide a table that compares the allocation of the 2012 low-income DSM budget between the two approaches mentioned in 6(a) above.

Response:

a) The Board's DSM Guidelines established in EB-2008-0346 (dated June 30, 2011) state that Low-income DSM program costs should be funded by all rate classes. Accordingly, Union is proposing to allocate Low-income DSM program costs to all rate classes that participate in DSM programs.

Union's proposal to allocate Low-income DSM program costs to in-franchise distribution rate classes using the 2007 Board-approved rate base allocation is a reasonable approach to allocate costs to customers and is consistent with the intent of the Board's DSM Guidelines.

Union considered two alternative methods to allocate Low-income DSM program costs to in-franchise distribution rate classes; 2007 Board-approved number of customers and 2007 Board-approved volumes. In Union's view, using 2007 Board-approved number of customers allocated a disproportionate amount of the Low-income program costs to general service rate classes while using 2007 Board-approved volumes allocated a disproportionate amount of the Low-income DSM costs to the contract rate classes. Using 2007 rate base yielded a more reasonable result.

Union did not consider allocating the low-income DSM budget on the basis of distribution revenue. The variance between using distribution revenue and rate base as the basis for allocation is not material.

b) Please see attachment.

Allocation of 2012 Low-Income DSM Budget
using 2007 Board-approved Rate Base vs 2012 Board-approved Distribution Revenue

Line No.	Particulars ($000's)	Allocation using 2007 Board-approved Rate Base		Allocation using 2012 Board-approved Distribution Revenue		Variance
		Allocator	Allocation	Allocator (1)	Allocation	
		(a)	(b)	(c)	(d)	(e) = (d-b)
	Northern & Eastern Operations Area					
1	R01	561,550	1,754	146,650	1,731	(23)
2	R10	103,786	324	25,027	295	(29)
3	R20	53,736	168	7,745	91	(76)
4	R100	71,109	222	16,126	190	(32)
5	Total Northern & Eastern Operations Area	790,180	2,468	195,548	2,308	(160)
	Southern Operations Area					
6	M1	1,312,577	4,100	357,154	4,216	115
7	M2	199,518	623	48,615	574	(49)
8	M4	53,190	166	12,085	143	(24)
9	M5	32,615	102	8,545	101	(1)
10	M7	32,982	103	5,864	69	(34)
11	T1	161,793	505	55,738	658	152
12	Total Southern Operations Area	1,792,675	5,600	488,001	5,760	160
13	Total In-Franchise Union	2,582,855	8,068	683,549	8,068	-

Notes:
(1) EB-2011-0025, Rate Order, Working Papers, Schedule 3, column (k), excluding Upstream Transportation (column (j)), and Low-Income DSM Budget allocated on 2007 Board-approved Rate Base (column (b) in the above table).

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 22 - Section 2.2: Targets

Union notes the manner in which it established its 50%, 100% and 150% target levels. To calculate the 50% target, Union used a 0.5 multiplier. To calculate the 150% target, Union used a multiplier of 1.25.

a) Please discuss if Union presented its proposed target levels to its DSM consultative and the response from parties.

b) Please discuss the rationale for using a multiplier of 1.25 for the 150% target as opposed to a multiplier of 1.5.

Response:

a) Union presented its proposed target levels to its DSM Consultative at its Multi-year DSM Plan Consultative meeting August 11, 2011, and reviewed adjustments made to the Plan at the Consultative meeting August 18, 2011.

The material presented at the August 11, 2011 Consultative meeting, and the meeting minutes, are provided in Appendix B.

The material presented at the August 18, 2011 Consultative meeting is provided in Appendix C.

A summary of changes to Union's DSM Plan based on stakeholder feedback is provided in Appendix D.

b) Union has allocated its budget to achieve the 100% target. A multiplier of 1.25 was applied to the 100% target and represents a stretch from both a market and budget perspective. Within this structure Union must find cost efficiencies to achieve a 25% increase above the target with funding of only 15% above the DSM budget. A multiplier of 1.25 also allows Union to fund essential program elements, such as the customer incentive, which is directly related to program participation. These required program elements account for a large portion of the program

budget. For example, the customer incentive accounts for 55% of the Resource Acquisition budget. A multiplier of 1.5 is not feasible as the allowable 15% budget overspend would be insufficient to support fundamental program elements for customers above the 100% target. It is not practical to set 150% DSM targets well beyond the budget limitations of the DSM Guidelines.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 24, Table 4, 2012-2014 Resource Acquisition DSM Scorecards

Union provides a table that shows the scorecards metrics for the resource acquisition programs.

a) Please confirm that these targets are inclusive of both the residential programs and the commercial/industrial resource acquisition programs. If it does not, please specify what programs this scorecard applies to.

b) Please discuss the nature of feedback Union received from stakeholders of its proposed 2012-2014 Resource Acquisition DSM Scorecard targets.

c) Please provide a table that compares the 100% cumulative natural gas savings target for resource acquisition programs (exclusive of large industrial) for 2012 (558,041,000 m3) with the final audited cumulative natural gas savings for resource acquisition programs (exclusive of large industrial) that Union has achieved in 2007, 2008, 2009, 2010 and 2011.

d) Please discuss why the 100% cumulative natural gas savings target decreases from 2012-2014.

Response:

a) Confirmed.

b) Please refer to exhibit B1.7 a)

c) The table attached compares the 100% cumulative natural gas savings target for resource acquisition programs (exclusive of large industrial) for 2012 with the final audited cumulative natural gas savings for resource acquisition programs (exclusive of large industrial) that Union achieved in 2008, 2009, 2010. An outlook for year end 2011 results is also shown. 2007 resource acquisition results exclusive of large industrial are not available as Union did not separately track Rate T1 and Rate 100 results separately from non-Rate T1 and non-Rate R100 results.

d) Please refer to Exhibit B11.9

Resource Acquisition Cumulative Natural Gas Savings Summary

Resource Acquisition	2007	2008	2009	2010	2011 Outlook	2012
Cumulative Natural Gas Savings (m^3)	N/A*	528,969,114	701,376,040	810,013,588	918,333,967	558,040,853

* Distrbution Contract custom projects have been excluded from the cumulative m^3 summary for 2007 as the split between the Non-Rate 100/T1 and Rate 100/T1 rate classes is not available. The total cumulative m^3 savings delivered to Distribution Contract customers in 2007 was 580,143,568 m3.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 26, Table 5, 2012-2014 Resources Acquisition DSM Scorecards

Union provides a table that shows the scorecard metrics for the large industrial program.

a) Please provide a table that compares the 100% cumulative natural gas savings target for the large industrial program in 2012 (200,000,000 m^3) with the final audited cumulative natural gas savings for Union's large industrial programs in 2007, 2008, 2009, 2010 and 2011.

Response:

a) The table attached compares the 100% cumulative natural gas savings target for Large Industrial Rate T1 and Rate 100 for 2012 with the final audited cumulative natural gas savings for Large Industrial Rate T1 and Rate 100 that Union achieved in 2008, 2009, 2010. An outlook for year end 2011 results is also shown. 2007 Large Industrial Rate T1 and Rate 100 results are not available as Union did not separately track Rate T1 and Rate 100 results from non-Rate T1 and non-Rate 100 results.

Large Industrial Cumulative Natural Gas Savings Summary

Large Industrial (T1/Rate 100)	2007	2008	2009	2010	2011 Outlook	2012
Cumulative Natural Gas Savings for O&M Project (m^3)	N/A*	310,665,052	177,691,466	374,423,911	918,987,134	500,000,000
Cumulative Natural Gas Savings for Equipment Projects (m^3)	N/A*	160,236,863	507,085,757	607,512,366	249,702,472	

* Data is not available as the split between the Non-Rate T1/R100 and Rate R100/T1 rate classes is not available

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 36, Section 2.3 – DSM Incentive

Union proposes that the maximum DSM incentive amount available for the 2012 program year $10.450 million.

a) Please discuss the rationale for increasing the DSM incentive amount when the Board DSM guidelines state that the maximum amount available for the 2012 program year should be $9.5 million and no reference to an increase in the DSM incentive amount is mentioned in the guidelines.

Response:

a) The $10.450 million value represents the DSM incentive of $9.5 million referenced in the Guidelines scaled up by 10%. Union has increased the Board proposed budget of $27.355[1] million by 10%, which was applied to the Low-income Program budget, and therefore the DSM incentive was scaled accordingly in compliance with the Guidelines; which state:

"*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."*[2]

The 10% Low-income program budget increase was optional and incremental to the total 2012 – 2014 DSM budget.

"*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*

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[1] Ontario Energy Board. *Demand Side Management Guidelines for Natural Gas Utilities.* (EB-2008-0346). June 30,
2011. p. 25

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

the natural gas utilities' total DSM budget and is not cumulative."[3]

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

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Exhibit A, Page 42, Section 2.7 – Program Screening

Union discusses that the programs included in this application were decided upon based on the criteria outlined in the DSM Guidelines.

a) Please provide a table that lists of all the programs Union considered for inclusion in its 2012-2014 DSM Plan, the TRC ratio for each program, the cost for each program and the rationale for or against proceeding with the program.

Response:

Please see the table below.

Program Type	Program Name	Included in 2012 - 2014 Plan	TRC Ratio	2012 Budget (Million)	Rationale For/Against Proceeding with Program
Resource Acquisition	Residential Program	Yes	3.5	$4.103	Union is proceeding with this program as it: • Ensures Union continues to have an offering available to all residential mass market customers through the enhanced Energy Savings Kit • Supports the prevention of lost opportunities and pursuit of deep energy savings that will drive significant savings for each participant through the Attic and Basement insulation offering • Generates cost effective savings throughout the term of the Plan that will result in bill reductions for Union's residential customers
Resource Acquisition	Commercial/ Industrial Program	Yes	3.9	$9.181	Union is proceeding with this program as it: • Drives direct, measureable savings through the prescriptive and custom offerings across all sectors • Informs service providers, who are the key influencers on energy efficient technologies • Generates cost effective results, with a positive TRC ratio, to deliver bill reductions for commercial, institutional and industrial customers
Resource Acquisition	Large Industrial Rate T1/ Rate 100 Program	Yes	8.6	$3.147	Union is proceeding with this program as it: • Drives Operation & Maintenance (O&M) efficiency upgrades directly to maximize natural gas savings – these projects have a higher cumulative m^3 savings/customer incentive dollar spent than capital projects • Provides customers with the support required to identify and quantify opportunities for energy and cost savings through customer engagement, site energy assessments and process improvement studies • Generates cost effective savings throughout the term of the Plan that will result in bill reductions for Large Industrial Rate T1/Rate 100 customers
Low-income	Low-income	Yes	2.3	$6.839	Union is proceeding with this program as it: • Aligns with the Low-income Program budget requirement as set out in Section 8.3 of the

					Guidelines.[1] • Addresses all natural gas savings opportunities that lead to a cost-effective program through the Home Retrofit offering • Supports program access for residential low-income energy consumers across the franchise area through the Helping Homes Conserve offering • Addresses universality by expanding the Program to new low-income markets through the Social and Affordable Housing Multi-Family offering
Market Transformation	High-Efficiency Water Heating Program	Yes	N/A	$1.552	Union is proceeding with this program as: • After space heating, water heating is the largest user of energy in a residential home • By launching this program, Union will create long-term changes in the builder and customer water heating market that lead to significant gas savings for residential customers
Market Transformation	New Home Efficiency Program	Yes	N/A	$0.764	Union is proceeding with this program as: • The whole home approach fundamentally shifts builders' current and future building practices to a higher-efficiency • The key barrier for building to a higher efficiency has been knowledge and cost; with this program helping to overcome both, Union's will drive significant natural gas savings over the long term
Market Transformation	Integrated Energy Management Systems	Yes	N/A	$0.690	Union is proceeding with this program as it: • Facilitates the fundamental change of monitoring individual areas of process energy use in order to generate baseline evaluation and targets for improvement • Supports practices associated with the implementation of ISO5001, a voluntary energy management standard, accelerating the uptake of monitoring and targeting behaviour in medium sized industrial customers where system costs can be prohibitive to implementation • Supports measurement of energy savings to identify areas for potential improvement. The expectation for many customers is to be able to achieve 10-15% of *controllable* energy costs but without detailed measurement and analysis, the customer cannot distinguish

[1] Ontario Energy Board. *Demand Side Management Guidelines for Natural Gas Utilities.*(EB-2008-0346). June 30, 2011. p.26-27.

					controllable and non-controllable energy costs from the baseline of their overall energy spend
Market Transformation	Drain Water Heat Recovery (DWHR)	No	N/A	N/A	Union is not proceeding with this program as: • Although there are still natural gas savings associated with this technology, recent insight into DWHR savings amounts shows that there has been a significant decline with regards to annual/cumulative natural gas savings • Union wants to ensure that budget dollars are used for energy-efficient offerings that are most cost-effective and maximize natural gas savings • It is clear that to be most prudent with the budget, Union should move away from DWHR and put these funds and effort towards the transformation of the water heating market through the High Efficiency Water Heating Program
Market Transformation	Residential Home Labelling	No	N/A	N/A	Union is not proceeding with this program as: • Union did not have enough information to include the program in the DSM Plan. In 2012 Union will assess the potential for this opportunity/market. Union will determine next steps based on the outcomes of this assessment.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Ref: Joint Terms of Reference on Stakeholder Engagement, November 4, 2011, pages 11 & 16

Within the Joint Terms of Reference there are details on the newly proposed Technical Evaluation Committee (TEC), Technical Reference Manual (TRM) and Audit Committee (AC). The guidelines for fees are outlined for both the TEC and the AC. The expectations of total annual hours are noted as being 150 hours for the TEC and 60 hours for the AC for each intervenor.

a) Please provide a table that shows the total annual hours and costs claimed by each intervenor who was a member of Union's evaluation and audit committee in 2007, 2008, 2009, 2010 and 2011. Compare these amounts with the total expected 2012, 2013 and 2014 annual hours and costs from the TEC and AC parties. Provide total amounts at the bottom of the table for comparison purposes.

b) Please discuss if the total costs for the Stakeholder Engagement process is built into Union's proposed Evaluation budget of $969,000. If this cost is not included in the Evaluation budget, please discuss where and how this cost is proposed to be recovered.

Response:

a) The attached shows the total annual hours and costs claimed by each intervenor who was a member of Union's evaluation and audit committee ("EAC") in 2007, 2008, 2009, 2010 and 2011. In order to compare the expected hours and costs for 2012, 2013 and 2014, intervenor member hours in 2011 do not include hours or costs claimed for the consultation on Union's 2012-2014 Plan. The additional hours and costs claimed in 2011 by each EAC intervenor member for the consultation on the 2012-2014 Plan, including the Joint Stakeholder Terms of Reference, is as follows:

	Amount	Hrs
CME member	$ 3,047.50	15.3
CCC member	$ 5,527.50	16.8
GEC member	$ 2,460.00	16.4

b) The total costs for the Stakeholder Engagement process is built into Union's proposed Evaluation budget of $969,000 and equates to $163,080 for Union (Total TEC costs of $213,840/2 = $106,920 plus AC costs of $56,160). Please see the attachment.

Historical and Estimated Stakeholder Engagement Costs

2007			2008			2009			2010			2011 (ytd Dec 14)		
Intervenor	Amount	Hrs[5]	Intervenor	Amount	Hrs[5]	Intervenor	Amount	Hrs[5]	Intervenor	Amount	Hrs[5]	Intervenor	Amount	Hrs[2]
CME	$ 4,137.21	18.0	CME	$ 18,157.56	78.9	CME	$ 24,042.43	104.5	CME	$ 14,945.82	65.0	CME	$ 18,185.78	79.1
GEC	$ 2,761.00	18.4	GEC	$ 13,223.00	88.2	GEC	$ 13,819.00	92.1	GEC	$ 13,640.00	90.9	GEC	$ 13,350.00	89.0
CCC	$ 6,090.00	18.5	CCC	$ 13,365.00	40.5	CCC	$ 16,500.00	50.0	SEC	$ 17,292.00	52.4	SEC	$ 23,265.00	70.5
									CCC	$ 14,025.00	42.5	CCC	$ 2,805.00	8.5
Total EAC cost[1]	$ 12,988.21			$ 44,745.56			$ 54,361.43			$ 59,902.82			$ 57,605.78	
Total Evaluation spend	$ 271,138.59			$ 563,825.25			$ 382,177.43			$ 431,058.84			$ 448,543.08	
as % of Evaluation spend	4.8%			7.9%			14.2%			13.9%			12.8%	

2012 / 2013 / 2014 TEC	#	Hours	Rate	Amount
Intervenor members	3	150	$ 260	$117,000
Intervenor members attendance at Consultative meetings [3]	3	28	$ 260	$21,840
Independent members	2	150	$250	$75,000
			Utility Joint Total	$213,840
			Total per utility	$106,920
			Total TEC & AC	$ 163,080
			Evaluation Budget[6]	$ 1,129,000
Total TEC & AC as % of overall Eval budget				14.4%

2012 / 2013 / 2014 AC	#	Hours	Rate	Amount
Intervenor members	3	60	$ 260	$46,800
Intervenor members attendance at Consultative meetings [3]	3	12	$ 260	$9,360
			Total	$56,160

Intervenor Rates

CME member	$ 230
CCC member	$ 330
GEC member	$ 150
SEC member	$ 330
Average rate[4]	$ 260

Notes & Assumptions

[1] 2007-2011 Intervenor hours and Total EAC Cost include cost of EAC member participation in bi-annual UGL Consultative meetings

[2] 2011 Intervenor hours do not include consultation for UGL's Multiyear Plan that occured in 2011

[3] Attendance at bi-annual Consultative meetings included for comparison purposes. NOTE: TEC members will attend 2 plenary meetings per yer per utility as per the ToR (estimate of 7 hrs per Consultative meeting - 6 hrs for attendance and

[4] Average rate of the 4 intervenor members on UGL's EAC in 2007-2011 used as an estimate for 2012-2014 intervenor rate

[5] Intervenor rates used to determine approximate intervenor hours per year in 2007-2011

[6] 2012 Evaluation budget includes program specific evaluation budget amounts for comparison purposes

• EAC membership includes participation in the full DSM year plus 6 months in the following year for the Audit process due to a change in membership in 2010 & 2011, EAC costs included hours of participation for 4

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit A, Page 7 of 52

BOMA is concerned that the Ontario Energy Board's approach to budget setting for natural gas DSM limits the flexibility and innovation afforded to Union Gas to pursue DSM in ways that can increase participation of small and medium side customers across its service territory. Many BOMA members have branch offices, local facilities and satellite offices located in Union Gas territory. If the Union Gas DSM budgets were doubled for each of the three years of the submitted plan, what impact would this have on penetration of its DSM programs for these BOMA members and all small and medium size customers? Has Union Gas considered working with Enbridge Gas Distribution with respect to a key account strategy that addresses multi-location commercial customers across Ontario to increase participation of BOMA members with branch offices, local facilities and satellite offices?

Response:

While Union has not considered this specific budget proposal, increasing DSM budgets over time generally allows the utility additional flexibility, capacity and opportunity to expand DSM offerings to all customers.

Yes, Union has considered working with Enbridge. The utilities are currently working closely in a number of areas. Union and Enbridge are currently examining potential areas for program alignment; especially for programs that target multi-location customers. (E.g. researching a Demand Control Ventilation offering and collaborating on Building Optimization/Run it Right with Enbridge).

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference Exhibit A, Page 17 of 52

In Union's view, allocating Low-income DSM costs to in franchise distribution rate classes using rate base is a reasonable approach and is consistent with the intent of the Guidelines." Please confirm that this is consistent with Union's approach to allocating other costs such as low income financial and emergency assistance programs.

Response:

Union currently does not recover LEAP costs through delivery rates. If Union did recover LEAP costs through delivery rates, Union would propose to allocate LEAP costs in the same manner as the costs associated with Low-income DSM programming.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Low-Income Program Eligibility Criteria in DSM Guidelines for Natural Gas Utilities.

BOMA is concerned that the Board's criteria leave out low income gas consumers who are living in private sector rental accommodations, some of which are owned and managed by BOMA members. Does Union Gas have an estimate of how many low income gas consumers are living in buildings not eligible under the Board Guidelines?

Response:

Union does not have market information on how many low income gas consumers are living in buildings that are not eligible under the Board Guidelines.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit A Page 31 of 52: New Home Efficiency Program

In this and other programs that are based on the level of efficiency in the Ontario Building Code, there is a fundamental expectation that all builders fully comply with the OBC and that the performance of the homes and buildings once built and in operation actually achieve the levels anticipated by the Code. Has Union Gas done any research to determine if such assumptions are valid? Is Union Gas aware of any research by any other organization or agency to validate the performance of homes and buildings relative to Code assumptions? If it is the case that homes and buildings are not performing as expected under the Code, would not Union's estimates of the impact of its programs to go beyond Code actually understate the savings achieved?

Response:

Union has not commissioned any research, and is not aware of research conducted by any other organization, to determine if builders always comply with the OBC. Therefore, Union does not know, post-occupancy, which homes actually operate at the efficiency levels stipulated in the code. If builders did not actually build their homes to comply with the OBC and their homes and as such do not operate at the efficiency levels stipulated in the code, then Union's savings estimates associated with the New Home High Efficiency Program would be understated.

UNION GAS LIMITED

Answer to Interrogatory from
Building Owners and Managers Association ("BOMA")

Reference: Exhibit A Page 32 of 52.

Integrated Energy Management System Program. BOMA fully supports this program approach. Does Union Gas intend to merge its prescriptive programs and custom projects programs to more fully integrate its offerings into the IEMS program? Please clarify how the m^3 savings from IEMS program will be differentiated before the implementation of a more holistic approach from the prescriptive programs and custom projects programs.

Response:

No, Union does not intend to merge Union's prescriptive and custom offerings with the IEMS program. They are distinct yet complimentary offerings and each serve unique purposes

Please refer to exhibit B6.7.

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: Ex. A

Is Union seeking approval of all the elements of its DSM Plan for three years? To the extent Union wishes to make changes to its plan during this three-year period what process does it intend to follow in order to obtain Board approval for those changes?

Response:

Union is seeking approval of all items in its proposed 2012-2014 DSM Plan for all three years. Union does not anticipate that any changes to the 2012-2014 Plan will be required after the Board's Decision is issued. However, in the event that Union believes a change to the 2012-2014 DSM Plan is required, Union will present any proposed changes to its consultative to solicit feedback and, Union will make an application to the Board requesting a change to the 2012-2014 DSM Plan in accordance with Section 18 of the DSM Guidelines.

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: Ex. A/ p. 17

Union is proposing to allocate the low-income budget to rate classes in proportion to the most recent Board-approved allocation of rate base. Please provide a schedule setting out the allocation in the same format as Table 2 using distribution revenue as the allocator.

Response:

Please see the attachment.

2012 DSM Program Costs by Rate Class
Using 2012 Board-approved Distribution Revenue as a Low-Income Allocator

Line No.	Particulars ($000's)	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	1,683	4,048	68	48	116	2,434	1,731	4,165
2	R10	928	287	1,215	27	8	35	955	295	1,250
3	R20	777	89	866	22	3	25	800	91	891
4	R100	1,200	185	1,385	34	5	40	1,234	190	1,424
	South									
5	M1	8,707	4,098	12,806	250	118	368	8,957	4,216	13,173
6	M2	2,881	558	3,439	83	16	99	2,963	574	3,537
7	M4	1,157	139	1,295	33	4	37	1,190	143	1,332
8	M5A	1,291	98	1,389	37	3	40	1,328	101	1,429
9	M7	532	67	599	15	2	17	547	69	616
10	T1	2,409	640	3,049	69	18	87	2,478	658	3,136
11	Total	22,247	7,843	30,091	638	225	864	22,886	8,068	30,954

Notes:
(1) Includes portfolio level costs attributable to low-income allocated on distribution revenue as calculated in Board Staff IR 6b.
(2) 2.87% (Four quarter rolling average of GDP-IPI at Q1, 2011).

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: Ex. A/ p. 18

Please explain how Union allocates its DSM costs between R01 and M1. Please explain to what extent there may be differences between the participation levels, and savings per participant between the North and the South. Does the allocation of DSM costs take into account any of these differences?

Response:

With the exception of the Low-income budget, Union allocated its DSM costs between rate classes based on the customer incentives paid in 2010. This methodology was used as the DSM budget will be recovered in rates, by rate class, based on the actual DSM spend and the customer incentives are the only element tracked at a rate class level. 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.

For demonstration purposes, the 2012 rate class allocation for the Residential Program is outlined in the table below. This methodology was used for each program (excluding low-income).

	2012 Budget ($000)
Residential Program Budget	4,103
Portfolio Cost Allocation [(1)]	603
Total Budget Allocation	4,706

Rate Class	2010 Customer Incentive Allocation (%)	2012 Budget Allocation ($000)
M1	75%	3,530
R01	25%	1,177
Total Budget Allocation	100%	4,706

(1) As the Residential Program budget accounts for 16% of Union's total Program budget, 16% of the Portfolio budget has been allocated to this program.

The Low-income DSM budget was allocated in proportion to the most recent Board-approved allocation of rate base.

There may be differences in participation levels and savings between the North and the South due to regional variation across Union's franchise area. On average, participation has been higher in the South than the North.

In the residential market this is due primarily to the fact that many of Union's mass marketing campaigns target the larger urban centres in the South. However, Union Gas has begun, and will continue, to implement a number of 'small cities' campaigns to grow participation levels in smaller communities. The Residential program does not account for differences in savings per participant between the North and the South; however, if Union is able to obtain information to determine regions where the savings per participant are higher, Union will attempt to target those areas when possible.

In the commercial/industrial market, several factors may contribute to varying levels of participation. The South tends to have a higher population and thus greater urban density; this affects building types, equipment, consumption and opportunity. As the North is geographically dispersed, Union's Energy Advisors have to travel extensive distances to visit an area within their region. This can lead to additional challenges in the winter months. The North also has different weather patterns than the South with a longer and colder winter. This impacts the return on investment for certain pieces of equipment. In addition, the differing availability of service providers and other trade allies between the regions impacts Union's program participation. The variance in savings per participant is due primarily to the differences in the customer profiles between the North and South regions.

In the low-income market, there is a larger concentration of low-income energy consumers in the South and most program results have been driven in this region. In 2011, Union increased the delivery of the Helping Homes Conserve offering to communities in the North relative to prior program years, but the home weatherization upgrades provided in the Home Retrofit offering have yet to be delivered in this region. Building delivery capacity in the North has been, and continues to be, the primary challenge to increasing program delivery in the North. As a result, the average natural gas savings per participant has been higher in the South.

As the allocation methodology between rate classes is based on the payment of customer incentives, rate classes with higher participation levels and natural gas savings would be expected to have a higher cost allocation. There is no additional

adjustment in the allocation methodology to attempt to account for regional differences beyond DSM spending by rate class.

Filed: 2011-12-16
EB-2011-0327
Exhibit B3.4

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: Ex. A/ pp. 20

The evidence states that, "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." Please explain the extent to which showerheads are still measures which Union includes as part of its DSM Plan. How long does Union intend to include showerheads as a part of its DSM residential program? With respect to the cumulative savings set out on Table 4 please indicate for each year how much of the savings are due to showerheads and faucet aerators.

Response:

Showerheads are included in the Residential Program within the Energy Savings Kit offering, the Commercial/Industrial Program within the Prescriptive offering, and the Low-income Program within the Helping Homes Conserve offering. Union intends to include showerheads as part of its Residential Program over the course of the three-year Plan, albeit with decreasing focus each year (see Exhibit A, Appendix A, Page 18, Table 5). Union intends to re-evaluate the showerhead measure in the Residential Program at the end of the three-year term. The table below shows the cumulative natural gas savings attributed to showerhead and faucet aerator measures, for each year of the Plan, with respect to the 100% cumulative natural gas savings target on the Resource Acquisition Scorecard (Residential Program and Commercial/Industrial Program).

	2012		**2013**		**2014**	
	Cumulative Natural Gas Savings (m^3)	**%**	**Cumulative Natural Gas Savings (m^3)**	**%**	**Cumulative Natural Gas Savings (m^3)**	**%**
Showerheads	**10,371,331**	**1.9%**	**9,964,059**	**1.8%**	**9,235,655**	**1.7%**
Faucet Aerators	**5,085,990**	**0.9%**	**4,826,097**	**0.9%**	**4,400,332**	**0.8%**
All Other Measures	**542,583,679**	**97.2%**	**542,409,844**	**97.3%**	**541,595,013**	**97.5%**
Total (100% Resource Acquisition Target)	**558,041,000**	**100.0%**	**557,200,000**	**100.0%**	**555,231,000**	**100.0%**

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: Ex. A/ p. 22

The evidence states that, "Should a change to the Market Transformation Programs be required within the term of the Plan Union would consult with its stakeholders and may file revised scorecard targets with the Board for the following year(s) of the plan". Please list all of the circumstances that may trigger Union to revise its scorecard targets.

Response:

As the unforeseen events that would trigger revising the Market Transformation scorecard targets are unknown at this time, Union is not in a position to provide an exhaustive list. Examples of events that may lead to revising the Market Transformation scorecard are the introduction of a new program, a significant technical development, or a substantial market development that impacts an existing program.

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: EX. A/ p. 30

Please explain why Union is proposing a residential water heater MT program and Enbridge is not. How can the market be transformed in Ontario with only one LDC promoting the product? Is Union aware of any high efficiency water heater programs in North America that have passed the TRC? If so, please provide evidence of those programs.

Response:

Union is not in a position to explain why Enbridge is not proposing a similar High Efficiency Water Heating Program; however, Union will continue to work closely with Enbridge over the term of the Plan towards a higher degree of alignment on DSM Program offerings.

Union is proposing a residential water heater MT program because after space heating, water heating is the second largest user of energy in a residential home. Therefore, by launching a high-efficiency water heater program, Union can create long-term changes in the market that lead to significant gas savings for Union's customers. High efficient water heaters have been in the market for approximately 10 years; however, there has not been widespread take up due to lack of builder and customer education, awareness and comfort with the technology. The goal of Union's program is to overcome these key barriers. Union anticipate increasing market penetration by approximately 66% over the next 6 years. Union believes this is unachievable without the proposed program.

Although the HEWH program is only being launched in Union's franchise area, Ontario's market could be transformed in the long term due to a number of large influential cross-franchise builders. Union will not only shift these large builders' understanding and comfort with the technology, but also fundamentally shift their water heating installation behaviour. Through these shifts, Union anticipates there could be a subsequent spill-over effect into Enbridge's region in the long term.

Union has not commissioned any studies on this topic. Union has identified that the following North American utilities have a high efficiency water heating program offering (EF of 0.80). Union does not have TRC information for these utilities.

- Ameren Missouri
- Atmos Energy
- Minnesota Energy Resources
- Austin Utilities
- Connecticut Natural Gas
- Energy Trust of Oregon
- MidAmerican
- NSTAR Electric and Gas
- Puget Sound Energy
- Questar Gas Co
- Southern Connecticut Gas
- Xcel Energy
- Yankee Gas

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: Ex. A/ pp. 33-36

What specific approval is Union seeking from the Board with respect to its Market Transformation scorecards? Is Union seeking approval for everything set out in Tables 7-9?

Response:

Yes, Union is seeking approval for everything set out in its 2012 – 2014 Market Transformation scorecards including the metrics, metric target levels, and weights.

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: EX. A/ p. 35

With respect to the High Efficiency Water Heating Education Sessions and Consumer/Industry Shows metric:

a) Please indicate for 2009, 2010 and 2011 how many "events" Union led or participated in that would qualify under Union's current metric proposal;

b) Please explain how simply attending a home show qualifies as "market transformation";

c) Please indicate how many potential shows, clinics, or events geared to homeowners are planned for Union's franchise area for 2012;

d) Please indicate how many "industry shows" that are geared towards builders/trades/sales agents are planned for 2012.

Response:

a) In the past 3 years, Union participated in the following 'events':

- Builder's Forum (February 2009, 2010, 2011)
- OHBA Annual Conference (September 2009, 2010, 2011)
- Construct Canada/Homebuilders Forum (December 2009, 2010, 2011)

b) This metric does not measure the number of home shows Union attends. As defined in "Scorecard Metrics Description" (see Exhibit A, page 35) the metric measures the number of builder/trades education sessions Union leads (with a minimum of 10 participants), and consumers/industry shows at which Union exhibits to educate homeowners and industry professionals on the technology. This leading indicator ensures the utility invests in market education on the technology and its benefits. 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. This is a key component of long-term transformation.

c) Union is aware of the following shows, clinics and events geared to homeowners in Union's franchise area in 2012:

- Acton Home Show (March 2012)
- Brantford Home Show (April 17 – May 9, 2012)
- Cambridge Home Show (April 13 – 15, 2012)
- Halton Hills Home & Leisure Show
- Hamilton Ideal Home & Garden Show (March 1 – 4, 2012)
- Kingston Homebuilders Home & Renovation Show (March 2 – 4, 2012)
- Kitchener Waterloo (KW) Home Show (February 3 – 5, 2012)
- London LifeStyle Home Show (January 27 – 29, 2012)
- London Spring Home and Garden Show (April 20 – 22, 2012)
- Milton Home Show (March 2012)
- Muskoka (in Gravenhurst) Home Builders Home Show (April 27 – 29, 2012)
- North Bay HBA Home Show (March 30 – April 1, 2012)
- Orillia Home Show (April 13 – 15, 2012)
- Owen Sound Home & Cottage Expo (April 21 – 22, 2012)
- Quinte (Belleville/Trenton area) Homebuilders Home & Lifestyle Show (March 30 – April 1, 2012)
- Sault Ste. Marie Home Show (formerly the Home and Outdoor Show), 2012 Spring Expo (March 23 – 25, 2012)
- St. Thomas and Elgin Home Builders' Home Show (March 30 – April 1, 2012)
- Stratford 2012 Spring Home Show (March 30 - April 1, 2012)
- Sudbury HBA Home Show March (23 – 25, 2012)
- Thunder Bay Annual Spring Home and Garden Show (March 30 – April 1, 2012)
- Windsor Lifestyles Spring Home Show (May 4 – 6, 2012)
- Windsor Lifestyles Fall Home Show (September 18 – 20, 2012)

d) Union is aware of the following industry shows geared to builders/trades/sales agents for 2012:

- Builder's Forum, Collingwood (February 1 – 3, 2012)
- Chatham Kent Home Show (November 6 – 8, 2012)
- CMX-CIPHEX Show, Toronto (March 22 – 24, 2012)
- Home Builder and Reno Forum/Construct Canada (December 2012)
- OHBA Annual Conference (September 2012)
- Windsor-Essex Home Builders Home Show (March 16 – 18, 2012)

Filed: 2011-12-16
EB-2011-0327
Exhibit B3.9

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: Ex. A/Appendix A/p. 7

Please indicate, to date, since the inception of the ESK program how many ESKs have been delivered to customers.

Response:

Prior to 2000, ESK components were distributed individually, not together as a packaged kit. In 2000, a bagged kit was created. ESK data on an annual basis is not available from 2000 – 2005.

	2000 - 2005 Actual	**2006 Actual**	**2007 Actual**	**2008 Actual**	**2009 Actual**	**2010 Actual**	**2011 Outlook**	**Total**
TOTAL	47,967	82,866	67,919	96,778	83,054	81,200	85,900	545,684

UNION GAS LIMITED

Answer to Interrogatory from
The Consumers Council of Canada ("CCC")

Ref: Ex. A/Appendix A/p. 58

With respect to Union's Low-income Program please explain the extent to which Union is working with, or plans to work with, the Ontario Power Authority on program design and delivery. If Union is not working with the OPA please explain why.

Response:

Union participated in several low-income working group sessions to design the Home Assistance Program, with the OPA and LDC's over the past few years. Earlier this year, Union entered into a Memorandum of Understanding with the OPA and Enbridge Gas Distribution that outlines each parties' intent to work together to deliver a collaborative conservation program to low-income energy consumers in Ontario. To meet the objectives of the MOU, Union connects regularly with the OPA to increase collaboration around program design and delivery elements that create efficiencies and provide a more seamless service to low-income customers

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Ref: Exhibit A, p. 4 of 52

Union states that the DSM guidelines have provided Union with a "stable" 3-year DSM framework to meet the various challenges to natural gas DSM programs and the flexibility to adjust its DSM program portfolio. As Union will be aware, Enbridge Gas Distribution Inc. ("EGD") elected to apply for approval of a 1-year DSM plan rather than a 3-year DSM plan. CME would like to better understand the advantages and disadvantages of Union applying for multi-year approval rather than single year approval. To this end, please:

a) Identify all advantages associated with approval of a 3-year DSM framework rather than a 1-year DSM framework;

b) Identify the advantages associated with approval of a 1-year DSM framework rather than a 3-year DSM framework; and

c) Has Union identified any cost efficiencies with proceeding with a 3-year DSM framework rather than a 1-year DSM framework? If so, please identify all those cost efficiencies. Further, if cost efficiencies have been identified, please explain how those cost efficiencies are passed on to ratepayers.

Response:

a) As indicated in Section 2 of the Board's Guidelines:

> *"The initial term of the multi-year plans should be three years (2012, 2013 and 2014)."*

A multi-year framework provides the following benefits:

1. Long-term Program Development

Seamless programs that continue throughout the term of the Plan avoid market disruption and allow for longer term planning. A multi-year Plan provides the time required to conduct studies, audits and research projects for potential m^3 saving opportunities, while providing a consistent environment that ensures study/project findings and recommendations can be effectively implemented. It

fosters a longer term program view and provides Union the time required to enhance internal processes and procedures that benefit program design and market implementation. In particular, the long-term nature of a sales cycle project is directly connected to the customer's planning and budget process which typically spans at least 18 months.

In addition, a multi-year term allows Union to hire and retain employees with specific skill sets for extended periods of time which decreases the amount of training required and increases the overall productivity of Union's DSM-related employees.

A multi-year Plan also allows Union to focus on the design and delivery of effective DSM programs as opposed to the filing and procedural requirements associated with the annual filing of a new DSM Plan.

2. Certainty in the Market

Union will be able to provide greater certainty for customers that incentives and other program support activities will be available throughout the term of the Plan. This stability supports the customer's ability to effectively plan for energy efficiency upgrades in their investment decision process. Customers with multiple buildings would have the time and program cohesiveness required to improve entire building portfolios (e.g. National Accounts). They would also have the opportunity to phase technologies in and out of buildings more effectively instead of having to take risks by changing out technologies instantaneously to ensure program funding is available.

A 3-year Plan also provides consistency for the distribution and key influencer channels Union works with to promote the programs. This increases their long-term buy-in and support. Program disruption resulting from annual proceedings would result in the need to re-educate the market, re-educate service providers, and communicate program changes annually.

3. Cost Efficiencies

A 3-year Plan term allows Union to enter into longer term contracts with suppliers to achieve cost efficiencies. This typically leads to more competitive price points for products and services. For programs that require the outsourcing of program delivery, entering into a long-term contract provides certainty to the delivery agents to ramp-up their capacity to meet long-term goals. Short-term contract negotiations lead to hesitations on building capacity and often lead to a "ramp-up" / "ramp-down" time period which costs program results and efficiencies in the market. Longer program cycles also allow for greater program scale, which in

turn improves cost effectiveness. The cost efficiencies achieved also include those associated with the regulatory efficiencies.

b) Union sees no advantage with an approval of a 1-year DSM framework rather than a 3-year DSM framework. Union strongly supports a multi-year framework.

c) The efficiencies and the program and market advantages noted in the response to a) above will contribute to strong program results. The results will be realized as energy savings, and ultimately bill reductions, for energy consumers who participate in Union's programs. Union will direct cost savings into productive DSM activities which will result in further bill reductions, or return unspent funds to ratepayers via the DSMVA.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Ref: Exhibit A, p. 5 of 52

Union identifies a number of enhancements to its DSM plan. One of these enhancements is greater emphasis on "deeper" measures. CME wishes to better understand the meaning of "deeper" measures. To this end, please answer the following questions:

a) Does there exist a DSM industry-wide accepted definition of "deeper" measures? If so, please provide that definition.

b) Please set out how Union internally identifies which programs qualify as "deep" measures, and which programs do not qualify as "deep" measures.

c) Union has historically delivered market transformation programs. CME has understood that market transformation programs were intended to deliver "deep" measures. Is this understanding accurate?

d) Please provide an explanation of the difference between Union's market transformation programs and the "deep" measures identified by Union as an "enhancement" to its DSM plan.

e) Has Union identified "deep" measures which are not captured in its market transformation programs? If so, please identify those "deep" measures.

Response:

a) To Union's knowledge, there is no industry-wide accepted definition of "deeper" measures.

b) Union internally identifies measures as deep where they result in relatively long-term savings as they would not reasonably be uninstalled prior to their end of useful life. Discretionary low-cost retrofit measures do not qualify as deep measures.

c) While market transformation programs may increase the market share for deep measures, such as high efficiency water heaters, the intent of the program is to

overcome the market barriers which limit adoption of the technology as opposed to delivering the measure directly on a customer-by-customer basis. Market transformation programs do not necessarily deliver deep measures.

d) The difference is in the program strategy as opposed to the measures themselves. Market Transformation programs differ from resource acquisition programs as their purpose is in changing the behaviour of a particular market rather than the acquisition of energy savings more directly. They are designed to ensure that long-term impacts continue to occur after the market intervention, such as a rebate, is reduced or removed (i.e. permanent market change including code changes, change in vendor practices or new behavioural norms). By contrast, Union's Resource Acquisition and Low-income programs, which have an increased emphasis on deep measures, drive energy savings directly one customer at a time.

e) Yes. Union has identified the deep measures in the "Union Deep Measure" column set out in Exhibit A, Tab 1, Appendix H, Table 1.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit A, p. 5 of 52

Union identifies another enhancement of its DSM plan as 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. Please set out all steps that Union shall take over the term of its DSM plan to ensure that all parties have confidence in the natural gas savings delivered within its DSM portfolio.

Response:

Union will take the following steps over the term of the DSM Plan to ensure that all parties have confidence in the natural gas savings delivered within its DSM portfolio:

i. Develop an Evaluation Report (i.e. Annual Report) as described in Section 15.2 of the DSM Guidelines (EB-2008-0346).

ii. Conduct a third party audit of the Annual Report.

iii. Implement evaluation studies as prioritized by the Technical Evaluation Committee described in the Terms of Reference on Stakeholder Engagement.

iv. Adhere to the Settlement Agreement on the Terms of Reference on Stakeholder Engagement (EB-2011-0327).

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference : Exhibit A, pp. 9-10 of 52

As of August 2011, Union had 56 Rate T1 customers and 15 Rate 100 customers. CME understands that the customers in these rate classes are generally composed of industrial customers, institutional customers (which include hospital and greenhouse growers) and power generators. CME wishes to better understand the breakdown of the customers in each of these rate classes. To this end, please provide answers to the following questions:

a) How many customers in Rate T1 and in Rate 100 are power generators?

b) How many customers in Rate T1 and in Rate 100 are industrial customers?

c) How many customers in Rate T1 and in Rate 100 are institutional customers?

d) Do institutional customers in Rate T1 and in Rate 100 only include greenhouse growers and hospitals? If not, please identify the nature of the business of the unidentified institutional customers. Further, if Union can identify how many customers are greenhouse growers and how many are hospitals, please do so.

Response:

a) There are 17 power generators in T1 & Rate 100.

b) There are 48 industrial customers in T1 & Rate 100.

c) There are 2 institutional customers in T1 & Rate 100.

d) Institutional customers are limited to healthcare and educational facilities. Currently, we have two healthcare facilities in the T1/R100 rate class. Currently, there are four greenhouse customers in T1 & Rate 100 class and we define them as industrials.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference : Exhibit A, pp. 9-10 of 52

For each of the segments broken out in question #4, above, please describe the DSM programs delivered to each segment for 2008 to 2011. Further, please identify the anticipated DSM programs that will be delivered to each of these segments for 2012 and beyond.

Response:

The Distribution Contract Custom Program was delivered to all these segments in 2008 to 2011. Elements of the program included:

i. Equipment incentives
ii. Industrial Process Studies
iii. Energy Efficiency Feasibility Studies
iv. Steam Trap Surveys
v. Education and Promotion
vi. Design Assistance Program

The Distribution Contract Custom Program and elements are described in the 2008 to 2011 DSM Annual Reports.

For 2012 and beyond, Union Gas has proposed the RateT1/Rate 100 Program to be delivered to all of these segments. The following four program offerings are anticipated to be delivered to all of these segments:

i. Customer Engagement
ii. Site Energy Assessments
iii. Process Improvement Studies
iv. Operation & Maintenance Optimization Incentives

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference : Exhibit A, pp. 9-10 of 52

The DSM guidelines read, in part, as follows:

"The Board is of the view that large industrial customers pose 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."

CME wishes to better understand the various options that Union has considered in responding to this provision of the guidelines. As such, please provide the following information:

a) Some jurisdictions offer an "opt out" provision for customers in large volume rate classes such as Rate T1 and Rate 100. CME understands that some of the "opt out" provisions permit customers who meet predetermined qualifications the ability to not receive and not pay for DSM programming. Has Union undertaken any study or review of such "opt out" provisions in other jurisdictions? If not, why not? If so, please provide an overview of Union's review, as well as any supporting documentation on how the "opt out" provisions work in other jurisdictions;

b) Has Union considered offering an "opt out" provision to Rate T1 and Rate 100 customers? If not, why not? If so, please set out Union's considerations, as well as an explanation for why Union has decided to not offer such an option;

c) Has Union identified any barriers which prevent the implementation of an "opt out" provision for Rate T1 and Rate 100 customers in Ontario? If so, please set out those barriers.

Response:

a) No, Union has not undertaken any study or review of opt-out provisions that may exist in other jurisdictions.

b) Union did consider offering an opt-out provision to Rate T1 and Rate 100 customers. Based on the DSM survey of Rate T1 and Rate 100 customers, where the majority of customers supported the continued provision of DSM programs, Union concluded an opt-out provision is not required and inappropriate.

Program design and the resources required to successfully deliver those programs requires a base assumption regarding the customer participation level in order to ensure the program is cost effective, to have qualified personnel in place and to set appropriate targets and metrics. An opt out/in provision removes the stability in this base assumption.

Without sufficient scope, scale and the related funding to support the large industrial program, Union expects program availability and incentive levels to fluctuate creating less certainty. In addition the retention of qualified personnel to deliver the program will become difficult.

By nature, energy efficient programs in the large industrial market are a longer sales cycle. Without certainty regarding program availability customers are less likely to proceed with studies and energy efficiency programs.

c) In addition to the issues of program design and delivery discussed above, it is Union's view that an opt out/in option would be subject to the following barriers:

1. An opt out/in option would require separate delivery rates for customers choosing to opt out of DSM programming. In Union's view this would be inconsistent with the principles of class ratemaking where all distribution costs are recovered on a class basis;

2. An opt out/in option would be difficult to administer. Union does not have the systems in place to track or bill customers choosing to opt out of DSM programming. These systems would need to be developed prior to implementing any opt out/in option;

3. Disposition and true–ups of DSM related deferral accounts will be more complicated. Deferral accounts are disposed of on a class basis, not on a customer specific basis;

4. Allowing customers to opt out of DSM programming could result in higher costs for those remaining customers if DSM resource costs cannot be reallocated; and

5. Allowing T1/Rate 100 customers to opt out DSM programming would create an inequity between other rate classes where an opt-out provision does not exist.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference : Exhibit A, pp. 9-10 of 52

CME wishes to understand the manner in which DSM related costs have been allocated to each rate class historically, as well as the manner in which DSM costs will be allocated to rate classes over the proposed 3-year term. In order to assist CME to better understand the impact of DSM on each rate class, please provide the following information:

a) A table (or tables) which shows for 2008, 2009, 2010 and 2011 the DSM costs allocated to each rate class. In showing the DSM costs allocated to each rate class, please list separately the DSM budget costs, LRAM, DSMVA and SSM allocated to each rate class in each of those years. As well, please calculate the average rate impact in $/GJ for each rate class for each of the historic years.

Response:

a) Please see the attachment.

UNION GAS LIMITED
Rate Class impacts of DSM
2008, 2009, 2010 Actual versus 2011 Forecast

Line No.	Particulars		2008 Direct DSM in Rates (1) (a)	2008 Indirect DSM (b)	2008 DSMVA in Deferrals (2) (c)	2008 SSM in Deferrals (3) (d)	2008 LRAM in Deferrals (4) (e)	2008 Total (f) = (a+b+c+d+e)	2009 Direct DSM in Rates (5) (g)	2009 Indirect DSM (h)	2009 DSMVA in Deferrals (6) (i)	2009 SSM in Deferrals (7) (j)	2009 LRAM in Deferrals (8) (k)	2009 Total (l) = (g+h+i+j+k)	2010 Direct DSM in Rates (9) (m)	2010 Indirect DSM (n)	2010 DSMVA in Deferrals (10) (o)	2010 SSM in Deferrals (11) (p)	2010 LRAM in Deferrals (12) (q)	2010 Total (r) = (m+n+o+p+q)	2011 Direct DSM in Rates (13) (s)	2011 Indirect DSM (t)	2011 DSMVA in Deferrals (14) (u)	2011 SSM in Deferrals (15) (v)	2011 LRAM in Deferrals (16) (w)	2011 Total (x) = (s+t+u+v+w)
	Delivery North																								
1	**R01**	Revenue ($000's)	1,677	111	(621)	453	(54)	1,567	1,856	111	(344)	341	393	2,357	2,053	111	(528)	174	302	2,112	2,269	111	(387)	185	228	2,406
2		Volumes (10^3m^3)	883,524	883,524	883,524	883,524	883,524	883,524	875,695	875,695	875,695	875,695	875,695	875,695	873,086	873,086	873,086	873,086	873,086	873,086	870,427	870,427	870,427	870,427	870,427	870,427
3		Average rate (cents / m^3)	0.1898	0.0126	(0.0703)	0.0513	(0.0061)	0.1773	0.2119	0.0127	(0.0393)	0.0390	0.0449	0.2692	0.2351	0.0127	(0.0605)	0.0199	0.0346	0.2419	0.2607	0.0128	(0.0445)	0.0213	0.0262	0.2765
4		Average rate ($ / GJ) (17)	0.050	0.003	(0.019)	0.014	(0.002)	0.047	0.056	0.003	(0.010)	0.010	0.012	0.071	0.062	0.003	(0.016)	0.005	0.009	0.064	0.069	0.003	(0.012)	0.006	0.007	0.073
5	**R10**	Revenue ($000's)	1,441	101	(696)	330	194	1,370	1,595	101	(140)	538	358	2,451	1,765	101	(1,446)	60	402	882	1,951	101	(1,284)	107	124	999
6		Volumes (10^3m^3)	377,532	377,532	377,532	377,532	377,532	377,532	378,239	378,239	378,239	378,239	378,239	378,239	400,382	400,382	400,382	400,382	400,382	400,382	422,932	422,932	422,932	422,932	422,932	422,932
7		Average rate (cents / m^3)	0.3817	0.0267	(0.1844)	0.0874	0.0514	0.3629	0.4217	0.0267	(0.0370)	0.1422	0.0945	0.6481	0.4408	0.0252	(0.3612)	0.0151	0.1005	0.2204	0.4613	0.0238	(0.3036)	0.0254	0.0294	0.2363
8		Average rate ($ / GJ) (17)	0.101	0.007	(0.049)	0.023	0.014	0.096	0.112	0.007	(0.010)	0.038	0.025	0.172	0.117	0.007	(0.096)	0.004	0.027	0.058	0.122	0.006	(0.080)	0.007	0.008	0.063
9	**R20**	Revenue ($000's)	941	169	(823)	123	(22)	388	1,052	169	(780)	322	12	776	1,174	169	(822)	319	28	868	1,308	169	(1,101)	279	33	688
10		Volumes (10^3m^3)	529,033	529,033	529,033	529,033	529,033	529,033	532,305	532,305	532,305	532,305	532,305	532,305	530,768	530,768	530,768	530,768	530,768	530,768	526,116	526,116	526,116	526,116	526,116	526,116
11		Average rate (cents / m^3)	0.1779	0.0319	(0.1556)	0.0232	(0.0042)	0.0733	0.1976	0.0317	(0.1465)	0.0606	0.0023	0.1457	0.2212	0.0318	(0.1549)	0.0600	0.0053	0.1635	0.2486	0.0321	(0.2093)	0.0531	0.0062	0.1307
12		Average rate ($ / GJ) (17)	0.047	0.008	(0.041)	0.006	(0.001)	0.019	0.052	0.008	(0.039)	0.016	0.001	0.039	0.059	0.008	(0.041)	0.016	0.001	0.043	0.066	0.009	(0.055)	0.014	0.002	0.035
13	**R100**	Revenue ($000's)	1,521	264	4,457	2,988	(8)	9,221	1,699	264	254	1,714	46	3,977	1,896	264	541	1,589	66	4,356	2,112	264	(1,387)	747	84	1,820
14		Volumes (10^3m^3)	2,281,177	2,281,177	2,281,177	2,281,177	2,281,177	2,281,177	2,281,152	2,281,152	2,281,152	2,281,152	2,281,152	2,281,152	2,271,427	2,271,427	2,271,427	2,271,427	2,271,427	2,271,427	2,254,074	2,254,074	2,254,074	2,254,074	2,254,074	2,254,074
15		Average rate (cents / m^3)	0.0667	0.0116	0.1954	0.1310	(0.0004)	0.4042	0.0745	0.0116	0.0111	0.0751	0.0020	0.1743	0.0835	0.0116	0.0238	0.0699	0.0029	0.1918	0.0937	0.0117	(0.0615)	0.0332	0.0037	0.0807
16		Average rate ($ / GJ) (17)	0.018	0.003	0.052	0.035	(0.000)	0.107	0.020	0.003	0.003	0.020	0.001	0.046	0.022	0.003	0.006	0.019	0.001	0.051	0.025	0.003	(0.016)	0.009	0.001	0.021
	Delivery South																									
17	**M1**	Revenue ($000's)	5,640	318	(725)	2,030	176	7,439	6,236	318	4,239	1,635	955	13,383	6,891	318	3,108	860	733	11,910	7,612	318	381	790	553	9,655
18		Volumes (10^3m^3)	2,811,868	2,811,868	2,811,868	2,811,868	2,811,868	2,811,868	2,795,763	2,795,763	2,795,763	2,795,763	2,795,763	2,795,763	2,765,410	2,765,410	2,765,410	2,765,410	2,765,410	2,765,410	2,713,735	2,713,735	2,713,735	2,713,735	2,713,735	2,713,735
19		Average rate (cents / m^3)	0.2006	0.0113	(0.0258)	0.0722	0.0062	0.2645	0.2231	0.0114	0.1516	0.0585	0.0341	0.4787	0.2492	0.0115	0.1124	0.0311	0.0265	0.4307	0.2805	0.0117	0.0140	0.0291	0.0204	0.3558
20		Average rate ($ / GJ) (17)	0.053	0.003	(0.007)	0.019	0.002	0.070	0.059	0.003	0.040	0.015	0.009	0.127	0.066	0.003	0.030	0.008	0.007	0.114	0.074	0.003	0.004	0.008	0.005	0.094
21	**M2**	Revenue ($000's)	2,337	132	(695)	668	(618)	1,824	2,584	132	(1,997)	1,066	390	2,176	2,856	132	(1,585)	544	593	2,540	3,154	132	176	525	519	4,506
22		Volumes (10^3m^3)	1,089,154	1,089,154	1,089,154	1,089,154	1,089,154	1,089,154	1,083,376	1,083,376	1,083,376	1,083,376	1,083,376	1,083,376	1,073,198	1,073,198	1,073,198	1,073,198	1,073,198	1,073,198	1,046,876	1,046,876	1,046,876	1,046,876	1,046,876	1,046,876
23		Average rate (cents / m^3)	0.2146	0.0121	(0.0638)	0.0613	(0.0568)	0.1675	0.2385	0.0122	(0.1843)	0.0984	0.0360	0.2008	0.2661	0.0123	(0.1477)	0.0507	0.0553	0.2367	0.3013	0.0126	0.0168	0.0502	0.0495	0.4304
24		Average rate ($ / GJ) (17)	0.057	0.003	(0.017)	0.016	(0.015)	0.044	0.063	0.003	(0.049)	0.026	0.010	0.053	0.070	0.003	(0.039)	0.013	0.015	0.063	0.080	0.003	0.004	0.013	0.013	0.114
25	**M4**	Revenue ($000's)	1,721	303	(1,396)	286	(125)	788	1,923	303	(1,756)	340	77	887	2,146	303	(1,886)	467	58	1,088	2,391	303	(2,048)	473	95	1,213
26		Volumes (10^3m^3)	474,128	474,128	474,128	474,128	474,128	474,128	479,238	479,238	479,238	479,238	479,238	479,238	473,628	473,628	473,628	473,628	473,628	473,628	469,997	469,997	469,997	469,997	469,997	469,997
27		Average rate (cents / m^3)	0.3630	0.0638	(0.2944)	0.0603	(0.0264)	0.1663	0.4013	0.0631	(0.3664)	0.0710	0.0160	0.1850	0.4531	0.0639	(0.3982)	0.0986	0.0123	0.2297	0.5087	0.0644	(0.4357)	0.1006	0.0202	0.2582
28		Average rate ($ / GJ) (17)	0.096	0.017	(0.078)	0.016	(0.007)	0.044	0.106	0.017	(0.097)	0.019	0.004	0.049	0.120	0.017	(0.105)	0.026	0.003	0.061	0.135	0.017	(0.115)	0.027	0.005	0.068
29	**M5A**	Revenue ($000's)	-	-	898	420	43	1,361	-	-	747	427	132	1,306	-	-	632	362	149	1,144	-	-	1,202	880	216	2,298
30		Volumes (10^3m^3)	388,914	388,914	388,914	388,914	388,914	388,914	388,276	388,276	388,276	388,276	388,276	388,276	383,809	383,809	383,809	383,809	383,809	383,809	377,398	377,398	377,398	377,398	377,398	377,398
31		Average rate (cents / m^3)	-	-	0.2309	0.1080	0.0109	0.3498	-	-	0.1924	0.1099	0.0340	0.3363	-	-	0.1647	0.0944	0.0389	0.2980	-	-	0.3185	0.2331	0.0574	0.6089
32		Average rate ($ / GJ) (17)	-	-	0.061	0.029	0.003	0.093	-	-	0.051	0.029	0.009	0.089	-	-	0.044	0.025	0.010	0.079	-	-	0.084	0.062	0.015	0.161
33	**M7**	Revenue ($000's)	654	115	(762)	1	(14)	(6)	731	115	(718)	126	2	257	816	115	(46)	516	17	1,418	909	115	23	572	42	1,661
34		Volumes (10^3m^3)	282,777	282,777	282,777	282,777	282,777	282,777	281,915	281,915	281,915	281,915	281,915	281,915	281,914	281,914	281,914	281,914	281,914	281,914	280,696	280,696	280,696	280,696	280,696	280,696
35		Average rate (cents / m^3)	0.2313	0.0407	(0.2695)	0.0004	(0.0049)	(0.0021)	0.2593	0.0408	(0.2547)	0.0448	0.0008	0.0910	0.2895	0.0408	(0.0163)	0.1831	0.0060	0.5030	0.3238	0.0410	0.0082	0.2037	0.0149	0.5916
36		Average rate ($ / GJ) (17)	0.061	0.011	(0.071)	0.000	(0.001)	(0.001)	0.069	0.011	(0.067)	0.012	0.000	0.024	0.077	0.011	(0.004)	0.048	0.002	0.133	0.086	0.011	0.002	0.054	0.004	0.157
37	**T1**	Revenue ($000's)	1,068	187	1,922	1,397	8	4,583	1,194	187	1,963	2,241	29	5,615	1,332	187	1,012	1,264	35	3,831	1,484	187	5,372	3,862	66	10,971
38		Volumes (10^3m^3)	4,883,047	4,883,047	4,883,047	4,883,047	4,883,047	4,883,047	4,871,937	4,871,937	4,871,937	4,871,937	4,871,937	4,871,937	4,853,733	4,853,733	4,853,733	4,853,733	4,853,733	4,853,733	4,827,587	4,827,587	4,827,587	4,827,587	4,827,587	4,827,587
39		Average rate (cents / m^3)	0.0219	0.0038	0.0394	0.0286	0.0002	0.0938	0.0245	0.0038	0.0403	0.0460	0.0006	0.1152	0.0274	0.0039	0.0208	0.0260	0.0007	0.0789	0.0307	0.0039	0.1113	0.0800	0.0014	0.2273
40		Average rate ($ / GJ) (17)	0.006	0.001	0.010	0.008	0.000	0.025	0.006	0.001	0.011	0.012	0.000	0.031	0.007	0.001	0.006	0.007	0.000	0.021	0.008	0.001	0.029	0.021	0.000	0.060
41		TOTAL REVENUE	17,000	1,700	1,559	8,696	(421)	28,534	18,870	1,700	1,468	8,751	2,394	33,184	20,929	1,700	(1,020)	6,156	2,384	30,149	23,190	1,700	947	8,421	1,959	36,217

Notes:
(1) EB-2009-0052, Exhibit A, Tab 1, Schedule 3, Column (a).
(2) EB-2009-0052, Exhibit A, Tab 1, Schedule 3, Column (c).
(3) EB-2010-0039, Exhibit A, Tab 1, Schedule 4, Column (a).
(4) EB-2009-0052, Exhibit A, Tab 1, Schedule 2, Page 1 of 3, Column (c).
(5) EB-2010-0039, Exhibit A, Tab 1, Schedule 3, Column (a).
(6) EB-2010-0039, Exhibit A, Tab 1, Schedule 3, Column (c).
(7) EB-2011-0038, Exhibit A, Tab 1, Schedule 4, Column (a).
(8) EB-2010-0039, Exhibit A, Tab 1, Schedule 2, Page 1 of 3, Column (c).
(9) EB-2011-0038, Exhibit A, Tab 1, Schedule 3, Column (a).
(10) EB-2011-0038, Exhibit A, Tab 1, Schedule 3, Column (c).
(11) EB-2011-0038, Exhibit A, Tab 1, Schedule 4, Column (f).
(12) EB-2011-0038, Exhibit A, Tab 1, Schedule 2, Page 1 of 3, Column (c).
(13) DSM Costs in 2011 Rates.
(14) Outlook DSMVA as of Dec. 13, 2011.
(15) Outlook SSM as of Dec. 13, 2011.
(16) LRAM revenue forecast as of Dec. 13, 2011.
(17) Conversion to GJ's based on Heat Value of 37.75 GJ / 10^3m^3.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference : Exhibit A, Schedule 1

In this Schedule, Union sets out the proposed allocation of the DSM budget, DSM low-income budget and DSM incentive for each rate class for 2012. CME understands that the budget DSM incentive shown in that schedule is premised on Union hitting 100%. Please re-produce that table with additional columns that show the allocation of the low-income incentive (based on 100%) for each rate class, and the DSM incentive and low-income incentive on the basis that Union achieves the maximum (instead of just 100%) DSM incentive available.

Response:

Please see the attachment.

UNION GAS LIMITED
Rate Class impacts of DSM
2010 Actual versus 2012 Budget

Line No.	Particulars		2010 Actual DSM Spend	2010 Current Low Income DSM	2010 Market Trans. in Deferrals (1)	2010 SSM in Deferrals (2)	2010 Total	WITH BUDGET DSM INCENTIVE AT 100% 2012 Budget DSM	2012 Budget Low-Income (3)	2012 Subtotal (4)	2012 Budget DSM Incentive at 100%	2012 Total 2012	Unit Rates 2010 DSM	Unit Rates 2012 DSM	Unit DSM Rate Change	WITH BUDGET DSM INCENTIVE AT 150% 2012 Budget DSM	2012 Budget Low-Income (3)	2012 Subtotal (4)	2012 Budget DSM Incentive at 150%	2012 Total 2012	Unit Rates 2010 DSM	Unit Rates 2012 DSM	Unit DSM Rate Change
			(a)	(b)	(c)	(d)	(e) = (a+b+c+d)	(f)	(g)	(h) = (f+g)	(i)	(j) = (h+i)	(k) = (e)	(l) = (j)	(m) = (l-k)	(n)	(o)	(p) = (n+o)	(q)	(r) = (p+q)	(s) = (e)	(t) = (r)	(s) = (t-s)
	Delivery North																						
1	**R01**	Revenue ($000's)	1,340	295	88	194	1,917	2,434	1,754	4,188	360	4,547	1,917	4,547	2,630	2,434	1,754	4,188	1,414	5,602	1,917	5,602	3,684
2		Volumes (10^3m^3) (6)	873,086	873,086	873,086	873,086	873,086	863,695	863,695	863,695	863,695	863,695	873,086	863,695		863,695	863,695	863,695	863,695	863,695	873,086	863,695	
3		Average rate (cents / m^3)	0.1535	0.0338	0.0100	0.0222	0.2196	0.2818	0.2031	0.4849	0.0416	0.5265	0.2196	0.5265	0.3069	0.2818	0.2031	0.4849	0.1637	0.6486	0.2196	0.6486	0.4290
4		Average rate ($ / GJ) (5)	0.041	0.009	0.003	0.006	0.058	0.075	0.054	0.128	0.011	0.139	0.058	0.139	0.081	0.075	0.054	0.128	0.043	0.172	0.058	0.172	0.114
5		Average rate change													139.8%								195.3%
6	**R10**	Revenue ($000's)	419	-	-	88	507	955	324	1,279	157	1,436	507	1,436	929	955	324	1,279	432	1,711	507	1,711	1,203
7		Volumes (10^3m^3) (6)	400,382	400,382	400,382	400,382	400,382	451,957	451,957	451,957	451,957	451,957	400,382	451,957		451,957	451,957	451,957	451,957	451,957	400,382	451,957	
8		Average rate (cents / m^3)	0.1048	-	-	0.0219	0.1267	0.2112	0.0717	0.2830	0.0348	0.3177	0.1267	0.3177	0.1911	0.2112	0.0717	0.2830	0.0955	0.3785	0.1267	0.3785	0.2518
9		Average rate ($ / GJ) (5)	0.028	-	-	0.006	0.034	0.056	0.019	0.075	0.009	0.084	0.034	0.084	0.051	0.056	0.019	0.075	0.025	0.100	0.034	0.100	0.067
10		Average rate change													150.8%								198.8%
11	**R20**	Revenue ($000's)	521	-	-	368	889	800	168	968	108	1,076	889	1,076	186	800	168	968	327	1,294	889	1,294	405
12		Volumes (10^3m^3) (6)	530,768	530,768	530,768	530,768	530,768	519,357	519,357	519,357	519,357	519,357	530,768	519,357		519,357	519,357	519,357	519,357	519,357	530,768	519,357	
13		Average rate (cents / m^3)	0.0982	-	-	0.0693	0.1675	0.1540	0.0323	0.1863	0.0208	0.2071	0.1675	0.2071	0.0396	0.1540	0.0323	0.1863	0.0629	0.2492	0.1675	0.2492	0.0817
14		Average rate ($ / GJ) (5)	0.026	-	-	0.018	0.044	0.041	0.009	0.049	0.006	0.055	0.044	0.055	0.010	0.041	0.009	0.049	0.017	0.066	0.044	0.066	0.022
15		Average rate change													23.6%								48.8%
16	**R100**	Revenue ($000's)	2,700	-	-	1,296	3,997	1,234	222	1,456	167	1,623	3,997	1,623	(2,374)	1,234	222	1,456	492	1,948	3,997	1,948	(2,049)
17		Volumes (10^3m^3) (6)	2,271,427	2,271,427	2,271,427	2,271,427	2,271,427	2,219,052	2,219,052	2,219,052	2,219,052	2,219,052	2,271,427	2,219,052		2,219,052	2,219,052	2,219,052	2,219,052	2,219,052	2,271,427	2,219,052	
18		Average rate (cents / m^3)	0.1189	-	-	0.0571	0.1760	0.0556	0.0100	0.0656	0.0075	0.0731	0.1760	0.0731	(0.1028)	0.0556	0.0100	0.0656	0.0222	0.0878	0.1760	0.0878	(0.0882)
19		Average rate ($ / GJ) (5)	0.031	-	-	0.015	0.047	0.015	0.003	0.017	0.002	0.019	0.047	0.019	(0.027)	0.015	0.003	0.017	0.006	0.023	0.047	0.023	(0.023)
20		Average rate change													-58.4%								-50.1%
	Delivery South																						
21	**M1**	Revenue ($000's)	8,902	1,415	412	943	11,672	8,957	4,100	13,058	2,124	15,182	11,672	15,182	3,510	8,957	4,100	13,058	4,408	17,466	11,672	17,466	5,793
22		Volumes (10^3m^3) (6)	2,765,410	2,765,410	2,765,410	2,765,410	2,765,410	2,650,399	2,650,399	2,650,399	2,650,399	2,650,399	2,765,410	2,650,399		2,650,399	2,650,399	2,650,399	2,650,399	2,650,399	2,765,410	2,650,399	
23		Average rate (cents / m^3)	0.3219	0.0512	0.0149	0.0341	0.4221	0.3380	0.1547	0.4927	0.0802	0.5728	0.4221	0.5728	0.1507	0.3380	0.1547	0.4927	0.1663	0.6590	0.4221	0.6590	0.2369
24		Average rate ($ / GJ) (5)	0.085	0.014	0.004	0.009	0.112	0.090	0.041	0.131	0.021	0.152	0.112	0.152	0.040	0.090	0.041	0.131	0.044	0.175	0.112	0.175	0.063
25		Average rate change													35.7%								56.1%
26	**M2**	Revenue ($000's)	1,403	-	-	483	1,886	2,963	623	3,587	516	4,102	1,886	4,102	2,217	2,963	623	3,587	1,211	4,798	1,886	4,798	2,912
27		Volumes (10^3m^3) (6)	1,073,198	1,073,198	1,073,198	1,073,198	1,073,198	1,017,919	1,017,919	1,017,919	1,017,919	1,017,919	1,073,198	1,017,919		1,017,919	1,017,919	1,017,919	1,017,919	1,017,919	1,073,198	1,017,919	
28		Average rate (cents / m^3)	0.1307	-	-	0.0450	0.1757	0.2911	0.0612	0.3524	0.0507	0.4030	0.1757	0.4030	0.2273	0.2911	0.0612	0.3524	0.1190	0.4713	0.1757	0.4713	0.2956
29		Average rate ($ / GJ) (5)	0.035	-	-	0.012	0.047	0.077	0.016	0.093	0.013	0.107	0.047	0.107	0.060	0.077	0.016	0.093	0.032	0.125	0.047	0.125	0.078
30		Average rate change													129.4%								168.3%
31	**M4**	Revenue ($000's)	563	-	-	475	1,038	1,190	166	1,356	161	1,517	1,038	1,517	479	1,190	166	1,356	458	1,814	1,038	1,814	776
32		Volumes (10^3m^3) (6)	473,628	473,628	473,628	473,628	473,628	462,743	462,743	462,743	462,743	462,743	473,628	462,743		462,743	462,743	462,743	462,743	462,743	473,628	462,743	
33		Average rate (cents / m^3)	0.1188	-	-	0.1004	0.2191	0.2571	0.0359	0.2930	0.0347	0.3278	0.2191	0.3278	0.1086	0.2571	0.0359	0.2930	0.0989	0.3920	0.2191	0.3920	0.1728
34		Average rate ($ / GJ) (5)	0.031	-	-	0.027	0.058	0.068	0.010	0.078	0.009	0.087	0.058	0.087	0.029	0.068	0.010	0.078	0.026	0.104	0.058	0.104	0.046
35		Average rate change													49.6%								78.9%
36	**M5A**	Revenue ($000's)	632	-	-	354	986	1,328	102	1,430	179	1,609	986	1,609	623	1,328	102	1,430	483	1,912	986	1,912	926
37		Volumes (10^3m^3) (6)	383,809	383,809	383,809	383,809	383,809	369,224	369,224	369,224	369,224	369,224	383,809	369,224		369,224	369,224	369,224	369,224	369,224	383,809	369,224	
38		Average rate (cents / m^3)	0.1646	-	-	0.0923	0.2570	0.3596	0.0276	0.3872	0.0486	0.4358	0.2570	0.4358	0.1788	0.3596	0.0276	0.3872	0.1307	0.5179	0.2570	0.5179	0.2610
39		Average rate ($ / GJ) (5)	0.044	-	-	0.024	0.068	0.095	0.007	0.103	0.013	0.115	0.068	0.115	0.047	0.095	0.007	0.103	0.035	0.137	0.068	0.137	0.069
40		Average rate change													69.6%								101.6%
41	**M7**	Revenue ($000's)	885	-	-	527	1,412	547	103	650	74	724	1,412	724	(688)	547	103	650	219	869	1,412	869	(542)
42		Volumes (10^3m^3) (6)	281,914	281,914	281,914	281,914	281,914	269,201	269,201	269,201	269,201	269,201	281,914	269,201		269,201	269,201	269,201	269,201	269,201	281,914	269,201	
43		Average rate (cents / m^3)	0.3139	-	-	0.1868	0.5007	0.2032	0.0383	0.2414	0.0274	0.2689	0.5007	0.2689	(0.2319)	0.2032	0.0383	0.2414	0.0815	0.3230	0.5007	0.3230	(0.1778)
44		Average rate ($ / GJ) (5)	0.083	-	-	0.049	0.133	0.054	0.010	0.064	0.007	0.071	0.133	0.071	(0.061)	0.054	0.010	0.064	0.022	0.086	0.133	0.086	(0.047)
45		Average rate change													-46.3%								-35.5%
46	**T1**	Revenue ($000's)	2,531	-	-	1,257	3,788	2,478	505	2,984	335	3,318	3,788	3,318	(470)	2,478	505	2,984	1,007	3,991	3,788	3,991	202
47		Volumes (10^3m^3) (6)	4,853,733	4,853,733	4,853,733	4,853,733	4,853,733	4,794,769	4,794,769	4,794,769	4,794,769	4,794,769	4,853,733	4,794,769		4,794,769	4,794,769	4,794,769	4,794,769	4,794,769	4,853,733	4,794,769	
48		Average rate (cents / m^3)	0.0521	-	-	0.0259	0.0781	0.0517	0.0105	0.0622	0.0070	0.0692	0.0781	0.0692	(0.0088)	0.0517	0.0105	0.0622	0.0210	0.0832	0.0781	0.0832	0.0052
49		Average rate ($ / GJ) (5)	0.014	-	-	0.007	0.021	0.014	0.003	0.016	0.002	0.018	0.021	0.018	(0.002)	0.014	0.003	0.016	0.006	0.022	0.021	0.022	0.001
50		Average rate change													-11.3%								6.6%
51		TOTAL REVENUE	19,897	1,710	500	5,985	28,093	22,886	8,068	30,954	4,180	35,134	28,093	35,134	7,041	22,886	8,068	30,954	10,450	41,404	28,093	41,404	13,311

Notes:
(1) EB-2011-0038, Exhibit A, Tab 3, Schedule 1, Page 1 of 2, line 21 (Market Transformation Incentive).
(2) EB-2011-0038, Exhibit A, Tab 3, Schedule 1, Page 1 of 2, line 11.
(3) Allocated to rate classes in proportion to 2007 Board-Approved Rate Base.
(4) EB-2011-0025, Rate Order, Working Papers, Schedule 16, column (e).
(5) Conversion to GJ's based on Heat Value of 37.75 GJ / 10^3m^3.
(6) 2010 Volumes per Board-approved EB-2009-0275 filing. 2012 Volumes per proposed EB-2011-0025 filing.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference : Exhibit A, Schedule 1

Other than inflation increases, will the DSM budgets and incentives set out in Exhibit A, Schedule 1 increase in the years 2013 and 2014? If so, please set out the drivers that will lead to such increases (other than inflation).

Response:

Other than inflation increases, the DSM budget and 100% incentive as set out in Exhibit A, Schedule 1 will not increase in 2013 and 2014.

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

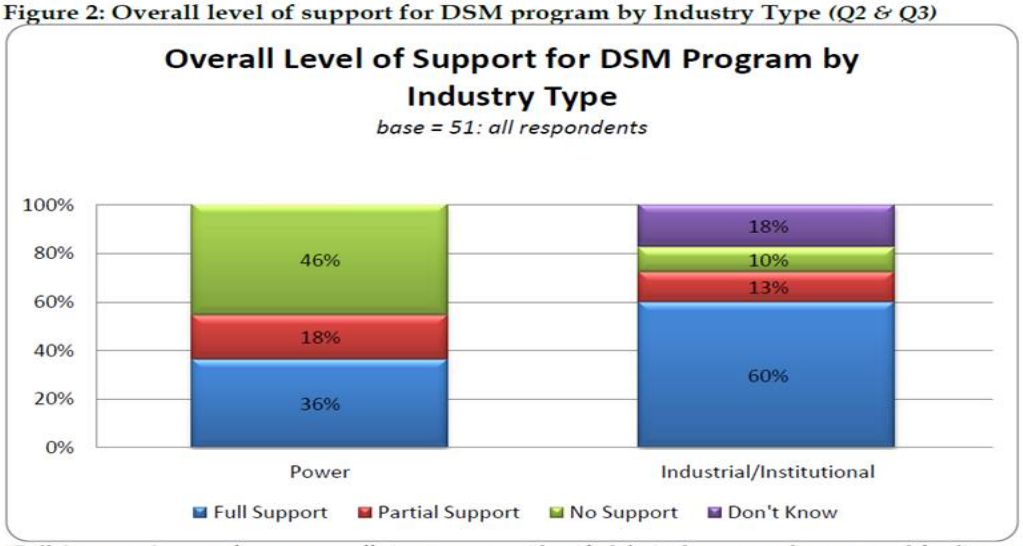
Reference : Exhibit A, p. 13 of 52

Union states that its Rate T1 and Rate 100 survey results indicate that "with the exception of the power market" the Rate T1 and Rate 100 customers support some level of funding for DSM. This suggests that customers in the power market do not support DSM funding. This contradicts the survey finding that 54% of power generators support DSM. Please provide a further explanation of Union's view on the extent to which, if any, power generators support the continuation of DSM.

Response:

The research did find that 54% of power respondents supported (reflecting the sum of those that fully *and* partially support) DSM programs. However, the comments in the evidence on page 13 were highlighting that the level of full support (i.e. willing to fund) from the power market is less than the solid majority of the Industrial/Institutional respondents identified in Figure 2 of the research report. Full support among the industrial/institutional respondents (60%) is much greater than the power respondents (36%).

Figure 2: Overall level of support for DSM program by Industry Type *(Q2 & Q3)*



**Full Support: Support for program offering (customer identified desired program elements) and funding at some level*
Partial Support: Support for program offering (customer identified desired program elements) but no funding at any level
No Support: No support for program offering and funding at any level

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference : Exhibit A, p. 17 of 52

Union proposes that the low income DSM budget be allocated to rate classes in proportion to the most recent Board-approved allocation of rate base. Please set out all alternative options for allocating the DSM budget *(i.e.* customer numbers, distribution revenue, etc.).

Response:

Please refer to exhibit B1.6 a)

UNION GAS LIMITED

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference : Exhibit A, p. 17 of 52

CME understands that EGD has proposed that its low-income DSM budget be allocated on the basis of distribution revenue. Please explain why Union has not proposed that low-income budget be allocated based on distribution revenue.

Response:

Please refer to exhibit B1.6 a)

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

REF: EX. A. Pages 11, 12; Ex. A., Appendix A, Section 1.2; Ex. A., Appendix G, Figure 1 and Table 2

Preamble: Lines 20 of page 11 to line 6 of page 12 state:

"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 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"

T1/Rate 100 Program

a) Please provide a cross-tabulation of the respective support levels of the combined T1 and Rate 100 customers in Figure 1 and the desired programs of Table 2 that provides the data on the desired programs for each classes that that have varying support levels (e.g., of those that fully support including funding, what percentage desired each of the program categories).

b) With reference to the data in the cross-tabulated table from a) above, please explain Union's move away from equipment incentives to offset capital costs.

c) With reference to the data, please explain Union's choice of program as being aligned with feedback from the customer class.

Response:

a)

Project Type	Full Support	Partial Support
Equipment Incentives to offset capital cost	93%	86%
Incentives for process improvement studies	86%	86%
Targeted energy management programs	71%	57%
Union Gas sponsored and/or participant in energy efficiency focused training programs	64%	57%
Union technical resources serving as an EE advisor/consultant	64%	71%
Union Gas support of onsite energy teams	50%	42%

Base: All respondents (n=51)
Full Support: Support for program offering (customer identified desired program elements) and funding at some level
Partial Support: Support for program offering (customer identified desired program elements) but no funding at any level

b) Per the DSM Final 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. If any are proposed, they will be considered on their merits. The Board defines large industrial gas customers as those in rate classes 100 and T1 for Union, and rate class 115 for Enbridge".

The T1/R100 survey, indicates that 93% of all T1/R100 customers fully support incentives to offset project capital costs. When the survey was performed, there was no distinction between large capital projects and O&M projects, because the current program does not make this distinction. Historically, Union has found when working with a customer on capital projects, the customer finds the most value in the engineering study facilitated by Union to identify in-house engineering expertise and financial assistance requirements.

Union has chosen to support Operating & Maintenance projects (O&M) in order to maximize both cumulative m^3 savings and cost effectiveness. When compared to large capital projects, O&M projects have a higher cumulative m^3 savings for the incentive dollars that are spent. Therefore, O&M incentives support the main objectives set forth by the Ontario Energy Board in the 2012-2014 DSM plan.

Additionally, O&M budgets for T1/R100 customers often get reduced in difficult economic conditions. The O&M incentive design will assist Rate T1/Rate 100 customers in this area and drive incremental savings for the next three years, positioning these customers to better cope with operating restrictions.

c) The survey focused on two primary issues, the cost of the programs to the rate classes as well as the type of programs desired. Though capital incentives are the

most favoured program element, they also create the most significant budget impact and therefore rate impact. This dilemma highlights Union's ongoing concern that the most cost effective DSM potential continues to be available from Union's largest and most energy intensive customers, but because these program costs are borne exclusively by the rate class that realizes the energy savings, the full value of the potential energy savings will not be achieved. Union's proposed program has attempted to find an acceptable compromise; reducing rate class DSM cost impacts by limiting funding to only O&M projects and the Process Improvement studies that identify opportunities for future savings from both capital investments or operational improvements. The reason for focussing on O&M improvements is provided in 1 b) above.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

REF: EX. A., Page 22 and 23, Tables 4, 5 and 6

Preamble: Lines 19 of page 22 to line 3 of page 23 state:

"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."

Establishment of the 150% target at 125%

a) Please provide the supporting analytics that derived the 100% target.

b) Please provide the range of error that Union estimates would be expected in each of the forecasted inputs to the analytical derivation of the 100% target.

c) What would the resulting range of error be, statistically, for the 100% target?

Response:

a) Please refer to Exhibit A, Appendix A.

b) A range of error estimate cannot be provided as Union established the targets based on both a qualitative and quantitative assessment of the market.

c) Please see the response to b), above.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

REF: EX. A., Page 28, Table 6, Appendix A, Section 1.3

Low-Income Scorecard - Multi-family Deep Measures

a) From Union Gas' customer data bases, what percentage of multi-unit residential buildings are deemed Social and Assisted Housing Multi-Family?

b) What market barriers has Union identified to providing DSM to privately-owned multi-unit residential buildings?

c) To the extent that Union desired to access the opportunity for Low-income customers residing in privately-owned, bulk-metered multi-unit residential buildings to benefit from Low-income initiatives, what changes in eligibility criteria would Union propose?

d) Has Union studied other jurisdictions that are providing Low-income DSM to Low-income customers in privately-owned, bulk-metered multi-unit residential buildings?

   i) If so, beyond the eligibility criteria, what other barriers would need to be overcome to access this opportunity?

   ii) If not, why not?

Response:

a) Union database does not track this information.

b) One of the largest barriers for inclusion of privately-owned rental properties where customers don't pay their own utilities is that there is no assurance that the property manager will re-direct the bill savings derived from the program back to the low-income customer. Union is not in a position to govern how private market landlords re-direct, if at all, any of the financial savings they realize through participating in conservation programs and therefore cannot provide certainty to

ratepayers that the low-income program funds are being used for the direct or indirect benefit of low-income customers.

c) Union does not have any current proposals to change the eligibility criteria set by the Board.

d) Union has not performed any research to date on other jurisdictions that are providing low-income DSM programming to customers residing in privately-owned, bulk-metered multi-unit residential buildings.

ii. The Board Guidelines do not include this segment of the market within the Low-income market and consequently Union has not allocated funding for related research on this segment.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

REF: EX. A. Page 31
Preamble: Lines 12 to 13 state:

"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."

New Home Efficiency Program

a) How many builders in Union's franchise area build a minimum of 50 housing starts per year?

b) Has Union surveyed those builders to determine their level of interest?
   i) If so, what were the results?

c) Does Union have any of these builders signed up to any expression of interest/agreements to build prototypes 15% above the efficiency standard in the 2012 OBC (pending approval of the program)?

d) Beyond services, is Union providing any offer financial incentives to the builders during the market transformation phase?

Response:

a) There are 41 builders in Union's franchise area that build a minimum of 50 homes per year.

b) Union has spoken with some of the largest builders as well as industry experts to understand builders' perspectives, industry trends, and to determine builders' level of interest. The results of these discussions confirmed for Union that many builders will have difficulty reaching the new 2012 OBC levels, and that they would be interested in a program like the one Union is proposing, because without this type of program most would not even consider moving above code.

c) No, there are no formal signed ‘expression of interest/agreement’ documents.

d) For the New Home Efficiency Program, the only financial incentive from Union Gas are the consulting fees filed in the Plan.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

REF: EX. A., page 37

Escalation of Incentive

a) What is Union relying on to propose the appropriateness of the stated escalation?

Response:

a) Please see the responses to exhibit B1.1 a) and B1.10.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

REF: EX. A., page 40,41; Table 2

Rate Impacts

a) From Union's data bases, please provide an approximate percentage of volumes consumed by multi-unit residential buildings for each of the lower volume rate classes?

b) Given Union's response to 3a) above, please provide the estimated contribution to costs of privately-owned, multi-unit residential buildings for:

i) all DSM programs?

ii) Low-income DSM programs?

Response:

a) The request for information is not available as Union's volumes are not segmented according to multi-unit residential buildings.

b) The request for information is not available.

UNION GAS LIMITED

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario ("FRPO")

REF: EX. A., Page 41

Preamble: Lines 22 to 24 state:

"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."

Bill Impacts

a) Since the volumes used to compare the bill impacts of the South and Northern & Eastern areas are the same, please provide the drivers that contribute to a doubling of the bill impacts for the Northern & Eastern customers.

Response:

a) As shown in Exhibit A, Schedule 1, total Rate 01 DSM costs in 2010 were $1.917 million, which represented a unit rate of 0.2196 cents/m^3. In comparison, proposed Rate 01 DSM costs in 2012 are $4.547 million, which represents a unit rate of 0.5265 cents/m^3. The unit rate change in DSM from 2010 to 2012 is 0.3069 cents/m^3. For a typical Rate 01 residential customer consuming 2,600 m^3 per year, multiplying the unit rate change of 0.3069 cents/m3 by 2,600 m^3 results in a bill impact of $7.98.

As shown in Exhibit A, Schedule 1, total Rate M1 DSM costs in 2010 were $11.672 million, which represented a unit rate of 0.4221 cents/m^3. In comparison, proposed Rate M1 DSM costs in 2012 are $15.182 million, which represents a unit rate of 0.5728 cents/m^3. The unit rate change in DSM from 2010 to 2012 is 0.1507 cents/m^3. For a typical Rate M1 residential customer consuming 2,600 m^3 per year, multiplying the unit rate change of 0.1507 cents/m^3 by 2,600 m^3 results in a bill impact of $3.92.

Filed: 2011-12-16
EB-2011-0327
Exhibit B6.1

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Union states that this plan places "greater emphasis on deeper measures" (Exh. A, p. 5). Does the company have any empirical or numerical basis for this statement? If so please provide it.

Response:

The Deep Measure Summary table attached shows the greater emphasis on deep measures in Union's programs over the term of the Plan. Only the programs which fall in a scorecard with a deep measure metric have been listed. The Basic Measure Summary table attached shows the corresponding decreased emphasis on these measures over the term of the Plan.

Deep Measure Summary

Program	Deep Measures[1]						
	Actual Results				Plan 100% Target		
	2007	2008	2009	2010	2012	2013	2014
Low-income Program	0	0	75	134	740	875	920
Residential Program	15,210	8,407	14,246	0	175	310	310
Commercial/Industrial Program	2,790[2]	2,788	4,025	2,580	3,315	3,315	3,315

[1] As outlined in Exhibit A, Tables 4 and 6, and identified in the "Union Deep Measure" column set out in Exhibit A, Tab 1, Appendix H, Table 1.

[2] Distrbution Contract custom projects have been excluded from the participant summary for 2007 as the split between the Non-Rate T1/Rate 100 and Rate T1/Rate 100 rate classes is not available. In total 176 Custom projects were delivered to Distribution Contract customers in 2007.

Basic Measure Summary

Program	Measure	Actual Results				DSM Plan 100% Target		
		2007	2008	2009	2010	2012	2013	2014
Low-income Program	HHC - Bath Aerator	6,519	7,694	18,478	14,443	10,000	3,000	1,500
	HHC - Kitchen Aerator	6,363	7,694	18,478	14,508	10,000	3,000	1,500
	HHC - Pipe wrap	6,442	7,291	18,667	14,542	10,000	3,000	1,500
	HHC - Showerhead	7,338	7,888	20,061	14,384	10,000	3,000	1,500
	HHC - Programmable Thermostat	1,590	5,132	11,790	6,395	6,000	1,800	9,000
	HWC - Bath Aerator	0	0	0	0	5,000	2,500	1,000
	HWC - Kitchen Aerator	0	0	0	0	5,000	2,500	1,000
	HWC - Showerhead	0	0	0	0	10,000	5,000	2,000
Residential Program	Bath Aerator	67,919	96,752	83,054	71,991	56,000	54,000	50,000
	Kitchen Aerator	67,919	96,752	83,054	71,989	56,000	54,000	50,000
	Pipe Wrap	67,919	96,752	83,054	71,934	55,720	53,730	49,750
	Low Flow Showerhead	67,919	96,690	83,054	72,000	56,000	54,000	50,000
	Draft Proofing Kit	0	0	0	0	56,000	54,000	50,000
	Programmable Thermostat	22,762	9,296	17,460	8,878	6,000	5,500	5,000
Commercial/Industrial Prog	HWC - Bath Aerator	40,906	30,655	49,271	28,337	2,300	2,300	2,300
	HWC - Kitchen Aerator	34,376	22,118	40,471	21,317	1,000	1,000	1,000
	HWC - Showerhead	40,499	22,927	44,736	28,609	5,633	5,633	5,633
	Programmable Thermostat	830	3,307	9,320	3,911	0	0	0
	Pre-Rinse Spray Nozzle	906	3,349	1,987	333	0	0	0

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

With respect to Rate 100 and Rate T1 customers, has the Company ever supported the installation of end use efficiency measures among those customers who are characterized as power generators? If so, which measures, how often and with what level of savings? Please provide data for each of the past three years.

Response:

Yes, Union has supported end-use efficiency measures among its customers, characterized as Power Generators.

Measures have included:

a) Equipment upgrades such as; Heat Recovery Steam Generators & Gas Turbine Spray Inter-cooling Technology.

b) Operation & Maintenance measures such as; Steam Trap Repairs, Steam Leak Repairs, Insulation Upgrades, Turbine Improvements & Space Heating Upgrades.

Year	# of Projects	Lifetime m^3 - Saved
2008	3	11,579,527
2009	8	67,715,197
2010	14	80,552,793
3-Year Total	***25***	***159,847,517***

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 1.9

In its draft plan presented to stakeholders in August, Union proposed an evaluation budget of $1.393 million. That has been reduced to $0.969 million in the filed plan (Exh. A, p. 19).

a) Please explain the rationale for the reduction.

b) Where in the budget was the reduced $0.4 million reallocated? Please explain why.

Response:

a) In the August 11, 2011 presentation to stakeholders, the $1.393 million evaluation budget figure represented the total evaluation costs including those that could be directly attributed to a program, as well as evaluation salaries. Table 3 (Exh. A, p. 19) of the filed Plan is separated between Program Budget and Portfolio Budget. Where evaluation costs could be directly attributed to a program, the amount is included within the program in the Program Budget section. The remaining unallocated evaluation budget is listed in the Portfolio Budget section ($0.969 million). Furthermore, all evaluation salaries in Table 3 (Exh. A, p. 19) are listed within the Administration line. In the filed Plan, the total evaluation costs including those that could be directly attributed to a program, as well as evaluation salaries, amounts to $1.557 million. Union increased the evaluation budget from $1.393 to $1.557 to recognize the greater level of stakeholder engagement and new processes outlined in the Stakeholder Engagement Terms of Reference.

b) The total evaluation budget was increased by $0.164 million (see response to a) above.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Union appears to be defining efficiency treatments as "deep" if they involve measures whose savings will persist for a long time because they are not easily uninstalled (Exh A, p. 20, lines 13-15).

a) Is that an accurate summary of the Company's definition of "deep"?

b) Please explain why the Company equates long lived savings with deep savings?

c) Isn't the magnitude of savings in a building or facility (at least if expressed as a percent of baseline consumption) a better metric of "depth"? If not, why not?

d) Union appears to be suggesting that all custom commercial, industrial, agricultural and multi-family projects are treated as "deep" measures (Exh A, Tab1, Appendix H).

   i. Is that accurate?

   ii. Is a custom project counted as a single deep measure regardless of how many actual measures are implemented? Or if three measures are implemented as part of a custom project does that count as three deep measures?

   iii. Does the company expect to provide incentives for the implementation of operation and maintenance related energy improvements to T1/R100 customers. Does it expect to provide similar incentives for similar improvements to other customers as well (i.e. under its Resource Acquisition portfolio)? If so, would they count as a "deep" measure? If so, why, given that they would appear to be inconsistent with the Company's definition (i.e. they can be easily uninstalled or undone)?

Response:

a) Confirmed.

b) Long lived savings has been equated with deep savings in recognition of the definition included in the Board's Demand Side Management Guidelines for Natural Gas Utilities. The definition for the Board's guiding objective of the pursuit of deep energy savings stated: "Deep energy savings refer to measures that result in long-term savings, such as thermal envelope improvements (e.g., wall and attic insulation)."[1]

c) No. A metric based on percentage of baseline consumption would drive the utility to focus on only specific customers and segments with distinct consumption patterns where the process or equipment efficiency project will have a high impact relative to the baseline consumption. Union would not focus efforts on a customer with a more complex usage pattern and higher baseline consumption because the percentage of baseline consumption would be lower, even though the natural gas savings may be higher. In Table 1 below, Customer A represents a facility, such as a warehouse, where space heating is the main load. Customer B represents a complex industrial facility where base load dominates. In this scenario, Union would target Customer A as a change in the boiler would generate savings that would be a high percentage of baseline consumption. However, a boiler change in a complex industrial facility (Customer B) may generate greater savings but would result in a small percentage of baseline consumption. In this case, Union would be discouraged to target customer B in spite of the larger m^3 savings potential.

Table 1

	Customer	
	A	B
Savings (m^3/year)	10,000	50,000
Consumption (m^3/year)	1,000,000	10,000,000
Savings as a Percentage of Consupmtion	1.00%	0.50%

The definition employed by Union places equal emphasis on deep measures regardless of the customer type to maximize natural gas savings for all segments. It also recognizes the Board's definition of deep energy savings and supports the Board's guiding objective to prevent lost opportunities as it excludes discretionary low-cost retrofit measures.

[1] Ontario Energy Board. *Demand Side Management Guidelines for Natural Gas Utilities.*(EB-2008-0346). June 30, 2011. p.4.

d)

i. Confirmed.

ii. A custom project is counted as a single deep measure regardless of how many actual measures are implemented.

iii. Yes, the company will provide incentives for the implementation of operation and maintenance related energy improvements to Rate T1/Rate 100 customers.

Yes, the company expects to provide similar incentives for similar improvements to other customers as well (i.e. under its Resource Acquisition portfolio).

Yes, the company would count it as a "deep measure". O&M energy improvements typically involve a permanent physical repair or improvement to an existing piece of equipment and/or processes. Uninstalling, or undoing, the improvement is impractical and in most instances impossible as it would require a customer to damage their equipment and/or processes to re-create the initial state. Thus, an O&M energy improvement will continue to deliver savings until the end of its useful life which is consistent with Union's definition of a deep measure.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Regarding the lower bound savings target (i.e. the 50% target) for the Company's proposed resource acquisition scorecard:

a) What is the rationale for setting the target at 50% of the 100% target (Exh A, p.22)?

b) The Company notes that "for metrics unique to individual programs, such as 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" (Exh. A, p. 23). Why shouldn't portfolio-level resource acquisition targets also be based on the unique nature and objectives of the portfolio as a whole?

Response:

a) Union has applied the straightforward approach to setting the 50% target at 50% of the 100% target to reflect the utility's activity and effort. This is a reasonable methodology given the Guidelines outline that Union will not earn any utility incentive for achieving half of its weighted scorecard target and only after this point will Union begin to earn. In addition, the 50% target is established to maintain management attention and drive the aggressive pursuit of energy savings should Union not forecast achieving the 100% target due to the risks of changing input assumptions and/or market conditions.

b) While the resource acquisition scorecard *metrics* are based on the distinct guiding objectives of the Board for the portfolio as a whole, the *targets* reflect the consistent objective of all resource acquisition programs under the considerations noted in a) above. By definition, the common objective of all resource acquisition programs is to achieve direct, measurable savings customer-by-customer. In contrast, each Market Transformation program has distinct short, intermediate and long term goals which are unique to the program. Therefore, the Market Transformation targets required an assessment based on the objectives of the program and their current baseline in the market.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Regarding the Company's Large Industrial T1/Rate 100 DSM Scorecard metric on the percentage of customers participating (Sch. A, p. 26):

a) Are power generators included in the calculation (both numerator and denominator)?

b) The company appears to define a participant as a customer who receives an incentive. Does that mean that a customer who received staff training, other support for in-house energy teams and/or energy assessments and studies would not count?

Response:

a) Yes, power generators have been included in the calculation. They are included in both the numerator and the denominator.

b) Union Gas has proposed four program offerings for T1/R100 customers:

i. Customer Engagement
ii. Site Energy Assessments
iii. Process Improvement Studies
iv. Operation & Maintenance Optimization Incentives

Participation has been defined as a customer who participates in any of the four program offerings.

Thus, a customer who received staff training, other support for in-house energy teams and/or energy assessments and studies would count as participation. A customer (as Union has defined it) can only be counted once in the participation metric, regardless of how many times they participate in the offerings.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

With regard to the Integrated Energy Management Systems scorecard, are savings that the program might produce counted towards the Company's Resource Acquisition scorecards?

Response:

The savings from process improvements without capital investment would not be counted towards Union's Resource Acquisition scorecard. However, prescriptive or custom capital improvement project opportunities may be identified through the course of Union's involvement with an Integrated Energy Management Systems ("IEMS") program participant. To the extent Union's Commercial/Industrial program can translate these opportunities into program participants, the project will be counted towards Union's Resource Acquisition scorecard targets. The prescriptive or custom capital improvement projects will not be considered part of the results for IEMS for the purpose of measurement.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 1

Please reproduce Exh. A, Schedule 2 using total revenue instead of just distribution revenue. If forecast total revenue is not available, please use 2010 total revenue.

Response:

Please see the attachment.

UNION GAS LIMITED
DSM in Proposed 2012 Distribution Rates

Line No.	Particulars		Proposed Rates with DSM (1)	DSM-related Component (2)	Proposed Rates without DSM	DSM in Proposed Rates
			(a)	(b)	(c) = (a-b)	(d) = (b/a)
1	R01	Total Revenue ($000's)	313,658	4,188	309,471	
2		Volumes (10^3m^3)	863,695	863,695	863,695	
3		Average rate (cents / m^3)	36.3159	0.4849	35.8310	1.3%
4	R10	Total Revenue ($000's)	71,275	1,279	69,996	
5		Volumes (10^3m^3)	451,957	451,957	451,957	
6		Average rate (cents / m^3)	15.7704	0.2830	15.4874	1.8%
7	R20	Total Revenue ($000's)	18,411	968	17,444	
8		Volumes (10^3m^3)	519,357	519,357	519,357	
9		Average rate (cents / m^3)	3.5450	0.1863	3.3587	5.3%
10	R100	Total Revenue ($000's)	16,546	1,456	15,089	
11		Volumes (10^3m^3)	2,219,052	2,219,052	2,219,052	
12		Average rate (cents / m^3)	0.7456	0.0656	0.6800	8.8%
13	M1	Total Revenue ($000's)	793,602	13,058	780,544	
14		Volumes (10^3m^3)	2,650,399	2,650,399	2,650,399	
15		Average rate (cents / m^3)	29.9427	0.4927	29.4501	1.6%
16	M2	Total Revenue ($000's)	120,977	3,587	117,391	
17		Volumes (10^3m^3)	1,017,919	1,017,919	1,017,919	
18		Average rate (cents / m^3)	11.8848	0.3524	11.5324	3.0%
19	M4	Total Revenue ($000's)	15,411	1,356	14,055	
20		Volumes (10^3m^3)	462,743	462,743	462,743	
21		Average rate (cents / m^3)	3.3303	0.2930	3.0373	8.8%
22	M5A	Total Revenue ($000's)	11,295	1,430	9,866	
23		Volumes (10^3m^3)	369,224	369,224	369,224	
24		Average rate (cents / m^3)	3.0592	0.3872	2.6720	12.7%
25	M7	Total Revenue ($000's)	5,967	650	5,317	
26		Volumes (10^3m^3)	269,201	269,201	269,201	
27		Average rate (cents / m^3)	2.2167	0.2414	1.9752	10.9%
28	T1	Total Revenue ($000's)	56,243	2,984	53,259	
29		Volumes (10^3m^3)	4,794,769	4,794,769	4,794,769	
30		Average rate (cents / m^3)	1.1730	0.0622	1.1108	5.3%
31		Total DSM in 2012 Proposed Rates ($000's)		30,954		

Notes:

(1) EB-2011-0025, Rate Order, Working Papers, Schedule 5, column (g), including 2012 forecast Gas Supply revenue.

(2) EB-2011-0327, Exhibit A, Schedule 1, column (h).
Excludes DSM Incentive amounts as these are managed through annual deferral dispositions.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 1

Regarding Exh. A, Schedule 2: do the changes in revenues adjust for any savings in distribution expenditures that might be realized from efficiency programs (e.g. reductions in investments in storage or other capital investments)?

Response:

No, the changes in revenue do not adjust for any savings in distribution expenditures that might be realized from efficiency programs. The 2012 distribution revenue shown at Exhibit A, Schedule 2 is based on Union's 2007 Board-approved costs and rates, and is subject to approved rate adjustments related to Union's 2008-2012 Incentive Regulation framework. The 2012 gas supply revenue forecast represents the revenue associated with the sale of gas to sales service customers.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 1

Has the Company analyzed the potential impacts of system level efficiency savings on the price it pays and/or its customers pay for gas? If so, please provide the analysis.

Response:

No, Union has not analyzed potential impacts of system level efficiency savings on the price it pays as the price of commodity is not impacted by system level efficiency savings.

While the efficiencies realized through DSM initiatives will affect the volume of gas purchases for system customers, the price Union pays for gas is based on the market index.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Regarding Exh A, tab 1, Appendix H, how will the company determine the baseline efficiency of a low income furnace (i.e. to know whether an early replacement is removing a 60% AFUE unit, a 70% AFUE unit or something else)?

Response:

Union will work with their delivery agents to train them on how to identify these two types of furnaces based on the following distinctive indicators:

i. 60%-efficiency furnaces are Gravity Furnaces and have no mechanical means of distributing the heated air. They are easily identifiable by their large heated air supply piping and often referred to as an "Octopus" furnace due to their distinctive look.

ii. 70%-efficiency furnaces often have efficiency ratings listed on the nameplate or another part of the unit. Also, these furnaces have conventional electric motors to distribute the heated air throughout the house, quite distinct from their 60%-efficiency predecessors.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Please provide copies of the detailed (i.e. showing measure level participation, savings, costs, measure lives and free rider rates for each prescriptive measure and savings, costs, weighted average measure life and free rider rate for each custom project) Excel spreadsheets which the Company has used to compute post-Audit, LRAM case, TRC net benefits from its DSM program portfolios in 2008, 2009 and 2010. Provide separately for each year. Names of individual customers receiving custom projects should be redacted. If not already in the spreadsheets, please add a column that shows lifetime m3 savings by measure and custom project.

Response:

Union will provide the Excel spreadsheet separately and will also file it through the Board's RESS. The spreadsheet shows the detailed post-Audit, LRAM case, TRC net benefits from 2008, 2009 and 2010. Within these spreadsheets are the measure level participants/units, savings, costs, free rider rates and effective useful lives for all prescriptive and custom projects. Please note that for custom projects, actual effective useful lives were used instead of a weighted average for each project. Actual effective useful lives are tracked in Union's DSM database.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Please provide a copy of the most detailed bottom up analysis that the Company has conducted to estimate how it will achieve its 2012 Resource Acquisition savings target (i.e. 558,041,000 m3), its Resource Acquisition deep measure target (i.e.3490) and its T1/R100 savings target (i.e. 200,000,000 m3). The analysis should, among other things, show:

a) For each prescriptive measure:

   i. Per unit annual savings
   ii. Measure life
   iii. Per unit lifetime savings
   iv. Number of forecast participants
   v. Free rider rate
   vi. Per unit rebate

b) For custom measures:

   i. Number of forecast participants by sector (or more refined levels of disaggregation if available)
   ii. Average annual savings per participants
   iii. Average measure life
   iv. Average lifetime savings
   v. Free rider rate
   vi. Average rebate per project

c) Calculations underlying the Company's cost-effectiveness analysis for each measure, program and portfolio.

Response:

a) Resource Acquisition

Please see Attachment 1 for the bottom up analysis of how the company will achieve its 2012 100% Resource Acquisition savings target (558,041,000 m3) and 2012 100% Resource Acquisition Deep Measure target (3490).

For the planning input assumptions used for prescriptive and quasi-prescriptive measures, please see Appendix H of the application (Union and Enbridge Input Assumptions). For the average capacity sizes used for quasi-prescriptive measures, see the notes below the table. The 2012 New Measure cumulative natural gas savings was used as a target-stretch to account for new measures Union will be able to offer in the future. The commercial custom and industrial custom cumulative natural gas savings target was determined by taking an average of the results from 2008, 2009, and 2010 (see tables below).

T1/R100

Please see the table below for the analysis of how the company will achieve its 2012 100% Large Industrial Rate T1 and Rate R100 savings target (500,000,000 m3). Average net cumulative natural gas savings per project based on results from 2008, 2009, 2010, and 2011 YTD (excluding capital projects). The average rebate per project is $19,518.

Project Type	**2012 Forecasted Projects**	**Average Net Annual Natural Gas Savings per Unit (m3) Per Project**	**Average Net Cumulative Natural Gas Savings (m3) per Project**	**Total Net Cumulative Natural Gas Savings (m3)**	**Measure Life**	**Free Rider**
Combustion Optimization	4	1,366,501	1,366,501	5,466,004	1	54%
Condensate Return	1	213,051	4,261,023	4,261,023	20	54%
Economizer Repair	1	133,634	1,336,337	1,336,337	10	54%
Heat Exchanger	4	1,188,611	10,697,495	42,789,982	9	54%
Insulation	8	127,553	2,551,060	20,408,479	20	54%
Steam Leak Repairs	7	900,043	18,000,856	126,005,994	20	54%
Steam Reduction	2	814,749	16,294,978	32,589,956	20	54%
Steam Trap Repairs	13	731,831	5,122,814	66,596,579	7	54%
Other	14	543,303	7,606,237	106,487,314	14	54%
Stretch				94,058,332		
Total				**500,000,000**		

b) See response to a)

c) Please see Attachments 2-5 for the cost-effectiveness analysis for the Commercial/Industrial program, the Low-Income Program, the Residential Program, and Large Industrial Rate T1 and Rate R100 program. Included in the program cost-effectiveness analysis is each measure's cost-effectiveness analysis. Please see Attachment 6 for the portfolio cost-effectiveness analysis.

Program	New Build/Retrofit	Measure	Forecasted Participants	Forecasted Deep Measure Count	Net Annual Natural Gas Savings per Unit (m3)	Net Cumulative Natural Gas Savings per Unit (m3)	Total Net Cumulative Natural Gas Savings (m3)	Measure Life	Free Rider	Customer Rebate per Unit
Commercial/Industrial	**Retrofit**	Air Curtains - Double Door	5	5	1,453	21,788	108,941	15	5%	$ 1,000
Commercial/Industrial	**Retrofit**	Air Curtains - Single Door	5	5	634	9,505	47,524	15	5%	$ 500
Commercial/Industrial	**Retrofit**	Building Optimization	30	30	N/A	N/A	N/A	N/A	N/A	N/A
Commercial/Industrial	**New Build/Retrofit**	CEE Tier 2 Front-Loading Clothes Washer (Multi Family)	1,000	1,000	105	1,158	1,158,300	11	10%	$ 100
Commercial/Industrial	**New Build/Retrofit**	Commercial Custom	100	100	N/A	826,779	82,677,940	N/A	N/A	N/A
Commercial/Industrial	**New Build**	Condensing Boiler - Space Heating 300 to 999 MBtu/h	35	35	5,276	131,912	4,616,905	25	5%	$ 2,000
Commercial/Industrial	**Retrofit**	Condensing Boiler - Space Heating 300 to 999 MBtu/h	120	120	5,424	135,598	16,271,738	25	5%	$ 2,000
Commercial/Industrial	**New Build**	Condensing Boiler - Space Heating over 1,000 Mbtu/h	35	35	15,742	393,561	13,774,623	25	5%	$ 5,000
Commercial/Industrial	**Retrofit**	Condensing Boiler - Space Heating over 1,000 Mbtu/h	55	55	14,540	363,512	19,993,140	25	5%	$ 5,000
Commercial/Industrial	**New Build**	Condensing Boiler - Space Heating up to 299 MBtu/h	65	65	2,031	50,787	3,301,155	25	5%	$ 500
Commercial/Industrial	**Retrofit**	Condensing Boiler - Space Heating up to 299 MBtu/h	140	140	1,902	47,554	6,657,499	25	5%	$ 500
Commercial/Industrial	**New Build/Retrofit**	Condensing Gas Water Heater (1,000gal/day) - Purchase	15	15	1,473	19,155	287,323	13	5%	$ 500
Commercial/Industrial	**New Build/Retrofit**	Condensing Gas Water Heater (100gal/day)	15	15	315	4,100	61,503	13	5%	$ 300
Commercial/Industrial	**New Build/Retrofit**	Condensing Gas Water Heater (500gal/day)	15	15	829	10,782	161,723	13	5%	$ 400
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) All other Commercial Efficiency + 2 speed > 6000 cfm	1	1	10,264	153,963	153,963	15	5%	$ 2,000
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) All other Commercial Efficiency + 2 speed 1700 - 5999 cfm	1	1	4,370	65,550	65,550	15	5%	$ 800
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) All other Commercial Efficiency + VFDs > 6000 cfm	1	1	17,005	255,075	255,075	15	5%	$ 2,800
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) All other Commercial Efficiency + VFDs 1700 - 5999 cfm	1	1	7,315	109,725	109,725	15	5%	$ 1,200
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + 2 speed > 6000 cfm	1	1	15,960	239,400	239,400	15	5%	$ 2,800
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + 2 speed 1700 - 5999 cfm	1	1	6,935	104,025	104,025	15	5%	$ 1,200
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + VFDs 1700 - 5999 cfm	1	1	10,450	156,750	156,750	15	5%	$ 2,000
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + VFDs> 6000 cfm	1	1	24,035	360,525	360,525	15	5%	$ 4,800
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency > 6000 cfm	1	1	6,935	104,025	104,025	15	5%	$ 2,000
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency 1700 - 2999 cfm	1	1	1,805	27,075	27,075	15	5%	$ 400
Commercial/Industrial	**New Build**	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency 3000 - 5999 cfm	1	1	3,705	55,575	55,575	15	5%	$ 800
Commercial/Industrial	**New Build/Retrofit**	Condensing Unit Heater	5	5	1,155	20,785	103,926	18	0%	$ 500
Commercial/Industrial	**New Build/Retrofit**	DCKV Dinner House (10000 - 15000 cfm)	1	1	17,978	269,667	269,667	15	5%	$ 3,000
Commercial/Industrial	**New Build/Retrofit**	DCKV Fast Casual (< 5000 cfm)	2	2	4,561	68,414	136,829	15	5%	$ 1,500
Commercial/Industrial	**New Build/Retrofit**	DCKV Full Menu (5000 - 9999 cfm)	12	12	10,912	163,676	1,964,106	15	5%	$ 3,000
Commercial/Industrial	**New Build**	Destratification Fan	10	10	5,890	88,351	883,508	15	10%	$ 1,200
Commercial/Industrial	**Retrofit**	Destratification Fan	20	20	12,039	180,583	3,611,655	15	10%	$ 1,200
Commercial/Industrial	**New Build**	DWHR - Ent - Arena	1	1	4,492	112,290	112,290	25	5%	$ 2,000
Commercial/Industrial	**Retrofit**	DWHR - Ent - Arena	1	1	4,492	112,290	112,290	25	5%	$ 2,000
Commercial/Industrial	**New Build**	DWHR - Hospital - Dishwashing	1	1	1,699	42,465	42,465	25	5%	$ 1,000
Commercial/Industrial	**Retrofit**	DWHR - Hospital - Dishwashing	1	1	4,388	109,701	109,701	25	5%	$ 1,500
Commercial/Industrial	**New Build**	DWHR - Hospital - Laundry	1	1	41,757	1,043,931	1,043,931	25	5%	$ 8,000
Commercial/Industrial	**New Build**	DWHR - Laundromat	1	1	47,248	1,181,206	1,181,206	25	5%	$ 8,000
Commercial/Industrial	**Retrofit**	DWHR - Laundromat	1	1	47,248	1,181,206	1,181,206	25	5%	$ 8,000
Commercial/Industrial	**New Build**	DWHR - Nursing Home - Dishwashing	1	1	1,220	30,495	30,495	25	5%	$ 1,000
Commercial/Industrial	**New Build**	DWHR - University/College Cafeterias - Dishwashing	1	1	2,268	56,701	56,701	25	5%	$ 1,000
Commercial/Industrial	**Retrofit**	DWHR - University/College Cafeterias - Dishwashing	1	1	5,719	142,985	142,985	25	5%	$ 1,000
Commercial/Industrial	**New Build/Retrofit**	Energy Star Convection Ovens - Full Size	10	10	678	8,131	81,312	12	20%	$ 200
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Rack Conveyor - Multi Tank - High Temperature - Purchase	5	5	2,707	54,137	270,684	20	27%	$ 400
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Rack Conveyor - Multi Tank - High Temperature - Rental	5	5	1,409	28,181	140,904	20	62%	$ 400
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Rack Conveyor - Single Tank - High Temperature - Purchase	30	30	1,608	32,164	964,914	20	27%	$ 400
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Rack Conveyor - Single Tank - High Temperature - Rental	5	5	837	16,743	83,714	20	62%	$ 400
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Stationary Rack - High Temperature - Purchase	5	5	495	7,428	37,140	15	20%	$ 100
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Stationary Rack - High Temperature - Rental	5	5	235	3,528	17,642	15	62%	$ 100
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Stationary Rack - Low Temperature - Purchase	30	30	673	10,092	302,760	15	20%	$ 100
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Stationary Rack - Low Temperature -Rental	5	5	320	4,794	23,969	15	62%	$ 100
Commercial/Industrial	**New Build/Retrofit**	Energy Star Dishwasher - Undercounter - Low Temperature - Purchase	50	50	196	1,956	97,800	10	40%	$ 100
Commercial/Industrial	**New Build/Retrofit**	Energy Star Fryer	200	200	866	10,397	2,079,360	12	20%	$ 200
Commercial/Industrial	**New Build**	Energy Star Steam Cookers	10	10	2,579	25,792	257,920	10	20%	$ 400
Commercial/Industrial	**New Build**	ERV 1 - up to 1000CFM - Multi Family, Health Care, Nursing	20	20	3,733	52,261	1,045,212	14	5%	$ 500
Commercial/Industrial	**Retrofit**	ERV 1 - up to 1000CFM - Multi Family, Health Care, Nursing	20	20	3,064	42,896	857,914	14	5%	$ 500
Commercial/Industrial	**New Build**	ERV 2 - over 1000CFM - Multi Family, Health Care, Nursing	10	10	13,123	183,718	1,837,180	14	5%	$ 2,000
Commercial/Industrial	**Retrofit**	ERV 2 - over 1000CFM - Multi Family, Health Care, Nursing	15	15	16,099	225,386	3,380,783	14	5%	$ 2,000
Commercial/Industrial	**New Build**	ERV 3 - up to 2000CFM - Hotel, Restaurant, Retail	15	15	2,806	39,278	589,163	14	5%	$ 700
Commercial/Industrial	**Retrofit**	ERV 3 - up to 2000CFM - Hotel, Restaurant, Retail	15	15	2,813	39,387	590,799	14	5%	$ 700
Commercial/Industrial	**New Build**	ERV 4 - over 2000CFM - Hotel, Restaurant, Retail	15	15	10,429	146,010	2,190,151	14	5%	$ 2,000
Commercial/Industrial	**Retrofit**	ERV 4 - over 2000CFM - Hotel, Restaurant, Retail	10	10	8,156	114,181	1,141,805	14	5%	$ 2,000
Commercial/Industrial	**New Build**	ERV 5 - up to 2000CFM - Office, Warehouse, School	20	20	2,434	34,081	681,625	14	5%	$ 700
Commercial/Industrial	**Retrofit**	ERV 5 - up to 2000CFM - Office, Warehouse, School	20	20	1,771	24,792	495,832	14	5%	$ 700
Commercial/Industrial	**New Build**	ERV 6 - over 2000CFM - Office, Warehouse, School	20	20	6,715	94,010	1,880,194	14	5%	$ 2,000
Commercial/Industrial	**Retrofit**	ERV 6 - over 2000CFM - Office, Warehouse, School	20	20	8,087	113,222	2,264,434	14	5%	$ 2,000
Commercial/Industrial	**New Build**	High Efficiency Under-Fired Broilers	4	4	1,342	16,099	64,397	12	20%	$ 300
Commercial/Industrial	**New Build**	HRV >2,000cfm-Hotel, Restaurant, Retail, Rec	10	10	4,524	63,340	633,397	14	5%	$ 1,000
Commercial/Industrial	**Retrofit**	HRV >2,000cfm-Hotel, Restaurant, Retail, Rec	10	10	4,961	69,461	694,607	14	5%	$ 1,000
Commercial/Industrial	**Retrofit**	HRV ≥2,000cfm-School,Office, Warehouse, Man	10	10	3,175	44,444	444,442	14	5%	$ 600
Commercial/Industrial	**New Build**	HRV 500 to 2,000cfm-Hotel, Restaurant, Retail, Rec	20	20	2,261	31,654	633,080	14	5%	$ 600
Commercial/Industrial	**Retrofit**	HRV 500 to 2,000cfm-Hotel, Restaurant, Retail, Rec	10	10	1,927	26,972	269,720	14	5%	$ 600
Commercial/Industrial	**New Build**	HRV Multi Family, Health Care, Nursing	10	10	2,936	41,099	410,991	14	5%	$ 600
Commercial/Industrial	**Retrofit**	HRV Multi Family, Health Care, Nursing	10	10	2,648	37,068	370,684	14	5%	$ 600
Commercial/Industrial	**Retrofit**	HWC - Faucet Aerator - Bath - 1.0gpm (Multi Family)	2,300		2	19	42,992	10	10%	Free Product + $3
Commercial/Industrial	**Retrofit**	HWC - Faucet Aerator - Kitchen 1.5gpm (Multi Family)	1,000		6	59	58,889	10	10%	Free Product + $3
Commercial/Industrial	**Retrofit**	HWC - Showerhead - 1.25gpm (Multi Family)	4,300		20	202	866,880	10	10%	Free Product + $3

Program	New Build/Retrofit	Measure	Forecasted Participants	Forecasted Deep Measure Count	Net Annual Natural Gas Savings per Unit (m3)	Net Cumulative Natural Gas Savings per Unit (m3)	Total Net Cumulative Natural Gas Savings (m3)	Measure Life	Free Rider	Customer Rebate per Unit
Commercial/Industrial	**Retrofit**	HWC - Showerhead - 1.25gpm replacing existing 2.0gpm (Multi Family)	1,333		15	151	201,550	10	10%	Free Product + $3
Commercial/Industrial	**New Build/Retrofit**	Industrial Custom	90	90	N/A	3,572,572	321,531,520	N/A	N/A	N/A
Commercial/Industrial	**New Build**	Infrared Heating - 101 to 300 MBtu/hr	225	225	1,668	33,365	7,507,169	20	33%	$ 400
Commercial/Industrial	**Retrofit**	Infrared Heating - 101 to 300 MBtu/hr	100	100	1,670	33,409	3,340,909	20	33%	$ 400
Commercial/Industrial	**New Build**	Infrared Heating - 20 to 100 MBtu/hr	150	150	936	18,715	2,807,279	20	33%	$ 200
Commercial/Industrial	**Retrofit**	Infrared Heating - 20 to 100 MBtu/hr	150	150	836	16,724	2,508,558	20	33%	$ 200
Commercial/Industrial	**New Build/Retrofit**	Laundry Washing Equipment with Ozone - <= 120 lbs & >= 200,000 lbs/yr	20	20	6,035	90,528	1,810,560	15	8%	$ 1,800
Commercial/Industrial	**New Build/Retrofit**	Laundry Washing Equipment with Ozone - > 120 lbs & 1,000,000 lbs/yr	1	1	30,176	452,640	452,640	15	8%	$ 5,000
Commercial/Industrial	**New Build/Retrofit**	Laundry Washing Equipment with Ozone - > 120 lbs & 260,000 - 1,000,000 lbs/yr	5	5	19,011	285,163	1,425,816	15	8%	$ 4,000
Commercial/Industrial	**New Build/Retrofit**	New Measure 2012	220	220	N/A	N/A	2,103,770	N/A	N/A	N/A
Commercial/Industrial	**Retrofit**	Prescriptive Schools - Elementary (hydronic boilers with 83%+)	2	2	7,906	197,648	395,295	25	27%	$ 3,000
Commercial/Industrial	**Retrofit**	Prescriptive Schools - Secondary (hydronic boilers with 83%+)	2	2	32,017	800,427	1,600,854	25	27%	$ 3,000
Residential	**New Build**	NHC - Faucet Aerator - Bath - 1.0gpm	280		5	54	15,196	10	33%	Free Product
Residential	**New Build**	NHC - Faucet Aerator - Kitchen - 1.5gpm	280		10	103	28,872	10	33%	Free Product
Residential	**New Build**	NHC - Showerhead - 1.25gpm	280		32	321	89,813	10	10%	Free Product
Residential	**Retrofit**	Install - Faucet Aerator - Bath - 1.0gpm	1,705		2	23	38,963	10	33%	Free Product
Residential	**Retrofit**	Install - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm	255		1	10	2,501	10	33%	Free Product
Residential	**Retrofit**	Install - Faucet Aerator - Kitchen - 1.5gpm	1,960		6	63	123,518	10	33%	Free Product
Residential	**Retrofit**	Install - Pipe Insulation - 2m	1,960		14	140	274,337	10	4%	Free Product
Residential	**Retrofit**	Install - Showerhead - 1.25gpm	1,705		26	257	437,723	10	10%	Free Product
Residential	**Retrofit**	Install - Showerhead - 1.25gpm replacing existing 2.0 gpm	255		21	207	52,689	10	10%	Free Product
Residential	**Retrofit**	Pull - Faucet Aerator - Bath - 1.0gpm	29,232		3	28	804,280	10	33%	Free Product
Residential	**Retrofit**	Pull - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm	4,368		1	12	51,633	10	33%	Free Product
Residential	**Retrofit**	Pull - Faucet Aerator - Kitchen - 1.5gpm	33,600		7	71	2,391,879	10	33%	Free Product
Residential	**Retrofit**	Pull - Pipe Insulation - 2m	33,600		8	77	2,577,246	10	4%	Free Product
Residential	**Retrofit**	Pull - Showerhead - 1.25gpm	29,232		19	187	5,478,686	10	10%	Free Product
Residential	**Retrofit**	Pull - Showerhead - 1.25gpm replacing existing 2.0 gpm	4,368		15	151	659,471	10	10%	Free Product
Residential	**Retrofit**	Push - Faucet Aerator - Bath - 1.0gpm	17,539		2	21	360,685	10	33%	Free Product
Residential	**Retrofit**	Push - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm	2,621		1	9	23,155	10	33%	Free Product
Residential	**Retrofit**	Push - Faucet Aerator - Kitchen - 1.5gpm	20,160		6	57	1,143,426	10	33%	Free Product
Residential	**Retrofit**	Push - Pipe Insulation - 2m	20,160		7	74	1,483,432	10	4%	Free Product
Residential	**Retrofit**	Push - Showerhead - 1.25gpm	17,539		13	132	2,306,843	10	10%	Free Product
Residential	**Retrofit**	Push - Showerhead - 1.25gpm replacing existing 2.0 gpm	2,621		11	106	277,676	10	10%	Free Product
Residential	**Retrofit**	Thermostat - Programmable	6,000		30	453	2,718,900	15	43%	$25 on bill rebate
Residential	**Retrofit**	Attic Insulation	88	88	70	1,407	123,816	20	33%	50% of insulation and labor costs up to a max. of $300
Residential	**Retrofit**	Basement Wall Insulation	87	87	175	4,372	380,342	25	33%	50% of insulation and labor costs up to a max. of $825
Residential	**Retrofit**	Draft Proofing Kit	56,000		53	53	2,973,600	1	55%	Free Product
				3,490			**558,040,853**			

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
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
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
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
Condensing Boiler - up to 299 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 198,000
Condensing Boiler - up to 299 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 185,394
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
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
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
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
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
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
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
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
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
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
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
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 (weighted average of sales between 125 and 225
Destratification Fan measure is quasi-prescriptive. Savings are based on an average capacity of 13,089 sqrft from 2010 year results
Destratification Fan measure is quasi-prescriptive. Savings are based on an average capacity of 26,753 sqr.ft from 2010 year results
DWHR - Ent - Arena measure is quasi-prescriptive. Savings are based on an average capacity of 12 showerheads from marketing forecast
DWHR - Ent - Arena measure is quasi-prescriptive. Savings are based on an average capacity of 12 showerheads from marketing forecast
DWHR - Hospital - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
DWHR - Hospital - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
DWHR - Hospital - Laundry measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
DWHR - Nursing Home - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 107 beds from marketing forecast
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
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
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
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
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
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
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
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
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
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

Program	New Build/Retrofit	Measure	Forecasted Participants	Forecasted Deep Measure Count	Net Annual Natural Gas Savings per Unit (m3)	Net Cumulative Natural Gas Savings per Unit (m3)	Total Net Cumulative Natural Gas Savings (m3)	Measure Life	Free Rider	Customer Rebate per Unit
		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								
		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								
		ERV 6 - over 2000CFM - Office, Warehouse, School is quasi-prescriptive. Savings are based on an average capacity of 3,448 from 2010 year results								
		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								
		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								
		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								
		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								
		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								
		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								
		HRV Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 722 CFM from 2010 year results								
		HRV Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 593 CFM from 2010 year results								
		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								
		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								
		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								
		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								
		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)								
		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)								
		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)								

	Measure	Participants	TRC Benefits per Unit	TRC Costs per Unit	Net TRC per Unit	Total TRC Benefits	Total TRC Costs	Total Net TRC Before Program Costs	TRC Ratio	Measure Life	Energy Load	Free Rider Rate	Adjustment Factor	Annual Natural Gas Savings	Annual Water Savings	Annual Electricity Savings	Incremental Cost
Retrofit	Air Curtains - Double Door	5	$ 4,950	$ 2,375	$ 2,575	$ 24,748	$ 11,875	$ 12,873	2.1	15	weather	5%	100%	1,529		1,023	$ 2,500
Retrofit	Air Curtains - Single Door	5	$ 1,924	$ 1,568	$ 357	$ 9,620	$ 7,838	$ 1,783	1.2	15	weather	5%	100%	667		172	$ 1,650
Retrofit	Building Optimization [55]	30	N/A	N/A	N/A	N/A	N/A	N/A									
New Build/Retrofit	CEE Tier 2 Front-Loading Clothes Washer (Multi Family)	1,000	$ 1,301	$ 540	$ 761	$ 1,300,674	$ 540,000	$ 760,674	2.4	11	baseload	10%	100%	117	58,121	396	$ 600
New Build/Retrofit	Commercial Custom [56]	100	$ 153,756	35,642.14	$ 118,114	$ 15,375,615	$ 3,564,214	$ 11,811,400	4.3								
New Build	Condensing Boiler - Space Heating 300 to 999 MBtu/h [1]	35	$ 19,563	$ 6,088	$ 13,474	$ 684,688	$ 213,088	$ 471,600	3.2	25	weather	5%	100%	5,554			$ 6,409
Retrofit	Condensing Boiler - Space Heating 300 to 999 MBtu/h [2]	120	$ 20,109	$ 6,258	$ 13,851	$ 2,413,101	$ 751,003	$ 1,662,098	3.2	25	weather	5%	100%	5,709			$ 6,588
New Build	Condensing Boiler - Space Heating over 1,000 Mbtu/h [3]	35	$ 58,365	$ 18,164	$ 40,201	$ 2,042,778	$ 635,752	$ 1,407,027	3.2	25	weather	5%	100%	16,571			$ 19,120
Retrofit	Condensing Boiler - Space Heating over 1,000 Mbtu/h [4]	55	$ 53,909	$ 16,777	$ 37,131	$ 2,964,985	$ 922,760	$ 2,042,225	3.2	25	weather	5%	100%	15,306			$ 17,660
New Build	Condensing Boiler - Space Heating up to 299 MBtu/h [5]	65	$ 7,532	$ 2,293	$ 5,238	$ 489,562	$ 149,065	$ 340,497	3.3	25	weather	5%	100%	2,138			$ 2,414
Retrofit	Condensing Boiler - Space Heating up to 299 MBtu/h [6]	140	$ 7,052	$ 2,835	$ 4,217	$ 987,308	$ 396,872	$ 590,436	2.5	25	weather	5%	100%	2,002			$ 2,984
New Build/Retrofit	Condensing Gas Water Heater (1,000gal/day) - Purchase	15	$ 3,718	$ 2,119	$ 1,600	$ 55,773	$ 31,778	$ 23,996	1.8	13	baseload	5%	100%	1,551			$ 2,230
New Build/Retrofit	Condensing Gas Water Heater (100gal/day)	15	$ 796	$ 2,119	-$ 1,323	$ 11,939	$ 31,778	-$ 19,839	0.4	13	baseload	5%	100%	332			$ 2,230
New Build/Retrofit	Condensing Gas Water Heater (500gal/day)	15	$ 2,093	$ 2,119	-$ 26	$ 31,393	$ 31,778	-$ 385	1.0	13	baseload	5%	100%	873			$ 2,230
New Build	Condensing Rooftop Units (MUA) All other Commercial Efficiency + 2 speed > 6000 cfm [7]	1	$ 31,001	$ 9,120	$ 21,881	$ 31,001	$ 9,120	$ 21,881	3.4	15	weather	5%	100%	10,804		2,593	$ 9,600
New Build	Condensing Rooftop Units (MUA) All other Commercial Efficiency + 2 speed 1700 - 5999 cfm [8]	1	$ 13,199	$ 4,357	$ 8,841	$ 13,199	$ 4,357	$ 8,841	3.0	15	weather	5%	100%	4,600		1,104	$ 4,587
New Build	Condensing Rooftop Units (MUA) All other Commercial Efficiency + VFDs > 6000 cfm [9]	1	$ 51,235	$ 9,206	$ 42,030	$ 51,235	$ 9,206	$ 42,030	5.6	15	weather	5%	100%	17,900		4,151	$ 9,690
New Build	Condensing Rooftop Units (MUA) All other Commercial Efficiency + VFDs 1700 - 5999 cfm [10]	1	$ 22,040	$ 4,431	$ 17,609	$ 22,040	$ 4,431	$ 17,609	5.0	15	weather	5%	100%	7,700		1,786	$ 4,664
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + 2 speed > 6000 cfm [11]	1	$ 48,756	$ 9,136	$ 39,621	$ 48,756	$ 9,136	$ 39,621	5.3	15	weather	5%	100%	16,800		4,676	$ 9,616
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + 2 speed 1700 - 5999 cfm [12]	1	$ 21,186	$ 4,437	$ 16,749	$ 21,186	$ 4,437	$ 16,749	4.8	15	weather	5%	100%	7,300		2,032	$ 4,671
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + VFDs 1700 - 5999 cfm [13]	1	$ 34,079	$ 4,477	$ 29,602	$ 34,079	$ 4,477	$ 29,602	7.6	15	weather	5%	100%	11,000		5,575	$ 4,712
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Efficiency + VFDs> 6000 cfm [14]	1	$ 78,381	$ 9,222	$ 69,159	$ 78,381	$ 9,222	$ 69,159	8.5	15	weather	5%	100%	25,300		12,823	$ 9,708
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency > 6000 cfm [15]	1	$ 19,443	$ 6,275	$ 13,168	$ 19,443	$ 6,275	$ 13,168	3.1	15	weather	5%	100%	7,300			$ 6,606
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency 1700 - 2999 cfm [16]	1	$ 5,061	$ 2,245	$ 2,816	$ 5,061	$ 2,245	$ 2,816	2.3	15	weather	5%	100%	1,900			$ 2,363
New Build	Condensing Rooftop Units (MUA) Multifamily & Healthcare Improved efficiency 3000 - 5999 cfm [17]	1	$ 10,388	$ 3,738	$ 6,650	$ 10,388	$ 3,738	$ 6,650	2.8	15	weather	5%	100%	3,900			$ 3,934
New Build/Retrofit	Condensing Unit Heater [18]	5	$ 3,272	$ 2,361	$ 912	$ 16,362	$ 11,804	$ 4,559	1.4	18	weather	0%	100%	1,155		- 340	$ 2,361
New Build/Retrofit	DCKV Dinner House (10000 - 15000 cfm)	1	$ 92,507	$ 19,000	$ 73,507	$ 92,507	$ 19,000	$ 73,507	4.9	15	weather	5%	100%	18,924		49,102	$ 20,000
New Build/Retrofit	DCKV Fast Casual (< 5000 cfm)	2	$ 24,381	$ 9,500	$ 14,881	$ 48,762	$ 19,000	$ 29,762	2.6	15	weather	5%	100%	4,801		13,521	$ 10,000
New Build/Retrofit	DCKV Full Menu (5000 - 9999 cfm)	12	$ 57,089	$ 14,250	$ 42,839	$ 685,068	$ 171,000	$ 514,068	4.0	15	weather	5%	100%	11,486		30,901	$ 15,000
New Build	Destratification Fan [19]	10	$ 16,478	$ 6,319	$ 10,159	$ 164,776	$ 63,189	$ 101,587	2.6	15	weather	10%	100%	6,545		- 45	$ 7,021
Retrofit	Destratification Fan [20]	20	$ 33,679	$ 6,319	$ 27,360	$ 673,580	$ 126,378	$ 547,202	5.3	15	weather	10%	100%	13,377		- 91	$ 7,021
New Build	DWHR - Ent - Arena [21]	1	$ 16,485	$ 8,846	$ 7,638	$ 16,485	$ 8,846	$ 7,638	1.9	25	baseload	5%	100%	4,728			$ 9,312
Retrofit	DWHR - Ent - Arena [22]	1	$ 16,485	$ 13,783	$ 2,702	$ 16,485	$ 13,783	$ 2,702	1.2	25	baseload	5%	100%	4,728			$ 14,508
New Build	DWHR - Hospital - Dishwashing [23]	1	$ 6,234	$ 1,682	$ 4,552	$ 6,234	$ 1,682	$ 4,552	3.7	25	baseload	5%	100%	1,788			$ 1,770
Retrofit	DWHR - Hospital - Dishwashing [24]	1	$ 16,105	$ 2,575	$ 13,530	$ 16,105	$ 2,575	$ 13,530	6.3	25	baseload	5%	100%	4,619			$ 2,710
New Build	DWHR - Hospital - Laundry [25]	1	$ 153,255	$ 35,388	$ 117,868	$ 153,255	$ 35,388	$ 117,868	4.3	25	baseload	5%	100%	43,955			$ 37,250
New Build	DWHR - Laundromat	1	$ 173,408	$ 35,350	$ 138,057	$ 173,408	$ 35,350	$ 138,057	4.9	25	baseload	5%	100%	49,735			$ 37,211
Retrofit	DWHR - Laundromat	1	$ 173,408	$ 38,770	$ 134,637	$ 173,408	$ 38,770	$ 134,637	4.5	25	baseload	5%	100%	49,735			$ 40,811
New Build	DWHR - Nursing Home - Dishwashing [26]	1	$ 4,477	$ 1,681	$ 2,796	$ 4,477	$ 1,681	$ 2,796	2.7	25	baseload	5%	100%	1,284			$ 1,770
New Build	DWHR - University/College Cafeterias - Dishwashing [27]	1	$ 8,324	$ 1,681	$ 6,643	$ 8,324	$ 1,681	$ 6,643	5.0	25	baseload	5%	100%	2,387			$ 1,770
Retrofit	DWHR - University/College Cafeterias - Dishwashing [28]	1	$ 20,991	$ 3,086	$ 17,904	$ 20,991	$ 3,086	$ 17,904	6.8	25	baseload	5%	100%	6,020			$ 3,249
New Build/Retrofit	Energy Star Convection Ovens - Full Size	10	$ 1,618	$ 700	$ 918	$ 16,184	$ 7,000	$ 9,184	2.3	12	baseload	20%	100%	847		1	$ 875
New Build/Retrofit	Energy Star Dishwasher - Rack Conveyor - Multi Tank - High Temperature - Purchase	5	$ 29,772	$ 210	$ 29,562	$ 148,860	$ 1,051	$ 147,809	141.6	20	baseload	27%	100%	3,708	522,192	15,822	$ 288
New Build/Retrofit	Energy Star Dishwasher - Rack Conveyor - Multi Tank - High Temperature - Rental	5	$ 15,498	$ 893	$ 14,605	$ 77,489	$ 4,463	$ 73,026	17.4	20	baseload	62%	100%	3,708	522,192	15,822	$ 2,349
New Build/Retrofit	Energy Star Dishwasher - Rack Conveyor - Single Tank - High Temperature - Purchase	30	$ 18,009	$ 1,734	$ 16,275	$ 540,266	$ 52,013	$ 488,253	10.4	20	baseload	27%	100%	2,203	310,271	9,811	$ 2,375
New Build/Retrofit	Energy Star Dishwasher - Rack Conveyor - Single Tank - High Temperature - Rental	5	$ 9,374	$ 893	$ 8,482	$ 46,872	$ 4,463	$ 42,410	10.5	20	baseload	62%	100%	2,203	310,271	9,811	$ 2,349
New Build/Retrofit	Energy Star Dishwasher - Stationary Rack - High Temperature - Purchase	5	$ 5,259	-$ 280	$ 5,539	$ 26,297	-$ 1,400	$ 27,697	NA [58]	15	baseload	20%	100%	619	87,119	3,553	-$ 350
New Build/Retrofit	Energy Star Dishwasher - Stationary Rack - High Temperature - Rental	5	$ 2,498	$ 797	$ 1,701	$ 12,491	$ 3,987	$ 8,504	3.1	15	baseload	62%	100%	619	87,119	3,553	$ 2,098
New Build/Retrofit	Energy Star Dishwasher - Stationary Rack - Low Temperature - Purchase	30	$ 4,277	-$ 280	$ 4,557	$ 128,324	-$ 8,400	$ 136,724	NA [58]	15	baseload	20%	100%	841	118,369	855	-$ 350
New Build/Retrofit	Energy Star Dishwasher - Stationary Rack - Low Temperature -Rental	5	$ 2,032	$ 761	$ 1,271	$ 10,159	$ 3,806	$ 6,353	2.7	15	baseload	62%	100%	841	118,369	855	$ 2,003
New Build/Retrofit	Energy Star Dishwasher - Undercounter - Low Temperature - Purchase	50	$ 1,033	-$ 8	$ 1,040	$ 51,629	-$ 390	$ 52,019	NA [58]	10	baseload	40%	100%	326	45,891	559	-$ 13
New Build/Retrofit	Energy Star Fryer	200	$ 2,079	$ 822	$ 1,257	$ 415,830	$ 164,480	$ 251,350	2.5	12	baseload	20%	100%	1,083		17	$ 1,028
New Build	Energy Star Steam Cookers	10	$ 5,973	$ 1,600	$ 4,373	$ 59,729	$ 16,000	$ 43,729	3.7	10	baseload	20%	100%	3,224	42,812	162	$ 2,000
New Build	ERV 1 - up to 1000CFM - Multi Family, Health Care, Nursing [29]	20	$ 10,009.82	$ 2,057	$ 7,953	$ 200,196	$ 41,146	$ 159,050	4.9	14	weather	5%	100%	3,929			$ 2,166
Retrofit	ERV 1 - up to 1000CFM - Multi Family, Health Care, Nursing [30]	20	$ 8,216	$ 1,592	$ 6,624	$ 164,322	$ 31,841	$ 132,481	5.2	14	weather	5%	100%	3,225			$ 1,676
New Build	ERV 2 - over 1000CFM - Multi Family, Health Care, Nursing [31]	10	$ 35,189	$ 7,232	$ 27,956	$ 351,887	$ 72,323	$ 279,564	4.9	14	weather	5%	100%	13,813			$ 7,613
Retrofit	ERV 2 - over 1000CFM - Multi Family, Health Care, Nursing [32]	15	$ 43,170	$ 8,365	$ 34,804	$ 647,544	$ 125,477	$ 522,066	5.2	14	weather	5%	100%	16,946			$ 8,805
New Build	ERV 3 - up to 2000CFM - Hotel, Restaurant, Retail [33]	15	$ 7,523	$ 2,779	$ 4,744	$ 112,846	$ 41,690	$ 71,157	2.7	14	weather	5%	100%	2,953			$ 2,926
Retrofit	ERV 3 - up to 2000CFM - Hotel, Restaurant, Retail [34]	15	$ 7,544	$ 2,631	$ 4,913	$ 113,160	$ 39,469	$ 73,690	2.9	14	weather	5%	100%	2,961			$ 2,770
New Build	ERV 4 - over 2000CFM - Hotel, Restaurant, Retail [35]	15	$ 27,966	$ 10,332	$ 17,634	$ 419,494	$ 154,977	$ 264,517	2.7	14	weather	5%	100%	10,978			$ 10,876
Retrofit	ERV 4 - over 2000CFM - Hotel, Restaurant, Retail [36]	10	$ 21,870	$ 7,628	$ 14,242	$ 218,697	$ 76,280	$ 142,417	2.9	14	weather	5%	100%	8,585			$ 8,030
New Build	ERV 5 - up to 2000CFM - Office, Warehouse, School [37]	20	$ 6,528	$ 3,776	$ 2,752	$ 130,556	$ 75,525	$ 55,031	1.7	14	weather	5%	100%	2,563			$ 3,975
Retrofit	ERV 5 - up to 2000CFM - Office, Warehouse, School [38]	20	$ 4,748	$ 2,595	$ 2,153	$ 94,970	$ 51,901	$ 43,069	1.8	14	weather	5%	100%	1,864			$ 2,732
New Build	ERV 6 - over 2000CFM - Office, Warehouse, School [39]	20	$ 18,006	$ 10,416	$ 7,590	$ 360,126	$ 208,328	$ 151,798	1.7	14	weather	5%	100%	7,068			$ 10,965
Retrofit	ERV 6 - over 2000CFM - Office, Warehouse, School [40]	20	$ 21,686	$ 11,851	$ 9,835	$ 433,722	$ 237,028	$ 196,694	1.8	14	weather	5%	100%	8,513			$ 12,475
New Build	High Efficiency Under-Fired Broilers	4	$ 3,203	$ 1,016	$ 2,187	$ 12,812	$ 4,064	$ 8,748	3.2	12	baseload	20%	100%	1,677			$ 1,270
New Build	HRV >2,000cfm-Hotel, Restaurant, Retail, Rec [41]	10	$ 12,132	$ 6,862	$ 5,269	$ 121,319	$ 68,624	$ 52,694	1.8	14	weather	5%	100%	4,762			$ 7,224
Retrofit	HRV >2,000cfm-Hotel, Restaurant, Retail, Rec [42]	10	$ 13,304	$ 6,862	$ 6,442	$ 133,043	$ 68,624	$ 64,418	1.9	14	weather	5%	100%	5,223			$ 7,224
Retrofit	HRV ≥2,000cfm-School,Office, Warehouse, Man [43]	10	$ 8,513	$ 6,862	$ 1,650	$ 85,127	$ 68,624	$ 16,503	1.2	14	weather	5%	100%	3,342			$ 7,224
New Build	HRV 500 to 2,000cfm-Hotel, Restaurant, Retail, Rec [44]	20	$ 6,063	$ 3,430	$ 2,633	$ 121,258	$ 68,590	$ 52,668	1.8	14	weather	5%	100%	2,380			$ 3,610
Retrofit	HRV 500 to 2,000cfm-Hotel, Restaurant, Retail, Rec [45]	10	$ 5,166	$ 2,665	$ 2,501	$ 51,661	$ 26,647	$ 25,014	1.9	14	weather	5%	100%	2,028			$ 2,805
New Build	HRV Multi Family, Health Care, Nursing [46]	10	$ 7,872	$ 2,476	$ 5,396	$ 78,720	$ 24,761	$ 53,959	3.2	14	weather	5%	100%	3,090			$ 2,606
Retrofit	HRV Multi Family, Health Care, Nursing [47]	10	$ 7,100	$ 2,034	$ 5,066	$ 71,000	$ 20,337	$ 50,663	3.5	14	weather	5%	100%	2,787			$ 2,141
Retrofit	HWC - Faucet Aerator - Bath - 1.0gpm (Multi Family) [59]	2,300	$ 13	$ 1	$ 12	$ 29,859	$ 1,221	$ 28,638	24.4	10	baseload	10%	30%	7	2,371		$ 1
Retrofit	HWC - Faucet Aerator - Kitchen 1.5gpm (Multi Family) [59]	1,000	$ 41	$ 1	$ 40	$ 40,676	$ 1,161	$ 39,515	35.0	10	baseload	10%	41%	16	5,377		$ 1
Retrofit	HWC - Showerhead - 1.25gpm (Multi Family) [59]	4,300	$ 129	$ 3	$ 125	$ 553,389	$ 14,667	$ 538,722	37.7	10	baseload	10%	70%	32	9,585		$ 4
Retrofit	HWC - Showerhead - 1.25gpm replacing existing 2.0gpm (Multi Family) [59]	1,333	$ 103	$ 3	$ 100	$ 137,620	$ 4,547	$ 133,073	30.3	10	baseload	10%	70%	24	7,933		$ 4
New Build/Retrofit	Industrial Custom [57]	90	$ 661,603	120,869.19	$ 540,733	$ 59,544,225	$ 10,878,227	$ 48,665,998	5.5								
New Build	Infrared Heating - 101 to 300 MBtu/hr [48]	225	$ 5,831	$ 1,280	$ 4,551	$ 1,311,949	$ 288,011	$ 1,023,938	4.6	20	weather	33%	100%	2,490		409	$ 1,911
Retrofit	Infrared Heating - 101 to 300 MBtu/hr [49]	100	$ 5,838	$ 1,282	$ 4,556	$ 583,817	$ 128,173	$ 455,644	4.6	20	weather	33%	100%	2,493		409	$ 1,913
New Build	Infrared Heating - 20 to 100 MBtu/hr [50]	150	$ 3,399	$ 718	$ 2,681	$ 509,871	$ 107,701	$ 402,170	4.7	20	weather	33%	100%	1,397		409	$ 1,072
Retrofit	Infrared Heating - 20 to 100 MBtu/hr [51]	150	$ 3,069	$ 642	$ 2,427	$ 460,286	$ 96,240	$ 364,046	4.8	20	weather	33%	100%	1,248		409	$ 958
New Build/Retrofit	Laundry Washing Equipment with Ozone - <= 120 lbs & >= 200,000 lbs/yr [52]	20	$ 24,108	$ 10,092	$ 14,015	$ 482,157	$ 201,848	$ 280,309	2.4	15	baseload	8%	100%	6,560	402,000	438	$ 10,970
New Build/Retrofit	Laundry Washing Equipment with Ozone - > 120 lbs & 1,000,000 lbs/yr [53]	1	$ 120,539	$ 27,848	$ 92,691	$ 120,539	$ 27,848	$ 92,691	4.3	15	baseload	8%	100%	32,800	2,010,000	2,190	$ 30,270
New Build/Retrofit	Laundry Washing Equipment with Ozone - > 120 lbs & 260,000 - 1,000,000 lbs/yr [54]	5	$ 75,940	$ 27,848	$ 48,091	$ 379,698	$ 139,242	$ 240,456	2.7	15	baseload	8%	100%	20,664	1,266,300	1,380	$ 30,270
New Build/Retrofit	New Measure 2012 [60]	220	N/A	N/A	N/A	N/A	N/A	N/A	N/A								

	Measure	Participants	TRC Benefits per Unit	TRC Costs per Unit	Net TRC per Unit	Total TRC Benefits	Total TRC Costs	Total Net TRC Before Program Costs	TRC Ratio
Retrofit	Prescriptive Schools - Elementary (hydronic boilers with 83%+)	2	$ 29,311	$ 6,312	$ 23,000	$ 58,622	$ 12,623	$ 45,999	4.6
Retrofit	Prescriptive Schools - Secondary (hydronic boilers with 83%+)	2	$ 118,703	$ 10,563	$ 108,140	$ 237,407	$ 21,126	$ 216,281	11.2
	Total					**$ 98,903,882**	**$ 21,583,622**	**$ 77,320,260**	
						Promotion Costs	$ 974,220		
						Administration Costs	$ 2,582,842		
						EM&V Costs	$ 60,000		
						Program Total Net TRC		**$ 73,703,198**	
						Program TRC Ratio			**3.9**

Measure Life	Energy Load	Free Rider Rate	Adjustment Factor	Annual Natural Gas Savings	Annual Water Savings	Annual Electricity Savings	Incremental Cost
25	weather	27%	100%	10,830			$ 8,646
25	weather	27%	100%	43,859			$ 14,470

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
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
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
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
Condensing Boiler - up to 299 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 198,000
Condensing Boiler - up to 299 Mbtu/h measure is quasi-prescriptive. Savings are based on an average capacity of 185,394
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
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
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
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
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
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
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
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
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
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
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
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 (weighted average of sales between 125 and
Destratification Fan measure is quasi-prescriptive. Savings are based on an average capacity of 13,089 sqrft from 2010 year results
Destratification Fan measure is quasi-prescriptive. Savings are based on an average capacity of 26,753 sqr.ft from 2010 year results
DWHR - Ent - Arena measure is quasi-prescriptive. Savings are based on an average capacity of 12 showerheads from marketing forecast
DWHR - Ent - Arena measure is quasi-prescriptive. Savings are based on an average capacity of 12 showerheads from marketing forecast
DWHR - Hospital - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
DWHR - Hospital - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
DWHR - Hospital - Laundry measure is quasi-prescriptive. Savings are based on an average capacity of 149 beds from marketing forecast
DWHR - Nursing Home - Dishwashing measure is quasi-prescriptive. Savings are based on an average capacity of 107 beds from marketing forecast
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
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
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
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
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
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
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
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
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
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
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
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
ERV 6 - over 2000CFM - Office, Warehouse, School is quasi-prescriptive. Savings are based on an average capacity of 3,448 from 2010 year results
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
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
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
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
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
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
HRV Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 722 CFM from 2010 year results
HRV Multi Family, Health Care, Nursing is quasi-prescriptive. Savings are based on an average capacity of 593 CFM from 2010 year results
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
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
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
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
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)
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)
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)
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 Managers to calculate the annual TRC
Commercial Custom. TRC Benefits and TRC Costs based on 3 year historical average of commercial custom results
Industrial Custom. TRC Benefits and TRC Costs based on 3 year historical average of indsutrial custom results
TRC ratio not applicable since incremental cost is negative
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.
Input assumptions for New measures in 2012 are being developed and the screening will be provided in the annual report

Measure	Participants	TRC Benefits per Unit	TRC Costs per Unit	Net TRC per Unit	Total TRC Benefits	Total TRC Costs	Total Net TRC Before Program Costs	TRC Ratio
Attic Insulation (Weatherization) [3]	550	$ 636	$ 750	-$ 114	$ 349,994	$ 412,676	-$ 62,682	0.8
Basement Insulation (Weatherization) [3]	550	$ 2,369	$ 1,745	$ 624	$ 1,302,870	$ 959,783	$ 343,087	1.4
Building Optimization [5]	70	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFE Tier 2 Front-loading Clothes Washer (Multi Family)	88	$ 1,301	$ 540	$ 761	$ 114,459	$ 47,520	$ 66,939	2.4
Condensing Boiler - up to 299 Mbtu/h [1]	5	$ 7,052	$ 2,835	$ 4,217	$ 35,261	$ 14,174	$ 21,087	2.5
Condensing Gas Water Heater (1000gal/day) - Purchase	15	$ 3,718	$ 2,119	$ 1,600	$ 55,773	$ 31,778	$ 23,996	1.8
Early Furnace Replacement - 60% AFUE	28	$ 591	$ 518	$ 73	$ 16,540	$ 14,504	$ 2,036	1.1
Early Furnace Replacement - 70% AFUE	82	$ 352	$ 518	-$ 166	$ 28,902	$ 42,476	-$ 13,574	0.7
Early Hot Water Heater Replacement (0.575 to 0.62 EF)	28	$ 59	$ 168	-$ 109	$ 1,660	$ 4,704	-$ 3,044	0.4
HHC - Faucet Aerator - Bath - 1.0gpm [4]	10,000	$ 59	$ 1	$ 58	$ 587,411	$ 5,841	$ 581,570	100.6
HHC - Faucet Aerator - Kitchen - 1.5gpm [4]	10,000	$ 140	$ 1	$ 139	$ 1,398,217	$ 12,771	$ 1,385,446	109.5
HHC - Pipe Insulation - 2m [4]	10,000	$ 35	$ 1	$ 34	$ 350,291	$ 9,702	$ 340,589	36.1
HHC - Showerhead - 1.25gpm exist 2.0-2.5 [4]	3,000	$ 248	$ 4	$ 244	$ 743,888	$ 11,256	$ 732,632	66.1
HHC - Showerhead - 1.25gpm exist 2.6+ [4]	7,000	$ 418	$ 4	$ 414	$ 2,926,815	$ 26,265	$ 2,900,550	111.4
HHC - Thermostat - Programmable	6,000	$ 195	$ 27	$ 169	$ 1,172,163	$ 160,083	$ 1,012,080	7.3
HWC - Faucet Aerator - Bath - 1.0gpm (Multi Family) [4]	5,000	$ 13	$ 1	$ 12	$ 64,911	$ 2,655	$ 62,256	24.4
HWC - Faucet Aerator - Kitchen - 1.5gpm (Multi Family) [4]	5,000	$ 41	$ 1	$ 40	$ 203,380	$ 5,805	$ 197,575	35.0
HWC - Showerhead - 1.25gpm (Multi Family) [4]	5,000	$ 129	$ 3	$ 125	$ 643,475	$ 17,055	$ 626,420	37.7
HWC - Showerhead - 1.25gpm replacing existing 2.0gpm (Multi Family) [4]	5,000	$ 103	$ 3	$ 100	$ 516,203	$ 17,055	$ 499,148	30.3
Sealing Measures (Weatherization) [3]	550	$ 683	$ 269	$ 414	$ 375,901	$ 148,126	$ 227,775	2.5
Social and Assisted Housing Multi-Family Offering (Custom) [2]	12	$ 19,373	$ 27,708	-$ 8,336	$ 232,473	$ 332,500	-$ 100,027	0.7
Wall Insulation (Weatherization) [3]	550	$ 1,022	$ 795	$ 227	$ 562,081	$ 437,481	$ 124,600	1.3
Total					**$ 11,682,669**	**$ 2,714,218**	**$ 8,968,459**	
					Promotion Costs	$ 1,315,648		
					Administration Costs	$ 971,549		
					EM&V Costs	$ 40,000		
					Program Total Net TRC		**$ 6,641,262**	
					Program TRC Ratio			**2.3**

Measure Life	Energy Load	Free Rider Rate	Adjustment Factor	Annual Natural Gas Savings	Annual Water Savings	Annual Electricity Savings	Incremental Cost
20	weather	0.0%	100.0%	183	-	27	$750.32
25	weather	0.0%	100.0%	610	-	90	$1,745.06
11	baseload	10.0%	100.0%	117	58,121	396	$600
25	weather	5.0%	100.0%	2,002			$2,984
13	baseload	5.0%	100.0%	1,551			$2,230
3	weather	0.0%	100.0%	781	-	-	$518
3	weather	0.0%	100.0%	466	-	-	$518
3	baseload	0.0%	100.0%	80	-	-	$168
10	baseload	1.0%	84.6%	10	3,435		$0.59
10	baseload	1.0%	88.4%	23	7,797		$1.29
10	baseload	1.0%	94.0%	18			$0.98
10	baseload	1.0%	83.2%	46	14,294		$3.79
10	baseload	1.0%	83.2%	88	22,580		$3.79
15	weather	1.0%	100.0%	53		54	$26.95
10	baseload	10.0%	29.7%	7	2,371		$0.59
10	baseload	10.0%	40.9%	16	5,377		$1.29
10	baseload	10.0%	70.0%	32	9,585		$3.79
10	baseload	10.0%	70.0%	24	7,933		$3.79
23	weather	0.0%	100.0%	183	-	27	$269.32
15	weather	5%	100.00%	7,273			$29,166.67
30	weather	0.0%	100.0%	244	-	36	$795.42

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 amount for the offering. 15 year measure life, 5% free-ridership.

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 Attic Insulation, 23 year measure life for Sealing Measures, 25 year measure life for Basement Insulation, 30 year measure life for Wall Insulation. 0% free-ridership.

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.

Measure	Participants	Net Cumulative m3 per Unit	Total Net Cumulative m3	TRC Benefits per Unit	TRC Costs per Unit	Net TRC per Unit	Total TRC Benefits	Total TRC Costs	Total Net TRC Before Program Costs	TRC Ratio
NHC - Faucet Aerator - Bath - 1.0gpm	280	54	15,196	$ 38	$ 0.40	$ 38	$ 10,658	$ 111	$ 10,547	96.3
NHC - Faucet Aerator - Kitchen - 1.5gpm	280	103	28,872	$ 70	$ 0.86	$ 69	$ 19,541	$ 242	$ 19,299	80.7
NHC - Showerhead - 1.25gpm	280	321	89,813	$ 212	$ 3.41	$ 209	$ 59,398	$ 955	$ 58,443	62.2
Install - Faucet Aerator - Bath - 1.0gpm [1]	1,705	23	38,963	$ 16	$ 0.40	$ 16	$ 27,328	$ 674	$ 26,654	40.5
Install - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm [1]	255	10	2,501	$ 7	$ 0.40	$ 7	$ 1,807	$ 101	$ 1,706	17.9
Install - Faucet Aerator - Kitchen - 1.5gpm [1]	1,960	63	123,518	$ 44	$ 0.86	$ 43	$ 85,837	$ 1,694	$ 84,143	50.7
Install - Pipe Insulation - 2m [1]	1,960	140	274,337	$ 29	$ 0.94	$ 28	$ 57,369	$ 1,844	$ 55,525	31.1
Install - Showerhead - 1.25gpm [1]	1,705	257	437,723	$ 170	$ 3.41	$ 166	$ 289,489	$ 5,816	$ 283,672	49.8
Install - Showerhead - 1.25gpm replacing existing 2.0 gpm [1]	255	207	52,689	$ 147	$ 3.41	$ 144	$ 37,523	$ 869	$ 36,654	43.2
Pull - Faucet Aerator - Bath - 1.0gpm [1]	29,232	28	804,280	$ 19	$ 0.40	$ 19	$ 564,105	$ 11,555	$ 552,549	48.8
Pull - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm [1]	4,368	12	51,633	$ 9	$ 0.40	$ 8	$ 37,294	$ 1,727	$ 35,568	21.6
Pull - Faucet Aerator - Kitchen - 1.5gpm [1]	33,600	71	2,391,879	$ 49	$ 0.86	$ 49	$ 1,662,189	$ 29,040	$ 1,633,148	57.2
Pull - Pipe Insulation - 2m [1]	33,600	77	2,577,246	$ 16	$ 0.94	$ 15	$ 538,951	$ 31,611	$ 507,340	17.0
Pull - Showerhead - 1.25gpm [1]	29,232	187	5,478,686	$ 124	$ 3.41	$ 121	$ 3,623,332	$ 99,710	$ 3,523,621	36.3
Pull - Showerhead - 1.25gpm replacing existing 2.0 gpm [1]	4,368	151	659,471	$ 108	$ 3.41	$ 104	$ 469,656	$ 14,899	$ 454,757	31.5
Push - Faucet Aerator - Bath - 1.0gpm [1]	17,539	21	360,685	$ 14	$ 0.40	$ 14	$ 252,977	$ 6,933	$ 246,044	36.5
Push - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm [1]	2,621	9	23,155	$ 6	$ 0.40	$ 6	$ 16,725	$ 1,036	$ 15,689	16.1
Push - Faucet Aerator - Kitchen - 1.5gpm [1]	20,160	57	1,143,426	$ 39	$ 0.86	$ 39	$ 794,601	$ 17,424	$ 777,177	45.6
Push - Pipe Insulation - 2m [1]	20,160	74	1,483,432	$ 15	$ 0.94	$ 14	$ 310,214	$ 18,967	$ 291,247	16.4
Push - Showerhead - 1.25gpm [1]	17,539	132	2,306,843	$ 87	$ 3.41	$ 84	$ 1,525,632	$ 59,826	$ 1,465,806	25.5
Push - Showerhead - 1.25gpm replacing existing 2.0 gpm [1]	2,621	106	277,676	$ 75	$ 3.41	$ 72	$ 197,752	$ 8,940	$ 188,813	22.1
Thermostat - Programmable	6,000	453	2,718,900	$ 112	$ 14.25	$ 98	$ 674,882	$ 85,500	$ 589,382	7.9
Attic Insulation	88	1,407	123,816	$ 309	$ 388.60	-$ 80	$ 27,163	$ 34,197	-$ 7,034	0.8
Basement Wall Insulation	87	4,372	380,342	$ 764	$ 1,108.18	-$ 344	$ 66,479	$ 96,412	-$ 29,932	0.7
Draft Proofing Kit	56,000	53	2,973,600	$ 15	$ 9.00	$ 6	$ 822,729	$ 504,000	$ 318,729	1.6
Total			**24,818,684**				**$ 12,173,630**	**$ 1,034,083**	**$ 11,139,546**	
							Promotion Costs	$ 2,048,417		
							Administration Costs	$ 365,851		
							EM&V Costs	$ 20,000		
							Program Total Net		**$ 8,705,278**	
							Program TRC			**3.5**

Equipment Life	Energy Load	Free Rider Rate	Adjustment Factor	Natural Gas Savings (m3)	Water Savings (L)	Electricity Savings (kWh)	Incremental Cost
10	baseload	33%	81.00%	10	3,435		$ 0.59
10	baseload	33%	81.00%	19	6,201		$ 1.29
10	baseload	10%	81.00%	44	13,885		$ 3.79
10	baseload	33%	34.10%	10	3,435		$ 0.59
10	baseload	33%	36.63%	4	1,432		$ 0.59
10	baseload	33%	40.90%	23	7,797		$ 1.29
10	baseload	4%	81.00%	18			$ 0.98
10	baseload	10%	64.82%	44	13,885		$ 3.79
10	baseload	10%	69.62%	33	11,584		$ 3.79
10	baseload	33%	41.07%	10	3,435		$ 0.59
10	baseload	33%	44.11%	4	1,432		$ 0.59
10	baseload	33%	46.20%	23	7,797		$ 1.29
10	baseload	4%	44.39%	18			$ 0.98
10	baseload	10%	47.33%	44	13,885		$ 3.79
10	baseload	10%	50.83%	33	11,584		$ 3.79
10	baseload	33%	30.69%	10	3,435		$ 0.59
10	baseload	33%	32.97%	4	1,432		$ 0.59
10	baseload	33%	36.81%	23	7,797		$ 1.29
10	baseload	4%	42.58%	18			$ 0.98
10	baseload	10%	33.21%	44	13,885		$ 3.79
10	baseload	10%	35.67%	33	11,584		$ 3.79
15	weather	43%	100.00%	53		54	$ 25.00
20	weather	33%	100.00%	105		105	$ 580.00
25	weather	33%	100.00%	261		145	$ 1,654.00
1	weather	55%	50.00%	236		27	$ 20.00

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

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 Costs	$ 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

Program	Total TRC Benefits Before Program Costs	Total TRC Costs Before Program Costs	TRC Ratio Before Program Costs
Residential	$ 12,173,630	$ 1,034,083	11.8
Commercial/Industrial	$ 98,903,882	$ 21,583,622	4.6
Large Industrial Rate T1 and Rate R100	$ 81,448,235	$ 8,173,465	10.0
Low Income	$ 11,682,669	$ 2,714,210	4.3
Total	**$ 204,208,416**	**$ 33,505,380**	
	Total Promotion Costs	$ 8,914,000	
	Total Administration Costs	$ 7,149,000	
	Total EM&V Costs	$ 1,129,000	
	Total Research Costs	$ 1,060,000	
	Portfolio TRC Ratio		**3.9**

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Please provide an Excel spreadsheet that lists each custom project completed in 2010 (customer names redacted), the annual savings the project generated, the total volume of annual gas consumption at the site(s) the previous year and the percent savings from the custom project (i.e. annual savings divided by annual sales).

Response:

Please see attached spreadsheet.

2010 Custom DSM Summary

Customer	Annual Gas Savings	Gas Volume 2009	%	Customer	Annual Gas Savings	Gas Volume 2009	%
Customer 1	6,435	2,123,646	0.3%	Customer 178	82,255	917,874	9.0%
Customer 2	414,612	2,019,879	20.5%	Customer 179	268,663	159,744,526	0.2%
Customer 3	95,686	2,088,089	4.6%	Customer 180	253	3,250	7.8%
Customer 4	15,381	1,945,867	0.8%	Customer 181	179,538	3,865,363	4.6%
Customer 5	262,412	2,413,582	10.9%	Customer 182	412,573	2,670,987	15.4%
Customer 6	733,245	8,105,828	9.0%	Customer 183	1,055	16,102	6.6%
Customer 7	2,111	19,472	10.8%	Customer 184	10,924	608,729	1.8%
Customer 8	25,542	275,506	9.3%	Customer 185	80,043	1,191,959	6.7%
Customer 9	120,055	2,339,204	5.1%	Customer 186	1,903,011	144,898,046	1.3%
Customer 10	21,265	786,900	2.7%	Customer 187	12,475	270,005	4.6%
Customer 11	15,852,282	56,985,448	27.8%	Customer 188	4,231	199,335	2.1%
Customer 12	1,367,962	36,957,717	3.7%	Customer 189	23,591	138,596	17.0%
Customer 13	31,223	1,148,207	2.7%	Customer 190	1,182	21,654	5.5%
Customer 14	4,647,075	11,275,589	41.2%	Customer 191	12,199	259,098	4.7%
Customer 15	118,068	6,134,466	1.9%	Customer 192	24,817	429,665	5.8%
Customer 16	3,973,750	50,522,748	7.9%	Customer 193	85,948	429,665	20.0%
Customer 17	218,396	3,377,839	6.5%	Customer 194	338	9,335	3.6%
Customer 18	14,591	75,327	19.4%	Customer 195	98,693	877,819	11.2%
Customer 19	186,975	10,913,227	1.7%	Customer 196	53,571	201,500	26.6%
Customer 20	1,098	21,923	5.0%	Customer 197	90,000	510,028	17.6%
Customer 21	6,884	127,080	5.4%	Customer 198	137,011	11,491,750	1.2%
Customer 22	5,487,639	262,731,215	2.1%	Customer 199	422	22,473	1.9%
Customer 23	1,427	14,080	10.1%	Customer 200	760	9,725	7.8%
Customer 24	67,802	2,319,933	2.9%	Customer 201	253	127,649	0.2%
Customer 25	57,124	2,311,834	2.5%	Customer 202	105,841	2,610,125	4.1%
Customer 26	51,431	1,025,871	5.0%	Customer 203	1,266	107,118	1.2%
Customer 27	422	6,286	6.7%	Customer 204	70,070	364,889	19.2%
Customer 28	633	10,082	6.3%	Customer 205	48,155	1,359,085	3.5%
Customer 29	261,661	6,103,306	4.3%	Customer 206	561,483	3,382,104	16.6%
Customer 30	1,996,301	4,306,209	46.4%	Customer 207	8,734	360,367	2.4%
Customer 31	52,320	109,921	47.6%	Customer 208	245,343	3,945,094	6.2%
Customer 32	751,890	41,993,530	1.8%	Customer 209	524,916	3,392,258	15.5%
Customer 33	4,266	109,494	3.9%	Customer 210	160,215	1,265,547	12.7%
Customer 34	1,937	282,247	0.7%	Customer 211	591	6,693	8.8%
Customer 35	24,180	1,378,584	1.8%	Customer 212	43,340	30,994	139.8%
Customer 36	30,990	451,908	6.9%	Customer 213	4,131	134,924	3.1%
Customer 37	287,750	6,425,320	4.5%	Customer 214	1,097	62,029	1.8%
Customer 38	398,319	3,782,357	10.5%	Customer 215	422	16,390	2.6%
Customer 39	422	8,674	4.9%	Customer 216	338	8,298	4.1%
Customer 40	101,823	694,374	14.7%	Customer 217	3,542,610	11,129,049	31.8%
Customer 41	1,616,781	37,904,666	4.3%	Customer 218	11,565	869,863	1.3%
Customer 42	34,106	55,358	61.6%	Customer 219	85,661	7,573,454	1.1%
Customer 43	4,599	16,727	27.5%	Customer 220	4,216	55,029	7.7%
Customer 44	99,455	541,040	18.4%	Customer 221	22,847	561,930	4.1%
Customer 45	675	28,429	2.4%	Customer 222	422	14,192	3.0%
Customer 46	68,298	1,461,246	4.7%	Customer 223	522,996	1,697,287	2.2%
Customer 47	384,962	23,142,456	1.7%	Customer 224	820,082	23,615,450	3.5%
Customer 48	65,384	3,777,739	1.7%	Customer 225	12,390,537	52,521,053	23.6%
Customer 49	1,435	21,959	6.5%	Customer 226	2,497,955	69,084,735	3.6%
Customer 50	591	36,694	1.6%	Customer 227	1,443,748	26,602,897	5.4%
Customer 51	13,941	1,356,495	1.0%	Customer 228	253	3,113	8.1%
Customer 52	113,516	1,599,537	7.1%	Customer 229	7,100	81,809	8.7%
Customer 53	128,000	553,011	23.1%	Customer 230	1,266	26,023	4.9%
Customer 54	15,200	165,188	9.2%	Customer 231	845	41,795	2.0%
Customer 55	6,759,439	144,774,848	4.7%	Customer 232	422	24,660	1.7%
Customer 56	1,688	63,977	2.6%	Customer 233	82,728	3,340,157	2.5%
Customer 57	1,561	70,192	2.2%	Customer 234	218,503	2,342,220	9.3%
Customer 58	1,182	44,697	2.6%	Customer 235	22,427	361,810	6.2%
Customer 59	1,317	37,101	3.5%	Customer 236	14,011	278,348	5.0%

Customer	Annual Gas Savings	Gas Volume 2009	%	Customer	Annual Gas Savings	Gas Volume 2009	%
Customer 60	1,013	45,657	2.2%	Customer 237	113,010	997,176	11.3%
Customer 61	1,478	128,761	1.1%	Customer 238	4,934	26,675	18.5%
Customer 62	1,537	74,273	2.1%	Customer 239	624	3,368	18.5%
Customer 63	4,970,337	297,323,392	1.7%	Customer 240	1,478	13,924	10.6%
Customer 64	675	12,104	5.6%	Customer 241	845	53,799	1.6%
Customer 65	19,574	2,547,607	0.8%	Customer 242	1,021,845	10,311,523	9.9%
Customer 66	1,232,476	4,850,130	25.4%	Customer 243	197,891	1,925,610	10.3%
Customer 67	1,013	6,256	16.2%	Customer 244	1,013	16,701	6.1%
Customer 68	1,792,471	17,834,733	10.1%	Customer 245	1,010	22,100	4.6%
Customer 69	1,646	12,022	13.7%	Customer 246	845	35,242	2.4%
Customer 70	718	32,389	2.2%	Customer 247	24,329	4,814,119	0.5%
Customer 71	24,138	254,535	9.5%	Customer 248	1,435	15,514	9.2%
Customer 72	19,473	177,644	11.0%	Customer 249	1,098	47,205	2.3%
Customer 73	146,702	3,103,648	4.7%	Customer 250	475,000	2,332,156	20.4%
Customer 74	4,477	180,291	2.5%	Customer 251	88,106	2,136,410	4.1%
Customer 75	14,583	652,296	2.2%	Customer 252	377,323	5,524,586	6.8%
Customer 76	845	12,530	6.7%	Customer 253	2,026	9,884	20.5%
Customer 77	507	17,628	2.9%	Customer 254	1,604	6,671	24.0%
Customer 78	2,792	40,809	6.8%	Customer 255	14,135	963,833	1.5%
Customer 79	228,388	1,370,553	16.7%	Customer 256	27,128	111,215	24.4%
Customer 80	548	87,012	0.6%	Customer 257	633	10,184	6.2%
Customer 81	6,804	53,372	12.7%	Customer 258	633	44,255	1.4%
Customer 82	206,210	1,146,401	18.0%	Customer 259	422	4,758	8.9%
Customer 83	205,750	3,218,260	6.4%	Customer 260	32,126	392,079	8.2%
Customer 84	98,876	1,435,806	6.9%	Customer 261	34,141	133,544	25.6%
Customer 85	85,248	1,103,943	7.7%	Customer 262	13,616	93,087	14.6%
Customer 86	191,369	3,023,917	6.3%	Customer 263	31,124	516,072	6.0%
Customer 87	10,335	436,425	2.4%	Customer 264	30,966	122,968	25.2%
Customer 88	60,167	5,907,329	1.0%	Customer 265	1,266	12,959	9.8%
Customer 89	1,098	50,438	2.2%	Customer 266	46,685	337,439	13.8%
Customer 90	40,491	1,585,774	2.6%	Customer 267	5,551	236,238	2.3%
Customer 91	13,277	1,079,235	1.2%	Customer 269	1,646	13,387	12.3%
Customer 92	338	6,786	5.0%	Customer 270	112,490	2,834,531	4.0%
Customer 93	94,922	1,149,903	8.3%	Customer 271	176,284	1,078,388	16.3%
Customer 94	40,737	761,544	5.3%	Customer 272	194,309	10,803,883	1.8%
Customer 95	10,572	713,580	1.5%	Customer 273	18,977	1,880,702	1.0%
Customer 96	338	27,438	1.2%	Customer 274	745	53,442	1.4%
Customer 97	215,905	2,733,555	7.9%	Customer 275	1,317	38,926	3.4%
Customer 98	4,934	44,778	11.0%	Customer 276	9,016	188,882	4.8%
Customer 99	60,810	2,196,925	2.8%	Customer 277	591	28,765	2.1%
Customer 100	591	22,447	2.6%	Customer 278	45,535	514,477	8.9%
Customer 101	507	12,467	4.1%	Customer 279	13,657,556	55,263,116	24.7%
Customer 102	56,119	613,791	9.1%	Customer 280	1,688	29,880	5.6%
Customer 103	507	10,031	5.1%	Customer 281	1,688	47,357	3.6%
Customer 104	1,921	9,191	20.9%	Customer 282	73,000	5,421,014	1.3%
Customer 105	8,238,491	77,768,839	10.6%	Customer 283	1,858	16,330	11.4%
Customer 106	1,688	12,616	13.4%	Customer 284	401,378	2,118,148	18.9%
Customer 107	4,743	92,691	5.1%	Customer 285	1,182	23,521	5.0%
Customer 108	507	20,677	2.5%	Customer 286	58,789	1,929,422	3.0%
Customer 109	845	15,346	5.5%	Customer 287	2,248,950	13,825,827	16.3%
Customer 110	7,515	379,503	2.0%	Customer 288	761,010	21,282,053	3.6%
Customer 111	1,485,254	6,735,175	22.1%	Customer 289	15,025	1,553,009	1.0%
Customer 112	1,351	5,600	24.1%	Customer 290	94,686	4,380,354	2.2%
Customer 113	26,910,763	503,279,848	5.3%	Customer 291	845	9,489	8.9%
Customer 114	718	7,749	9.3%	Customer 292	845	10,995	7.7%
Customer 115	493,798	16,194,666	3.0%	Customer 293	2,832,349	6,207,480	45.6%
Customer 116	1,186	4,812,260	0.0%	Customer 294	6,196	218,295	2.8%

Customer	Annual Gas Savings	Gas Volume 2009	%	Customer	Annual Gas Savings	Gas Volume 2009	%
Customer 117	14,755	78,672	18.8%	Customer 295	116,593	3,186,119	3.7%
Customer 118	121,160	1,249,743	9.7%	Customer 296	202,252	1,880,112	10.8%
Customer 119	1,705,439	8,915,240	19.1%	Customer 297	525,000	16,556,265	3.2%
Customer 120	985,989	10,768,045	9.2%	Customer 298	677,443	173,204,773	0.4%
Customer 121	176,733	929,549	19.0%	Customer 299	9,077,957	617,996,944	1.5%
Customer 122	613,280	5,171,957	11.9%	Customer 300	185,691	2,097,867	8.9%
Customer 123	4,825	252,570	1.9%	Customer 301	507	10,639	4.8%
Customer 124	234,699	5,275,272	4.4%	Customer 302	43,060	1,652,773	2.6%
Customer 125	11,506	188,553	6.1%	Customer 303	57,215	2,034,333	2.8%
Customer 126	548	10,393	5.3%	Customer 304	169,731	1,322,968	12.8%
Customer 127	845	20,272	4.2%	Customer 305	33,178	2,669,543	1.2%
Customer 128	1,266	32,882	3.9%	Customer 306	422	4,828	8.7%
Customer 129	422	4,954	8.5%	Customer 307	422	2,978	14.2%
Customer 130	6,722	186,468	3.6%	Customer 308	633	5,471	11.6%
Customer 131	112,194	6,200,930	1.8%	Customer 309	507	2,655	19.1%
Customer 132	2,146,151	72,829,796	2.9%	Customer 310	422	20,324	2.1%
Customer 133	19,840	45,025,888	0.0%	Customer 311	66,501	2,992,164	2.2%
Customer 134	79,040	1,807,872	4.4%	Customer 312	344,801	415,266,197	0.1%
Customer 135	5,663	125,991	4.5%	Customer 313	36,474	613,792	5.9%
Customer 136	507	24,011	2.1%	Customer 314	1,055	7,684	13.7%
Customer 137	66,412	1,730,140	3.8%	Customer 315	197,791	4,647,784	4.3%
Customer 138	1,974,047	34,340,547	5.7%	Customer 316	250,217	1,234,979	20.3%
Customer 139	2,104	17,721	11.9%	Customer 317	271,365	3,660,733	7.4%
Customer 140	2,621	13,890	18.9%	Customer 318	93,400	22,495,468	0.4%
Customer 141	1,812	11,213	16.2%	Customer 319	423,060	2,087,906	20.3%
Customer 142	2,628	19,321	13.6%	Customer 320	14,898	315,712	4.7%
Customer 143	2,628	34,879	7.5%	Customer 321	507	7,999	6.3%
Customer 144	1,811	28,932	6.3%	Customer 322	422	9,731	4.3%
Customer 145	5,289	145,763	3.6%	Customer 323	422	9,197	4.6%
Customer 146	234,539	2,085,638	11.2%	Customer 324	338	13,347	2.5%
Customer 147	2,155,218	9,659,626	22.3%	Customer 325	1,619	147,879	1.1%
Customer 148	1,632,925	43,033,443	3.8%	Customer 326	1,055	12,613	8.4%
Customer 149	64,587	801,121	8.1%	Customer 327	96,332	794,483	12.1%
Customer 150	398,591	5,985,621	6.7%	Customer 328	196,885	3,934,923	5.0%
Customer 151	129,295	1,233,685	10.5%	Customer 329	422	2,315	18.2%
Customer 152	36,261	409,519	8.9%	Customer 330	56,179	21,114,887	0.3%
Customer 153	172,648	7,245,619	2.4%	Customer 331	586,002	13,754,141	4.3%
Customer 154	407,635	2,198,081	18.5%	Customer 332	12,947	135,827	9.5%
Customer 155	61,744	29,768,161	0.2%	Customer 333	598,176	1,671,708	35.8%
Customer 156	253	37,643	0.7%	Customer 334	86,901	1,248,930	7.0%
Customer 157	11,705	76,872	15.2%	Customer 335	24,017	164,573	14.6%
Customer 158	4,061	267,035	1.5%	Customer 336	12,500	1,010,158	1.2%
Customer 159	2,564	167,300	1.5%	Customer 337	845	3,832	22.1%
Customer 160	845	210,688	0.4%	Customer 338	3,513	75,142	4.7%
Customer 161	6,181	593,795	1.0%	Customer 339	86,087	1,943,133	4.4%
Customer 162	130,233	2,326,554	5.6%	Customer 340	253,573	995,365	25.5%
Customer 163	1,266	41,300	3.1%	Customer 341	13,025	100,531	13.0%
Customer 164	18,428,960	498,691,697	3.7%	Customer 342	13,025	220,500	5.9%
Customer 165	1,172,633	46,047,569	2.5%	Customer 343	1,055	12,999	8.1%
Customer 166	123,232	124,181,416	0.1%	Customer 344	591	5,939	10.0%
Customer 167	308,610	179,331,302	0.2%	Customer 345	64,069	352,517	18.2%
Customer 168	123,402	618,759	19.9%	Customer 346	20,249	111,259	18.2%
Customer 169	1,013	26,167	3.9%	Customer 347	1,520	13,235	11.5%
Customer 170	1,266	28,171	4.5%	Customer 348	933,419	215,768,060	0.4%
Customer 171	760	6,169	12.3%	Customer 349	1,182	9,107	13.0%
Customer 172	1,548,185	6,633,626	23.3%	Customer 350	1,266	15,414	8.2%
Customer 173	1,015,000	2,952,415	34.4%	Customer 351	675	3,564	18.9%
Customer 174	163,500	813,045	20.1%	Customer 352	17,607	147,889	11.9%
Customer 175	81,796	11,419,821	0.7%	Customer 353	41,743	569,594	7.3%
Customer 176	2,110	14,094	15.0%	Customer 354	39,117	183,547	21.3%
Customer 177	3,972,323	183,085,053	2.2%	Customer 355	38,866	595,091	6.5%

Filed: 2011-12-16
EB-2011-0327
Exhibit B6.15

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Please provide data for 2008, 2009 and 2010 regarding the number of deep measures (defined in the same way the company has defined them for its 2012-2014 Plan) the Company's DSM programs caused to have installed. Please provide the data broken down by measure.

Response:

Market	Measure	2008 Units	2009 Units	2010 Units
Residential	Furnace - High Efficiency	8,407	14,246	0
Low-income	Weatherization	0	75	134
Commercial New Buildings	Condensing Boiler	40	113	105
Commercial New Buildings	CEE Tier 2 Front-Loading Clothes Washer	0	0	3
Commercial New Buildings	Condensing Gas Water Heater - 1000 gal/day	0	0	11
Commercial New Buildings	ERV	43	315	111
Commercial New Buildings	HRV	10	80	108
Commercial New Buildings	Infrared Heating	342	311	231
Commercial New Buildings	Destratification Fan	0	2	0
Commercial New Buildings	Rooftop Unit	199	517	91
Commercial New Buildings	DCKV - Fast Casual (<5000 CFM)	5	8	2
Commercial New Buildings	DCKV - Full Menu (5000 - 9999 CFM)	3	1	4
Commercial New Buildings	DCKV - Dinner House (10000 -15000 CFM)	1	0	0
Commercial New Buildings	Custom - Agriculture	4	1	2
Commercial New Buildings	Custom - New Construction	68	11	2
Commercial Existing Buildings	Condensing Boiler	278	395	493
Commercial Existing Buildings	CEE Tier 2 Front-Loading Clothes Washer	0	0	100
Commercial Existing Buildings	Condensing Gas Water Heater - 1000 gal/day	0	0	30
Commercial Existing Buildings	ERV	148	151	151
Commercial Existing Buildings	HRV	40	133	75
Commercial Existing Buildings	Infrared Heating	589	615	425
Commercial Existing Buildings	Destratification Fan	0	11	30
Commercial Existing Buildings	Rooftop Unit	631	707	118
Commercial Existing Buildings	High Efficiency Furnace	117	347	0
Commercial Existing Buildings	Enhanced Furnace (Up to 299 Mbtu/h) - NG	23	9	0
Commercial Existing Buildings	DCKV - Fast Casual (<5000 CFM)	1	17	10
Commercial Existing Buildings	DCKV - Full Menu (5000 - 9999 CFM)	8	14	2
Commercial Existing Buildings	DCKV -Dinner House (10000 - 15000 CFM)	2	2	0
Commercial Existing Buildings	Custom - Agriculture	0	5	10
Commercial Existing Buildings	Custom - Multifamily	63	11	16
Commercial Existing Buildings	Custom - Retrofit	93	116	220
Distribution Contract	Custom Non-Rate T1/Rate 100	80	133	230
Distribution Contract	Custom Rate T1/Rate 100	47	78	81
	Total	**11,242**	**18,424**	**2,795**

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Union states that there are currently 56 Rate T1 and 15 Rate 100 customers. For these customers:

a) Please provide data on the number of unique customers (i.e. one customer participating twice in one year counts as only one customer) who participated in Union's DSM programs in 2008, 2009 and 2010 (provide separately for each year).

b) Please provide data for both the annual and the lifetime gas savings that those participants produced in 2008, 2009 and 2010

Response:

a)

Participation Rate					
Deep Measure Participants	**2008**	**2009**	**2010**	**2011[1]**	**2012**
Total Number of Participants (Education, Studies, & O&M Incentives)	23	22	37	42	39
Total Number of T1/R100 Customers[2]	71	71	71	71	71
Participation Rate	32%	31%	52%	59%	55%

[1] 2011 Projects as of November 21, 2011
[2] Every contract (or specific Service Agreement Number) counts as one customer
[2] Excludes those who are DSM ineligible because they are transmission customers
[2] Excludes those customers who do not have gas
[2] Includes R100/25

b)

Large Industrial Rate T1/Rate 100			
Metrics	**Year**		
	2008	**2009**	**2010**
Annual Gas Savings O&M Projects (m^3)	17,106,389	14,759,091	42,489,823
Annual Gas Savings Equipment Projects (m^3)	10,822,289	28,680,433	25,350,011
Lifetime Gas Savings O&M Projects (m^3)	310,665,052	177,691,466	374,423,911
Lifetime Gas Savings Equipment Projects (m^3)	160,236,863	507,085,757	607,512,366

2008, 2009 & 2010 results include natural gas savings from both Equipment and Operation & Maintenance supported initiatives. For 2012 to 2014, Union Gas has proposed to limit supported projects to only include Operation & Maintenance initiatives.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Please provide a copy of the most detailed bottom up analysis that the Company has conducted to estimate how it will achieve its 2012 Low Income savings target (i.e. 18,204,000 m3), its Low Income residential deep measure target (i.e. 550) and its multi-family deep measure target.

Response:

Please see the attached spreadsheet for the bottom up analysis of how the company will achieve its 2012 100% Low Income savings target (36,408,660 m3), 2012 100% Residential Deep Measure target (550), and 2012 100% Multi-Family Deep Measure target (190).

For the planning input assumptions used for the Home Retrofit measures (Attic Insulation, Basement Insulation, Sealing Measures, and Wall Insulation) and the Social and Assisted Housing Multi-Family Offering, please see Exhibit B6.18b). For the planning input assumptions used for all prescriptive measure, please see Appendix H of the application (Union and Enbridge Input Assumptions).

Low Income Program Screening Tool

Measure	Forecasted Participants	Residential Deep Measure Count	Multi-Family Deep Measure Count	Net Annual Natural Gas Savings per Unit (m3)	Net Cumulative Natural Gas Savings per Unit (m3)	Total Net Cumulative Natural Gas Savings (m3)	Measure Life	Adjustment Factor	Free Rider Rate
Attic Insulation (Weatherization)	550	550		183	3,660	2,013,000	20	100%	0%
Basement Insulation (Weatherization)	550			610	15,250	8,387,500	25	100%	0%
Sealing Measures (Weatherization)	550			183	4,209	2,314,950	23	100%	0%
Wall Insulation (Weatherization)	550			244	7,320	4,026,000	30	100%	0%
Building Optimization	70		70	N/A	N/A	N/A	N/A	N/A	N/A
CEE Tier 2 Front-loading Clothes Washer (Multi Family)	88		88	105	1,158	101,930	11	100%	10%
Condensing Boiler - up to 299 Mbtu/h	5		5	1,902	47,554	237,768	25	100%	5%
Condensing Gas Water Heater (1000gal/day) - Purchase	15		15	1,473	19,155	287,323	13	100%	5%
Early Furnace Replacement - 60% AFUE	28			781	2,343	65,604	3	100%	0%
Early Furnace Replacement - 70% AFUE	82			466	1,398	114,636	3	100%	0%
Early Hot Water Heater Replacement (0.575 to 0.62 EF)	28			80	240	6,720	3	100%	0%
HHC - Faucet Aerator - Bath - 1.0gpm	10,000			8	84	837,508	10	85%	1%
HHC - Faucet Aerator - Kitchen - 1.5gpm	10,000			20	201	2,012,026	10	88%	1%
HHC - Pipe Insulation - 2m	10,000			17	168	1,675,080	10	94%	1%
HHC - Showerhead - 1.25gpm exist 2.0-2.5	3,000			38	379	1,136,696	10	83%	1%
HHC - Showerhead - 1.25gpm exist 2.6+	7,000			72	725	5,073,947	10	83%	1%
HHC - Thermostat - Programmable	6,000			52	787	4,722,300	15	100%	1%
HWC - Faucet Aerator - Bath - 1.0gpm (Multi Family)	5,000			2	19	93,461	10	30%	10%
HWC - Faucet Aerator - Kitchen - 1.5gpm (Multi Family)	5,000			6	59	294,446	10	41%	10%
HWC - Showerhead - 1.25gpm (Multi Family)	5,000			20	202	1,008,000	10	70%	10%
HWC - Showerhead - 1.25gpm replacing existing 2.0gpm (Multi Family)	5,000			15	151	756,000	10	70%	10%
Social and Assisted Housing Multi-Family Offering (Custom)	12		12	6,910	103,647	1,243,766	15	100%	5%
Total		550	190			**36,408,660**			

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

If not already shown in the most detailed analysis Union has already conducted (see question above), please:

a) State how much of the Company's low income m^3 target will be met with single family measure savings and how much with multi-family savings

b) Explain what the basis for assumed savings per single-family and multi-family measures is

c) Provide detail on how the low income budget is expected to be spent (i.e. how much on incentives – including break downs by measure – and how much on each significant non-incentive item).

Response:

a) The Low-income Program cumulative natural gas savings targets, by segment, are shown in the tables below.

2012 m^3 Target

Segment	50%	100%	150%
Single Family	16,192,983	32,385,967	40,482,458
Multi-Family*	2,011,346	4,022,693	5,028,366
Total	**18,204,329**	**36,408,660**	**45,510,824**

2013 m^3 Target

Segment	50%	100%	150%
Single Family	12,321,971	24,643,942	30,804,927
Multi-Family*	3,601,818	7,203,636	9,004545
Total	**15,923,789**	**31,847,578**	**39,809,472**

2014 m^3 Target

Segment	2012	2013	2014
Single Family	12,701,306	25,402,613	31,753,266
Multi-Family*	2,868,981	5,737,962	7,172,452
Total	**15,570,287**	**31,140,575**	**38,925,718**

**Multi-Family m^3's may be realized from both Part 9 and Part 3 Multi-Family Buildings*

b)

Helping Homes Conserve Cumulative Natural Gas Savings Calculation

All prescriptive measures savings delivered in the Helping Homes Conserve offering are based on filed input assumptions (see Exhibit A, Appendix H, Table 1).

Home Retrofit Cumulative Natural Gas Savings Calculation

Measure	% of m^3 driven by measure	Annual m^3	Effective Useful Life	Lifetime m3
Basement Insulation	50%	610	25	15,250
Wall Insulation	15%	183	20	3,660
Attic Insulation	20%	244	30	7,320
Draft-proofing	15%	183	23	4,209
Subtotal per Home	**Occurrence**	**1,220**		**30,439**
Furnaces*	20% of homes	466	3	327
Water	5% of homes	48	3	14
Total per Home		**1,734**		**30,779**

Social and Assisted Housing Multi-Family Cumulative Natural Gas Savings
All prescriptive measures savings delivered in the Social and Assisted Housing Multi-Family offering are based on filed input assumptions (see Exhibit A, Appendix H, Table 1).

Building Optimization Lifetime m^3 Calculation

- Assumes a one time 5% reduction in overall gas savings in the subsequent year of upgrades (therefore no m^3 realization in 2012 – year one of program)
- Average annual building consumption of 34,306 m^3's* x 0.05 savings reduction x 5 year effective useful life
  - = 8,576 m^3's per project

**Average annual consumption based on a list of 223 buildings deemed to be social housing within Union's billing system*

Custom Lifetime m^3 Calculation

- Average lifetime m^3 of 103,647 per project was set by looking at 11 projects Union completed in this market in the past (6,909 average annual m^3 per project x 15 year effective useful life)
- Lifetime m^3 calculation set to obtain a screening level of 0.7 TRC threshold ($4.01 per annual m^3 or $0.26 per lifetime m^3)

c) Please refer to the attachment.

2012 Low-income Program Budget

Measure	Incentive Costs
HHC - Faucet Aerator - Bath - 1.0gpm	$13,900
HHC - Faucet Aerator - Kitchen - 1.5gpm	$5,500
HHC - Pipe Insulation - 2m	$20,000
HHC - Showerhead - 1.25gpm exist 2.0-2.5	$11,070
HHC - Showerhead - 1.25gpm exist 2.6+	$25,830
Thermostat - Programmable - HHC	$611,700
Basement Insulation	$925,980
Attic Insulation	$427,631
Wall Insulation	$424,072
Sealing Measures	$137,891
Early Furnace Replacement - 60% AFUE	$126,000
Early Furnace Replacement - 70% AFUE	$369,000
Early Hot Water Heater Replacement (0.575 to 0.62 EF)	$40,880
CCE Tier 2 Front-loading Clothes Washer (MF only)	$70,400
Condensing Boiler - up to 299 Mbtu/h	$75,000
Condensing Gas Water Heater (1000gal/day) - Purchase	$50,100
HWC - Faucet Aerator - Bath - 1.0gpm (MF only)	$5,250
HWC - Faucet Aerator - Kitchen - 1.5gpm (MF only)	$10,450
HWC - Showerhead - 1.25gpm (MF only)	$118,450
HWC - Showerhead - 1.25gpm replacing existing 2.0gpm (MF only)	$118,450
Custom	$175,000
Building Optimization Program	$595,000
Audit Fees	$154,000
Total Incentive Costs	**$4,511,553**
Total Program Costs*	**$1,313,855**

*** Program Costs consist of Home Retrofit Admin Fee, Sponsorships, Marketing Costs, Education, A and B**

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Please explain why the 2013 scorecard has a lower gas savings target but higher single family and higher multi-family participation targets. What is causing savings to go down when participation is going up?

Response:

The decrease in gas savings in 2013 is directly attributed to the significant reduction in Union's basic measure Helping Homes Conserve offering due to saturation in the market. A large portion of the budget that was supporting this offering in 2012 will be re-directed to the Home Retrofit and Social and Assisted Housing Multi-Family offerings in 2013 which explains the increase in deep measure participants.

Please see Union's response to Exhibit B11.9 for a detailed summary of the annual participants and associated cumulative natural gas savings.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Regarding the new home construction market:

a) How many single family homes were constructed in Union's service territory in 2010, 2009, 2008 and 2007?

b) How many builders constructed at least one home in Union's service territory in 2010?

c) Please provide a list of every builder that constructed more than 50 homes in Union's service territory in 2010. Please indicate how many homes each builder on the list constructed.

d) How many single family homes is Union forecasting will be constructed in 2012?

e) What portion of the homes built in Union's service territory were Energy

   i. Star rated in each of the past 5 years?

Response:

a) Union defines 'single family home' as any detached single family home or any single family town home.

Year	Number of Single Family Homes Constructed in Union's Service Territory
2007	18,728
2008	18,428
2009	12,677
2010	14,829

b) Approximately 850 builders constructed at least one home in Union's service territory in 2010.

c) Due to privacy/non-disclosure agreements, Union is unable to provide a detailed list that shows the name of each builder that constructed more than 50 homes in Union's service territory in 2010 or the number of homes each one builds. The table below shows how many builders constructed the number of homes within the ranges provided in Union's service territory in 2010.

Number of Homes Built in Union's Service Territory in 2012	Number of Builders
>300 homes built	2
100-300 homes built	10
75-100 homes built	11
50-75 homes built	18

d) Union forecasts a total of 15,552 single family homes will be constructed in 2012. Union defines 'single family home' as any detached single family home or any single family town home.

e) The data in the table shows the Energy Star Homes data in each of the past 5 years.

Calendar Year	ESNH Labelled Home (1)	Homes Built	% ESNH in Union Service Territory
2007	1,344	18,728	7%
2008	2,206	18,428	12%
2009	2,452	12,677	19%
2010	1,930	14,829	13%
2011	1,271	14,499(2)	9%

(1) Obtained from EnerQuality on November 30, 2011.
(2) Includes actual homes built to-date as of November 30th and the December forecast

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 2

Regarding Union's proposal for its Integrated Energy Management Systems program, has the Company already conducted any facility assessments akin to those envisioned for the 2012 program? If so, how many in each of the past three years?

Response:

Three pilot assessment projects are currently underway with the purpose of testing program design concepts to ensure program design is both robust and comprehensive and will satisfy stakeholder requirements.

UNION GAS LIMITED

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Ref: Issue 7

Regarding avoided gas costs presented in Exh A, Tab 1, Appendix I, approximately what portion of the 10-year and 20-year NPV values are attributable to avoided commodity and what portion to avoided capital expenditures.

Response:

All of the 10-year and 20-year NPV values are attributable to avoided commodity costs.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit A, Page 13.

a) Please indicate the number of customers consuming in excess of 25 million m3 annually found in each of the M4, M5 and Rate 20 rate classes.

b) Please indicate the DSM budget spending anticipated, by rate class, for the customers identified in response to question 1.a.

Response:

a) Based on 2010 actual throughput volumes, the numbers of customers consuming in excess of 25 million m^3 annually are:

Rate M4 - 1

Rate M5 - 2

Rate 20 - 2

b) The anticipated spend cannot be provided as Union does not plan at a rate class level.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit A, Appendix A, page 45.

Please provide a breakdown of the number of customers of the following types in each of the Rate T1 and Rate 100 classes:

a) Large volume manufacturing
b) Power plants
c) Institutional clients - hospitals
d) Institutional clients - schools/universities
e) Institutional clients - other (and please specify type)
f) Greenhouse operations
g) Industrial process customers

Response:

a) Large volume manufacturing - 13
b) Power plants - 17
c) Institutional clients – hospitals - 2
d) Institutional clients - schools/universities - 0
e) Institutional clients - other - 0
f) Greenhouse operations - 4
g) Industrial process customers – 35

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Exhibit B7.3

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit A, Appendix A, page 51

Please provide a table that allocates the proposed 2012 customer program budget to each of the Rate T1 and Rate 100 customer classes, and within each of these classes among the categories of customers listed in question 2.

Response:

The 2012 customer program budget cannot be provided as Union does not plan the budget at a rate class or customer category level.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit A, Appendix A, pages 45-57 and pages 95-107.

a) Are large industrial customers (those consuming in excess of 25 million m3 annually) expected to participate in the Integrated Energy Management Systems Program?

b) If the answer to question 4.a. is yes, please detail the differences between the Large Industrial Resource Acquisition Program and the Integrated Energy Management Systems Program, including the differences in the program activities to be engaged in.

c) At page 107, the second last bullet indicates that *"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"*, Please indicate how many such plants there are, and in which rate classes.

Response:

a) No

b) N/A

c) There are currently 186 customers that meet the IEMS program criteria. These customers are in the M4, M5, M7 and Rate 20 rate classes.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit A, Appendix A, page 56

Please explain what is meant in the 4th footnote to table 19 by "R100/20" and "R100/25".

Response:

R100/25 refers to customers who contract for firm Rate 100 service as well as interruptible Rate 25. Rate 100/20 is incorrectly referenced.

UNION GAS LIMITED

Answer to Interrogatory from
Industrial Gas Users Association ("IGUA")

Reference: Exhibit A, Tab 1, Appendix G.

a) Please file copies of all survey responses received.

b) Please break out the statistical representations provided at figures 1, 2, 3 and 4 to disaggregate the customer types listed in question 2.

Response:

a) Union is unable to provide copies of the individual survey responses received, as this would violate the confidentiality of the customers. A summary of the responses have been gathered and analyzed with the results presented in a manner that both protects the confidentiality of the respondents and follows sound statistical analysis techniques.

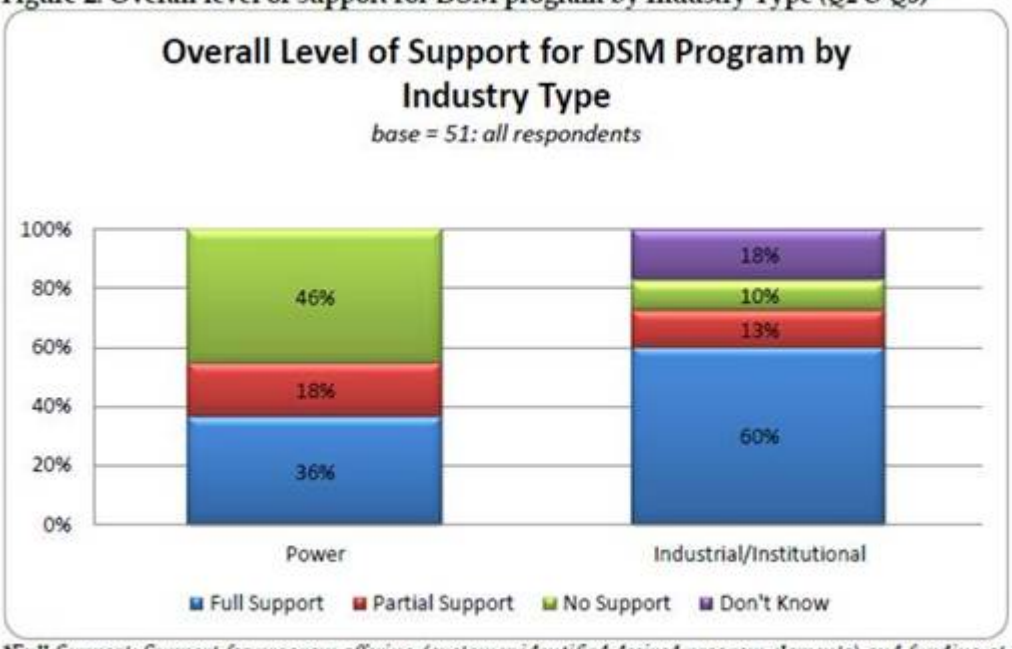
b) Union is unable to breakout the customer survey data into the customer types requested for two reasons:

1. It would violate the confidentiality of the customers.

2. The sample sizes would not be a reliable representation to formulate a valid conclusion.

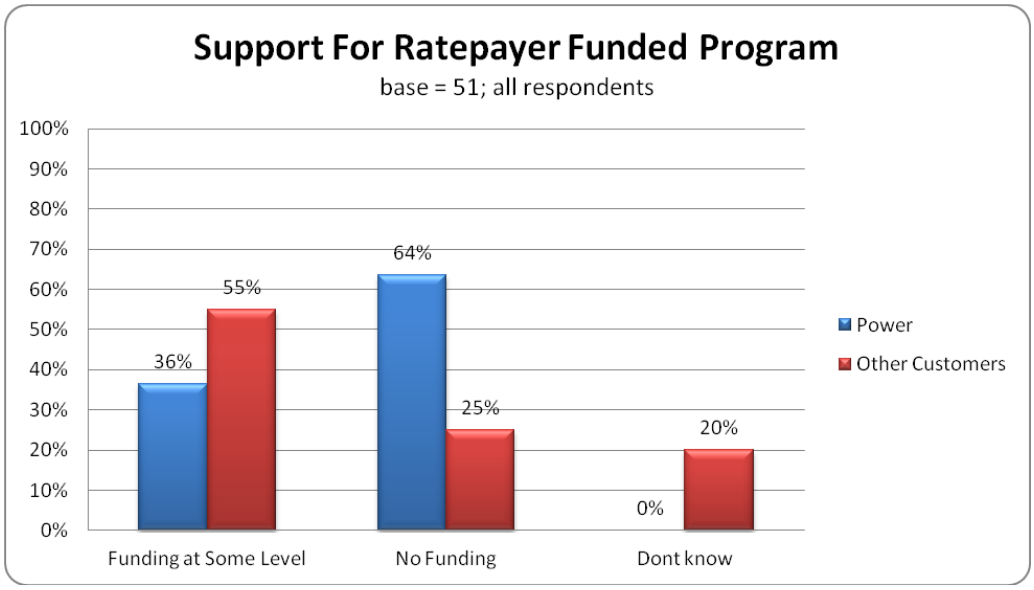
Union has, instead re-created Figure 3 & Figure 4, to follow the customer breakdown of Figure 2. This analysis does not violate the customers' confidentiality and the sample sizes are sufficient.

Figure 2: Overall level of support for DSM program by Industry Type *(Q2 & Q3)*



**Full Support: Support for program offering (customer identified desired program elements) and funding at some level*
Partial Support: Support for program offering (customer identified desired program elements) but no funding at any level
No Support: No support for program offering and funding at any level

Note: The Industrial/Institutional classification type in Figure 2, contains all Rate T1 & Rate 100 customers – except for Power Plants



UNION GAS LIMITED

Answer to Interrogatory from
Low-Income Energy Network ("LIEN")

Please indicate whether all three major components of Union Gas' Low-Income DSM program (Helping Homes Conserve, Home Retrofit, and Social and Assisted Multi-Family Offering) in 2012, 2013, and 2014 will be available in all of Union Gas' franchise areas through the low-income budget.

a) If all three components of the Low-Income program will not be available in all of Union Gas' franchise areas, please indicate which areas will be covered by which component, in 2012, 2013 and 2014 and the rationale for this geographic roll-out.

b) Please indicate the target markets and/or geographic focus in 2012, 2013, and 2014, by the Low-Income program component.

c) How will Union's DSM budget be allocated in 2012, 2013, and 2014?

   i. What is the expected percentage distribution of the Low-Income budget by Low-Income program component?

   ii. What is the expected percentage distribution of the Low-Income budget by geographic area?

Response:

Helping Homes Conserve is delivered in the majority of Union's franchise. Some communities are no longer being provided the current HHC offering because they've reached saturation. These communities include Amherstburg, Ancaster, Dundas, Essex, Fergus, Gerogetown, Kingsville, Gananoque, and Napanee.

The Home Retrofit offering will continue to expand its reach throughout the course of the three year plan but having full geographic reach by 2014 is unlikely due to budget constraints. Significant increases to funding would be required to manage an infrastructure across Union's franchise and therefore a staged approach is required.

The Social and Assisted Housing Multi-Family offering will be available throughout Union's franchise in 2012 – 2014.

a) With the exception of the communities noted above, Helping Homes Conserve will continue to be offered in all communities within the franchise where delivery

support is available. This currently includes most of our franchise area, except for small remote locations where it continues to be a challenge to find a cost-effective method for addressing customers with an installation component (all customers are eligible for the ESK).

In 2011, Union focused its weatherization initiative on Hamilton, Windsor and Belleville/Trenton as these areas have high concentrations of low-income housing stock in our franchise area. Union will continue to work in these areas while continuing to expand the geographic reach of the Home Retrofit offering into new areas in Northern Ontario, South-western Ontario and Central Ontario (exact cities are not yet determined). Union will decide on regions for growth based on a number of factors, including market saturation levels in current cities, market potential of new cities and delivery capacities in these new areas.

The Social and Assisted Housing Multi-Family offering will be available throughout the Union Gas franchise area from 2012 to 2014.

b) Please see response to a) above.

c)

i. The planned distributions of low-income budget by program component for each year of the plan are as follows:

Program Component	2012	2013	2014
Helping Homes Conserve Offering	17%	6%	4%
Home Retrofit Offering	50%	58%	67%
Social & Assisted Housing Multi-Family Offering	19%	21%	15%
Overhead & Salaries	14%	15%	14%

ii. Union does not allocate its budget by geographic area.

UNION GAS LIMITED

Answer to Interrogatory from
Low-Income Energy Network ("LIEN")

Please provide a breakdown of the number of participants in Union Gas' previous low-income Home Retrofit offering in 2008, 2009, and 2010 by geographic community, by total savings/participant (average, median) and by number of deep measures installed (based on Union Gas' definition of deep measures).

Response:

The tables below show the Home Retrofit breakdown for 2009 and 2010. There are no weatherization results for 2008. As Union has not historically tracked cumulative natural gas savings, and each measure has a different effective useful life, the annual natural gas savings are shown (average, median).

2009 Results

Municipality	Number of Deep Measures (Homes Retrofitted)	Average Annual Gas Savings per Participant (m^3)	Median Annual Gas Savings per Participant (m^3)
Hamilton	15	1942	2047
Cornwall	60	600	553

2010 Results

Municipality	Number of Deep Measures (Homes Retrofitted)	Average Gas Savings per Participant (m^3)	Median Gas Savings per Participant (m^3)
Cornwall	101	545	472
Windsor	33	1315	1150

Filed: 2011-12-16
EB-2011-0327
Exhibit B8.3

UNION GAS LIMITED

Answer to Interrogatory from
Low-Income Energy Network ("LIEN")

Please provide a breakdown of the number of participants in Union Gas' previous low-income Helping Homes Conserve offering in 2007, 2008, 2009, and 2010 by geographic community, by total savings/participant (average, median) and by number of measures installed.

Response:

Union has attached a breakdown of the number of measures installed, by community, for 2007 – 2010. As Union does not track the Helping Homes Conserve offering by community at a participant level, the participant and total savings/participant (average, median) data is not available.

Low-income Helping Homes Conserve Summary - 2007 to 2010

	Number Of Measures
2007	**28,252**
Belleville	2
ESK- HHC-Faucet Aerator-Bath	1
ESK- HHC-Showerhead - Low Flow	1
Brantford	181
Thermostat - Programmable - HHC	181
Chatham	1
Thermostat - Programmable - HHC	1
Essex	2
Thermostat - Programmable - HHC	2
Hamilton	7,702
ESK- HHC-Faucet Aerator-Kitchen	6,363
Thermostat - Programmable - HHC	1,339
Leamington	2
Thermostat - Programmable - HHC	2
London	20,330
ESK- HHC-Faucet Aerator-Bath	6,518
ESK- HHC-Pipe Insulation - 2 m	6,442
ESK- HHC-Showerhead - Low Flow	7,337
Thermostat - Programmable - HHC	33
St. Thomas	1
Thermostat - Programmable - HHC	1
Stoney Creek	1
Thermostat - Programmable - HHC	1
Windsor	30
Thermostat - Programmable - HHC	30

	Number Of Measures
2008	**35,699**
Brantford	243
ESK- HHC-Faucet Aerator-Bath	45
ESK- HHC-Faucet Aerator-Kitchen	45
ESK- HHC-Pipe Insulation - 2 m	45
ESK- HHC-Showerhead-1.25 gpm existing 2.0	1
ESK- HHC-Showerhead-1.25 gpm existing 2.1 to 2.5	19
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	25
Thermostat - Programmable - HHC	63
Hamilton	17,378
ESK- HHC-Faucet Aerator-Bath	3,663
ESK- HHC-Faucet Aerator-Kitchen	3,663
ESK- HHC-Pipe Insulation - 2 m	3,636
ESK- HHC-Showerhead-1.25 gpm existing 2.0	23
ESK- HHC-Showerhead-1.25 gpm existing 2.1 to 2.5	618
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	3,122
Thermostat - Programmable - HHC	2,653
Sudbury	3,900
ESK- HHC-Faucet Aerator-Bath	775
ESK- HHC-Faucet Aerator-Kitchen	775
ESK- HHC-Pipe Insulation - 2 m	677
ESK- HHC-Showerhead-1.25 gpm existing 2.0	213
ESK- HHC-Showerhead-1.25 gpm existing 2.1 to 2.5	717
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	472
Thermostat - Programmable - HHC	271
Windsor	14,178
ESK- HHC-Faucet Aerator-Bath	3,211
ESK- HHC-Faucet Aerator-Kitchen	3,211
ESK- HHC-Pipe Insulation - 2 m	2,933
ESK- HHC-Showerhead-1.25 gpm existing 2.0	300
ESK- HHC-Showerhead-1.25 gpm existing 2.1 to 2.5	865
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	1,513
Thermostat - Programmable - HHC	2,145

	Number Of Measures
2009	**87,474**
Brantford	7,344
ESK- HHC-Faucet Aerator-Bath	1,476
ESK- HHC-Faucet Aerator-Kitchen	1,476
ESK- HHC-Pipe Insulation - 2 m	1,615
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	152
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	1,618
Thermostat - Programmable - HHC	1,007
Cornwall	985
ESK- HHC-Faucet Aerator-Bath	128
ESK- HHC-Faucet Aerator-Kitchen	128
ESK- HHC-Pipe Insulation - 2 m	128
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	52
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	91
Thermostat - Programmable - HHC	458
Hamilton	18,433
ESK- HHC-Faucet Aerator-Bath	3,741
ESK- HHC-Faucet Aerator-Kitchen	3,741
ESK- HHC-Pipe Insulation - 2 m	3,810
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	557
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	3,459
Thermostat - Programmable - HHC	3,125
London	21,601
ESK- HHC-Faucet Aerator-Bath	4,468
ESK- HHC-Faucet Aerator-Kitchen	4,468
ESK- HHC-Pipe Insulation - 2 m	4,500
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	2,129
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	2,444
Thermostat - Programmable - HHC	3,592
North Bay	3,048
ESK- HHC-Faucet Aerator-Bath	605
ESK- HHC-Faucet Aerator-Kitchen	605
ESK- HHC-Pipe Insulation - 2 m	741
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	262
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	352
Thermostat - Programmable - HHC	483
Sudbury	6,448
ESK- HHC-Faucet Aerator-Bath	1,571
ESK- HHC-Faucet Aerator-Kitchen	1,571
ESK- HHC-Pipe Insulation - 2 m	1,576
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	1,218
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	400
Thermostat - Programmable - HHC	112
Windsor	29,615
ESK- HHC-Faucet Aerator-Bath	6,489
ESK- HHC-Faucet Aerator-Kitchen	6,489
ESK- HHC-Pipe Insulation - 2 m	6,297
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	1,593
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	5,734
Thermostat - Programmable - HHC	3,013

	Number Of Measures
2010	**64,272**
Brantford	3,521
ESK- HHC-Faucet Aerator-Bath	758
ESK- HHC-Faucet Aerator-Kitchen	758
ESK- HHC-Pipe Insulation - 2 m	760
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	350
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	366
Thermostat - Programmable - HHC	529
Cambridge	6,285
ESK- HHC-Faucet Aerator-Bath	1,451
ESK- HHC-Faucet Aerator-Kitchen	1,451
ESK- HHC-Pipe Insulation - 2 m	1,449
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	381
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	1,070
Thermostat - Programmable - HHC	483
Cornwall	656
ESK- HHC-Faucet Aerator-Bath	120
ESK- HHC-Faucet Aerator-Kitchen	120
ESK- HHC-Pipe Insulation - 2 m	170
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	112
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	4
Thermostat - Programmable - HHC	130
Dundas	2,553
ESK- HHC-Faucet Aerator-Bath	522
ESK- HHC-Faucet Aerator-Kitchen	545
ESK- HHC-Pipe Insulation - 2 m	524
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	389
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	141
Thermostat - Programmable - HHC	432
Essex	2,467
ESK- HHC-Faucet Aerator-Bath	613
ESK- HHC-Faucet Aerator-Kitchen	613
ESK- HHC-Pipe Insulation - 2 m	613
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	6
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	607
Thermostat - Programmable - HHC	15
Georgetown	1,093
ESK- HHC-Faucet Aerator-Bath	254
ESK- HHC-Faucet Aerator-Kitchen	254
ESK- HHC-Pipe Insulation - 2 m	254
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	43
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	211
Thermostat - Programmable - HHC	77

Guelph	6,047
ESK- HHC-Faucet Aerator-Bath	1,267
ESK- HHC-Faucet Aerator-Kitchen	1,267
ESK- HHC-Pipe Insulation - 2 m	1,267
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	4
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	1,263
Thermostat - Programmable - HHC	979
Hamilton	12,827
ESK- HHC-Faucet Aerator-Bath	2,908
ESK- HHC-Faucet Aerator-Kitchen	2,955
ESK- HHC-Pipe Insulation - 2 m	2,939
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	1,326
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	1,602
Thermostat - Programmable - HHC	1,097
Leamington	386
ESK- HHC-Faucet Aerator-Bath	96
ESK- HHC-Faucet Aerator-Kitchen	95
ESK- HHC-Pipe Insulation - 2 m	92
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	3
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	84
Thermostat - Programmable - HHC	16
London	8,997
ESK- HHC-Faucet Aerator-Bath	1,939
ESK- HHC-Faucet Aerator-Kitchen	1,938
ESK- HHC-Pipe Insulation - 2 m	1,947
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	395
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	1,541
Thermostat - Programmable - HHC	1,237
North Bay	89
ESK- HHC-Faucet Aerator-Bath	22
ESK- HHC-Faucet Aerator-Kitchen	22
ESK- HHC-Pipe Insulation - 2 m	17
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	6
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	8
Thermostat - Programmable - HHC	14
Oakville	8
ESK- HHC-Faucet Aerator-Bath	2
ESK- HHC-Faucet Aerator-Kitchen	2
ESK- HHC-Pipe Insulation - 2 m	2
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	2
St. Thomas	2,931
ESK- HHC-Faucet Aerator-Bath	628
ESK- HHC-Faucet Aerator-Kitchen	627
ESK- HHC-Pipe Insulation - 2 m	636
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	393
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	244
Thermostat - Programmable - HHC	403
Stoney Creek	3,349
ESK- HHC-Faucet Aerator-Bath	702
ESK- HHC-Faucet Aerator-Kitchen	701
ESK- HHC-Pipe Insulation - 2 m	713
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	553
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	129
Thermostat - Programmable - HHC	551
Stratford	582
ESK- HHC-Faucet Aerator-Bath	141
ESK- HHC-Faucet Aerator-Kitchen	141
ESK- HHC-Pipe Insulation - 2 m	141
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	81
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	59
Thermostat - Programmable - HHC	19
Waterloo	3,293
ESK- HHC-Faucet Aerator-Bath	739
ESK- HHC-Faucet Aerator-Kitchen	738
ESK- HHC-Pipe Insulation - 2 m	738
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	271
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	464
Thermostat - Programmable - HHC	343
Windsor	9,188
ESK- HHC-Faucet Aerator-Bath	2,281
ESK- HHC-Faucet Aerator-Kitchen	2,281
ESK- HHC-Pipe Insulation - 2 m	2,280
ESK- HHC-Showerhead-1.25 gpm existing 2.0-2.5	4
ESK- HHC-Showerhead-1.25 gpm existing 2.6+	2,272
Thermostat - Programmable - HHC	70

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Ref: Exhibit A, pages 15 & 16

Please update Table 1 to reflect the Q3, 2011 GDP-IPI inflation factor.

Response:

Exhibit A, Table 1, updated for the Q3, 2011 GDP-IPI inflation factor of 3.4% is below.

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 * 3.4%)	1,023
10	Total 2012 Budget With Inflation (line 3 + line 9)	31,114

(1) As indicated at page 26 of the Guidelines

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Ref: Exhibit A, pages 17 & 18

Union proposes to allocate the low-income DSM budget to rate classes in proportion to the most recent Board-approved allocation of rate base. Table 2 shows this allocation.

a) Would any DSM incentive arising from the low-income DSM programs be allocated using the same methodology? If not, please explain the allocation of the incentive.

b) Did Union consider any other allocation methodologies, such as distribution revenue? If not, why not?

c) How are income taxes allocated to rate classes?

d) Please provide a table, similar to Table 2, but only including the total low-income DSM budget (including inflation) that shows the allocation to rate classes based on rate base and distribution revenues.

Response:

a) The DSM incentive arising from the Low-income Program will not be allocated using the same methodology. The DSM incentive amount arising from the Low-income Program, as with all programs, will be allocated to rate classes in proportion to the budget actually spent in each rate class.

b) Please refer to Exhibit B1.6 a).

c) Union allocates income taxes based on Board-approved Rate Base allocated to rate classes.

d) Please refer to Exhibit B1.6 a).

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Ref: Exhibit A, pages 22 & 23

a) What evidence does Union have of the relationship between funding above the DSM budget with the increase above the target?

b) What evidence does Union have that would suggest that increases above the target are only associated with an increase in spending over and above the DSM budget?

c) Is Union's proposal consistent with the Guidelines which indicate that performance will be evaluated using balanced scorecards? Please explain.

d) Please explain how Union determined that a multiplier of 1.25 was appropriate in relation to the 15% maximum above the DSM budgets?

e) Please provide a comparison for each of the relevant scorecards between that proposed by Union and those proposed by Enbridge in EB-2011-0295 in terms of how the targets have been set for the 50% and 150% levels, along with the weights applied to each target.

Response:

a) There are fundamental program elements that must be funded up to and beyond the 100% target level to drive program results. Variable program costs, such as delivery agent fees, ESK kitting costs, and customer incentives, are directly tied to each participant and are fundamental to the program. Union must pay these fees to drive program results above the 100% target. These essential costs are a significant portion of the budget – for example customer incentives alone account for 55% of the Resource Acquisition budget. Therefore, increases above the 100% target must be accompanied by an associated increase in the DSM budget (i.e. an allowable overspend recoverable in the DSMVA).

b) An increase in the budget is one of two ways Union can achieve above the 100% target (See Response 3a)). The other way is by finding cost-efficiencies during the program year within the budgets. As the 25% increase in the target above the 100% scorecard target level outpaces the 15% increase in the budget, Union must identify cost efficiencies to fund the 150% target level.

c) Yes. Union has used a balanced scorecard approach to establish targets for each of its programs. Union's Resource Acquisition, Low-income and Large Industrial Rate T1/Rate 100 scorecards balance the competing interests of maximizing cumulative natural gas savings with pursuing deep measures that prevent lost opportunities. Union's Market Transformation scorecard balances leading and lagging indicators to ensure metrics are included which track market uptake, such as homes built, as well as those that drive future performance (e.g. assessments completed). This approach to balancing competing interests is consistent with the principles outlined in the Kaplan and Norton[1] framework for establishing effective performance scorecards, which is widely recognized in the field of performance management.

As outlined in the Guidelines, Union's Resource Acquisition and Low-income Scorecard include cumulative natural gas savings and deep measure metrics. The cumulative natural gas savings metric is also included in the Large Industrial Rate T1/Rate 100 Scorecard; however a percentage of customers participating metric was included as opposed to a deep measure metric. This was in recognition of the importance of driving broad participation to ensure rate class cross subsidization is minimized. Union's metric weighting for these scorecards reflects the importance of both maximizing natural gas savings and delivering deep measures to ensure Union's program strategy balances these objectives.

Union had initially developed these scorecards to include a metric for the $ spent/cumulative m^3 savings as suggested by the Guidelines, however this metric was removed based on feedback received at Union's August 11, 2011 DSM Plan Consultation meeting.

As each Market Transformation Program must be assessed on its own merits based on the Program's specific objectives, the metrics and weightings in Union's Market Transformation scorecard are tailored to the three programs. They are focused on measuring Union's success in overcoming the market barriers and, as a result, advancing adoption of the efficient technologies and industry practices.

d) Using a multiplier of 1.25, Union must stretch the market opportunities while finding cost efficiencies in order to achieve a 25% increase above the target with funding of only 15% above the budget. A multiplier less than 1.25 would represent a stretch from a market opportunity perspective without necessarily a requirement to find cost efficiencies (e.g. multiplier of 1.15), whereas a multiplier greater than

[1] Kaplan, R., Norton, D. *The Balanced Scorecard: Translating Strategy into Action*. Harvard Business Press. 1996.

1.25 would represent a stretch from a market perspective that the 15% incremental budget would not be able to accommodate, making achievement approaching the 150% target level unfeasible (e.g. multiplier of 1.5). A multiplier of 1.25 represents a stretch from both a market and budget perspective that will challenge the company to strive beyond its targets.

e) As Union was not involved in Enbridge's process of setting their 50% and 150% target, the company is unaware of the basis for which Enbridge set these levels. The tables below, however, show a comparison between the following metrics on a percentage basis:

- Cumulative Natural Gas Savings metric (Resource Acquisition Scorecard)
- Cumulative Natural Gas Savings metric (Large Industrial T1/R100)
- Cumulative Natural Gas Savings metric (Low-Income Scorecard)

A comparison is also shown for the weightings of each of these metrics on their respective scorecard.

Scorecard(s)	Metric	Union 50%	Enbridge 50%
Union: Resource Acquisition and Large Industrial T1/R100 Enbridge: Resource Acquisition (including Large Industrial)	Cumulative natural gas savings (m^3)	50% of 100%	75% of 100%
Low-Income	Cumulative natural gas savings (m^3)	50% of 100%	Single Family: 71% of 100% Multi-Family: 73% of 100%

Scorecard(s)	Metric	Union 150%	Enbridge 150%
Union: Resource Acquisition and Large Industrial Rate T1/Rate 100 Enbridge: Resource Acquisition (including Large Industrial)	Cumulative natural gas savings (m^3)	125% of 100%	125% of 100%
Low-Income	Cumulative natural gas savings (m^3)	125% of 100%	Single Family: 124% of 100% Multi-Family: 124% of 100%

Scorecard(s)	Metric	Union Weight	Enbridge Weight
Union: Resource Acquisition and Large Industrial T1/R100 Enbridge: Resource Acquisition (including Large Industrial)	Cumulative natural gas savings (m^3)	60%	92%
Low-Income	Cumulative natural gas savings (m^3)	50%	100% (50% Single Family) (50% Multi-Family)

Union is unable to compare the 50% and 150% levels, and scorecard weightings, on the following metrics as they are not comparable between the two utilities:

Union

- Deep Measures metric (Resource Acquisition Scorecard)
- Percentage of Customers Participating metric (Large Industrial Rate T1/Rate 100)
- Residential Deep Measure Participants metric (Low-Income Scorecard)
- Multi-Family Deep Measure Participants metric (Low-Income Scorecard)
- All metrics on the Market Transformation Scorecard

Enbridge

- Residential Deep Savings metric (Resource Acquisition Scorecard)
- Commercial/Industrial Deep Savings metric (Resource Acquisition Scorecard)
- All metrics on the Market Transformation Scorecard

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Ref: Exhibit A, page 24

Is there a correlation between the number of deep measures and the cumulative natural gas savings? Is this relationship elastic or inelastic? In other words, if the number of deep measures increases by 1%, does the cumulative natural gas savings increase by more or less than 1%?

Response:

Yes, there is a relationship between the number of deep measures and the cumulative natural gas savings. Each deep measure both contributes volume savings to the cumulative gas savings target and conversely requires DSM budget which limits the number of shallow discretionary retrofit measures which can be promoted to drive savings.

This relationship is inelastic within both the Resource Acquisition and Low-Income scorecards respectively – if the number of deep measures increases by 1% the cumulative natural gas savings would increase by less than 1%.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Ref: Exhibit A, page 25

Does the percentage of customers participating metric result in Union overemphasizing number of participants rather than emphasizing deep measure savings at a lower number of participants? If not, why not?

Response:

No. Union considers all savings within the Large Industrial Rate T1 and Rate 100 Program to be deep, regardless of which customer site they occur at.

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Ref: Exhibit A, page 40 & Table 3

a) Is the eligibility to access the incremental 15% above the Board-approved DSM budget noted at line 13 related to the overall DSM budget or to the individual budgets for resource acquisition, low-income, and market transformation budgets shown in Table 3 on page 19?

b) If the resource acquisition scorecard has achieved its overall target of 100% on a pre-audited basis but the other scorecards have not met their targets, and Union is eligible to access the incremental 15% above its Board-approved budget, could this additional expenditures be spent on only resource acquisition programs, or could additional amounts be spent on market transformation and/or low-income programs, despite neither of these programs meeting their targets?

Response:

a) Please see the response at Exhibit B11.19

b) In the scenario provided, this additional expenditure could only be spent on programs within the Resource Acquisition scorecard. The DSMVA will be used to produce results against any Program scorecard(s) which have achieved the overall scorecard target. It would not be spent on programs associated with a scorecard that has not achieved the overall 100% scorecard target (see Exhibit A, page 40 at line 15).

UNION GAS LIMITED

Answer to Interrogatory from
London Property Management Association ("LPMA")

Ref: Exhibit A, page 41, Schedule 2

Please provide a version of Schedule 2 that includes costs associated with the DSM incentive, assuming that the full incentive of $10.45 is achieved, and allocated to rate classes based on the DSM budgets as proposed by Union.

Response:

Please see the attachment.

UNION GAS LIMITED

DSM in Proposed 2012 Distribution Rates

Line No.	Particulars		Proposed Rates with DSM (1)	DSM-related Component (2)	Proposed Rates without DSM	DSM in Proposed Rates
			(a)	(b)	(c) = (a-b)	(d) = (b/a)
1	R01	Distribution Revenue ($000's)	134,415	5,602	128,814	
2		Volumes (10^3m^3)	863,695	863,695	863,695	
3		Average rate (cents / m^3)	15.5628	0.6486	14.9143	4.2%
4	R10	Distribution Revenue ($000's)	21,321	1,711	19,610	
5		Volumes (10^3m^3)	451,957	451,957	451,957	
6		Average rate (cents / m^3)	4.7174	0.3785	4.3389	8.0%
7	R20	Distribution Revenue ($000's)	7,245	1,294	5,951	
8		Volumes (10^3m^3)	519,357	519,357	519,357	
9		Average rate (cents / m^3)	1.3951	0.2492	1.1459	17.9%
10	R100	Distribution Revenue ($000's)	15,095	1,948	13,147	
11		Volumes (10^3m^3)	2,219,052	2,219,052	2,219,052	
12		Average rate (cents / m^3)	0.6802	0.0878	0.5925	12.9%
13	M1	Distribution Revenue ($000's)	334,817	17,466	317,351	
14		Volumes (10^3m^3)	2,650,399	2,650,399	2,650,399	
15		Average rate (cents / m^3)	12.6327	0.6590	11.9737	5.2%
16	M2	Distribution Revenue ($000's)	41,356	4,798	36,558	
17		Volumes (10^3m^3)	1,017,919	1,017,919	1,017,919	
18		Average rate (cents / m^3)	4.0628	0.4713	3.5915	11.6%
19	M4	Distribution Revenue ($000's)	12,251	1,814	10,438	
20		Volumes (10^3m^3)	462,743	462,743	462,743	
21		Average rate (cents / m^3)	2.6476	0.3920	2.2556	14.8%
22	M5A	Distribution Revenue ($000's)	8,646	1,912	6,734	
23		Volumes (10^3m^3)	369,224	369,224	369,224	
24		Average rate (cents / m^3)	2.3418	0.5179	1.8239	22.1%
25	M7	Distribution Revenue ($000's)	5,967	869	5,098	
26		Volumes (10^3m^3)	269,201	269,201	269,201	
27		Average rate (cents / m^3)	2.2167	0.3230	1.8937	14.6%
28	T1	Distribution Revenue ($000's)	56,242	3,991	52,251	
29		Volumes (10^3m^3)	4,794,769	4,794,769	4,794,769	
30		Average rate (cents / m^3)	1.1730	0.0832	1.0898	7.1%
31		Total DSM in 2012 Proposed Rates ($000's)		41,404		

Notes:

(1) EB-2011-0025, Rate Order, Working Papers, Schedule 5, column (g).

(2) EB-2011-0327, Exhibit A, Schedule 1, column (h), plus $10.450 million of 2012 DSM Incentive amounts.

UNION GAS LIMITED

Answer to Interrogatory from
Pollution Probe

Reference: Exhibit A, Pages 15-19, particularly Tables 1 and 3

Do the cumulative DSM budgets proposed by Union Gas for 20 12-14 reflect the maximum amounts allowed under the DSM Guidelines? If not, please provide the differences between the maximum amounts and the proposed DSM budgets. Please note that it is understood that the proposed budget numbers are prior to the addition of allowed but currently unknown future inflation for 2013 and 2014.

Response:

Yes, the DSM budgets proposed by Union for 2012 – 2014 reflect the maximum amounts allowable under the DSM Guidelines. This includes the incremental 10% increase to the total DSM budget for Low-income programs.

UNION GAS LIMITED

Answer to Interrogatory from
Pollution Probe

Reference: Exhibit A, Page 17

Union Gas is proposing to allocate its 2012 Low-income DSM budget of $8.068 million to rate classes in proportion to the most recent Board-approved allocation of rate base. Please provide the dollar cost to each rate class if the $8.068 million Low-income DSM budget is allocated to rate classes in proportion to their respective shares of Union's in-franchise:

a) rate base;

b) delivery revenues; and

c) number of customers.

Response:

Please see the attachment for the allocation of 2012 Low-Income DSM Budget using alternative allocation options.

Allocation of 2012 Low-Income DSM Budget
Using Alternative Allocation Options

Line No.	Particulars ($000's)	Allocation using 2007 Board-approved Rate Base		Allocation using 2012 Board-approved Distribution Revenue		Allocation using 2007 Board-approved Customer Numbers	
		Allocator	Allocation	Allocator (1)	Allocation	Allocator (2)	Allocation
		(a)	(b)	(c)	(d)	(e)	(f)
	Northern & Eastern Operations Area						
1	R01	561,550	1,754	146,650	1,731	295,511	1,855
2	R10	103,786	324	25,027	295	2,965	19
3	R20	53,736	168	7,745	91	65	0
4	R100	71,109	222	16,126	190	20	0
5	Total Northern & Eastern Operations Area	790,180	2,468	195,548	2,308	298,561	1,874
	Southern Operations Area						
6	M1	1,312,577	4,100	357,154	4,216	979,351	6,148
7	M2	199,518	623	48,615	574	6,973	44
8	M4	53,190	166	12,085	143	194	1
9	M5	32,615	102	8,545	101	133	1
10	M7	32,982	103	5,864	69	7	0
11	T1	161,793	505	55,738	658	59	0
12	Total Southern Operations Area	1,792,675	5,600	488,001	5,760	986,717	6,194
13	Total In-Franchise Union	2,582,855	8,068	683,549	8,068	1,285,278	8,068

Notes:
(1) EB-2011-0025, Rate Order, Working Papers, Schedule 3, column (k), excluding Upstream Transportation (column (j)), and Low-Income DSM Budget allocated on 2007 Board-approved Rate Base (column (b) in the above table).
(2) EB-2005-0520, AVECUST allocation factor.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 10

Please provide a description of the main ways in which the Applicant's large industrial customers are operating their businesses in a manner that includes excessive use of natural gas. Please provide any Ontario research the Applicant has relating to these industrial inefficiencies.

Response:

Union's evidence (Ex. A, p.10) does not indicate that our customers use excessive natural gas, however, Union does believe there is significant opportunities for conservation. Refer to Exhibit B1.3 a) and Exhibit A, Appendix K.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 11

Please confirm that the customer representatives consulted in the input described on lines 21 et seq were energy management specialists.

Response:

As indicated at Exhibit A, page 11, Union spoke to Rate T1 and Rate 100 customers to get their input on Union's Large Industrial Rate T1/Rate 100 Program proposals. The individuals Union spoke to had either energy management or operational responsibility for the respective companies.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 18-19

Please confirm that the "programs" to which the 30% rule applies are the seven programs listed in Table 3.

Response:

Confirmed.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 17

Please provide an analysis of the pros and cons of allocating low income DSM spending by a) rate base, b) distribution revenues, or c) customer count. Please provide a breakdown of the proposed low income budget by allocation to customer class on each of those three bases.

Response:

Please refer to Exhibits B1.6 a) and B10.2.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 18

Please confirm that, where costs are reallocated as set forth on this page, the allocation of cost responsibility is also changed, so that the ultimate cost responsibility is trued-up. Please describe the regulatory process used to accomplish this result.

Response:

Confirmed. Union will track the variances between the DSM program costs included in rates and actual DSM spending by rate class in the DSM Variance Account ("DSMVA"). Any variances between DSM program costs included in rates and actual DSM spending by rate class will be recovered from, or refunded to, customers in each rate class through Union's annual deferral account disposition proceeding.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 21

Please provide a revised version of this discussion of input assumptions and targets in light of the Joint Terms of Reference, or provide a description of the extent to which it is altered by that document.

Response:

Ex. A, p. 21 remains applicable and is not altered in light of the Joint Terms of Reference.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 22

Please provide a numerical example of the different effects of discounting between the TRC and gas savings targets. Please provide a summary of the ways in which this change in the structure of targets and therefore incentives is expected to impact the Applicant's program design and implementation emphases.

Response:

The example below shows two measures that have identical input assumptions other than measure life (Measure A has a short measure life whereas Measure B has a long measure life). Measure B is much more attractive than Measure A under a natural gas savings target structure (which is not discounted) compared to a TRC target structure (which is discounted).

	Effective Useful Life	**Energy Load**	**Free Rider Rate**	**Gas Savings (m^3)**	**Equipment Costs**
Measure A	5	Weather Sensitive	10%	1,000	$ 100
Measure B	25	Weather Sensitive	10%	1,000	$ 100

		2012 TRC (7.9% Discount Rate)	**Difference**		**Cumulative Natural Gas Savings (Not Discounted)**	**Difference**
Measure A		$992	Measure B is 2.3 times greater		4,500 m^3	Measure B is 4.0 times greater
Measure B		$3,247			22,500 m^3	

The change from TRC to cumulative natural gas savings measurement places a greater emphasis on energy-efficient initiatives which have a long effective useful life. This is reflected in the reduced emphasis on measures with relatively short useful lives in Union's program design. For example, commercial pre-rinse spray valves, which have a 5 year effective useful life, are no longer included in Union's

Commercial/Industrial Program. As future savings will be measured on an equal basis with near term savings, Union will be focused on maximizing cumulative natural gas savings regardless of the year they are realized when implementing its programs.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 22

Please provide the metrics used in the current incentive compensation program for Union Gas employees eligible for incentives. Please provide the incentive plan documentation supporting and/or describing those metrics. If the pattern of incentive compensation does not follow a similar pattern of targets (50%, 100%, 125%), please provide an explanation as to why the DSM incentives should be structured on a different basis

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Response:

There is no relation between Union's incentive plan and Union's DSM Scorecards. Details on Union's incentive program have been filed in Union's 2013 cost of service filing (EB-2011-0210, Exhibit D1, Tab 3, Appendix B). Please refer to Exhibit B9.3 for the rationale for the calculation of Union's DSM scorecard targets.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 24

Please explain why the cumulative natural gas savings targets in each of Tables 4 and 6 drop annually during the term of the plan.

Response:

The 100% cumulative natural gas savings target decreases from 2012 - 2014 due to the shift from basic to deeper measures over the term of the DSM Plan. On average, deeper measures require a higher program budget compared to basic measures.

Table 4: 2012 – 2014 Resource Acquisition DSM Scorecards

In the Residential Program, the number of Energy Savings Kits ("ESK") decreases over the term of the Plan (see Exhibit A, Appendix A, Page 18, Table 5). Over the same period, the target number of attic and basement insulation upgrades increases (see Exhibit A, Appendix A, Page 20, Table 6).

The net result is a decrease of 2,810,000 m^3 in cumulative natural gas savings in the Resource Acquisition scorecard from 2012 to 2014. The table below shows the number of participants and cumulative natural gas savings attributed to the ESK and attic and basement insulation offerings respectively, and the total impact on cumulative natural gas savings during the term of the Plan.

	2012		**2013**		**2014**	
	Participants	**Cumulative Natural Gas Savings (000 m^3)**	**Participants**	**Cumulative Natural Gas Savings (000 m^3)**	**Participants**	**Cumulative Natural Gas Savings (000 m^3)**
ESK Offering	56,000	24,315	54,000	23,082	50,000	21,113
Insulation Offering	175	504	310	896	310	896
Total Cumulative Natural Gas Savings		**24,819**		**23,978**		**22,009**
Increase/Decrease Relative to 2012		**--**		**(841)**		**(2,810)**

Table 6: 2012 – 2014 Low-income DSM Scorecards

In the Low-income Program, the number of Helping Homes Conserve ("HHC") participants decreases from 10,000 in 2012 to 1,500 in 2014. Over the same period, the target number of home retrofit participants increases from 550 to 750 homes. In addition, Union's Social Housing Multi-Family offering targets reflect the time required to gain traction in this market, and a shift away from the showerheads and aerators delivered through the Hot Water Conservation initiative, over the term of the Plan.

The net result is a decrease of 5,268,000 m^3 in cumulative natural gas savings in the Low-income scorecard from 2012 to 2014. The table below shows the number of participants and cumulative natural gas savings attributed to the HHC, Home Retrofit and Social Housing Multi-Family offerings respectively, and the total impact on cumulative natural gas savings during the term of the Plan.

	2012		2013		2014	
	Participants	**Cumulative Natural Gas Savings (000 m^3)**	**Participants**	**Cumulative Natural Gas Savings (000 m^3)**	**Participants**	**Cumulative Natural Gas Savings (000 m^3)**
HHC Offering	10,000	15,458	3,000	4,637	1,500	2,319
Home Retrofit Offering	550	16,928	650	20,007	750	23,084
Social Housing Multi-Family Offering						
Building Optimization	70	--	40	600	15	343
Clothes Washer	88	102	112	130	88	102
Condensing Boiler	5	238	25	2,173	16	1,341
Condensing Water Heater	15	287	20	383	20	383
Custom Projects	12	1,244	24	2,488	24	2,473
ERV	--	--	4	354	7	665
Hot Water Conservation	10,000	2,152	5,000	1,076	2,000	430
Total Cumulative Natural Gas Savings		**36,409**		**31,848**		**31,141**
Increase/Decrease Relative to 2012		**--**		**(4,561)**		**(5,268)**

Filed: 2011-12-16
EB-2011-0327
Exhibit B11.10

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 24-34

For each of Tables 4 through 7, please restructure these tables to show, for each proposed metric, the actuals for each of 2006 through 2010, the forecast for 2011, and the targets for 2012-2014.

Response:

Tables 4 through 6 [Ex. A, p. 24-34], have been restructured to show actuals for the proposed metrics for 2006-2010, 2011 outlook, and the targets for 2012-2014. Table 7 was not provided as the market transformation scorecard proposed only pertains to 2012 -2014 and cannot be applied to previous years market transformation results. Please see the attachment.

Table 4: 2006 - 2011 Resource Acquisition Scorecard

Resource Acquisition Scorecard									
Metric	**2006**	**2007**	**2008**	**2009**	**2010**	**2011 Outlook**	**2012**	**2013**	**2014**
Cumulative Natural Gas Savings (m^3)	N/A *	N/A *	528,969,114	701,376,040	810,013,588	918,333,967	558,041,000	557,200,000	555,231,000
Deep Measures	N/A *	N/A *	11,195	18,271	2,580	5,506	3,490	3,625	3,625

* Data is not available as the split between the Non-Rate T1/R100 and Rate R100/T1 rate classes is not available

Table 5: 2006 - 2011 Large Industrial T1/R100 Scorecard

Large Industrial T1/R100 Scorecard									
Metric	**2006**	**2007**	**2008**	**2009**	**2010**	**2011 Outlook**	**2012**	**2013**	**2014**
Cumulative Natural Gas Savings for O&M Project (m^3)	N/A*	N/A*	310,665,052	177,691,466	374,423,911	918,987,134	500,000,000	500,000,000	500,000,000
Cumulative Natural Gas Savings for Equipment Projects (m^3)	N/A*	N/A*	160,236,863	507,085,757	607,512,366	249,702,472			
Percentage of Customers Participating	N/A *	N/A *	32%	31%	52%	59%	55%	55%	55%

* Data is not available as the split between the Non-Rate T1/R100 and Rate R100/T1 rate classes is not available

Table 6: 2006 - 2011 Low Income Scorecard

Low Income Scorecard									
Metric	**2006**	**2007**	**2008**	**2009**	**2010**	**2011 Outlook**	**2012**	**2013**	**2014**
Cumulative Natural Gas Savings (m^3)	89,069	7,292,019	13,116,717	31,404,629	22,742,259	44,338,478	36,409,000	31,848,000	31,141,000
Residential Deep Measure Participants	-	-	-	75	134	450	550	650	750
Multi-Family Deep Measures	N/A	N/A	N/A	N/A	N/A	N/A	190	225	170

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 24-34

For each of the proposed targets in Tables 4 through 7, please identify in EB-2011-0295 the most comparable Enbridge metric for the same period, and explain any differences between the Applicant's proposed target and Enbridge's comparable agreed target.

Response:

The table below shows each of the proposed 100% targets in Tables 4 through 7 for Union, and the most comparable Enbridge metric. As Enbridge has only filed targets in EB-2011-0295 for 2012, Union has only included its 2012 targets in the table below. For a comparison at the 50% and 150% target levels please see the response at Exhibit B9.3 e).

Union was not a party to Enbridge's 2012 target settlement with intervenors. Union is therefore not in a position to explain the differences between the Union and Enbridge targets.

Scorecard	Union Metric	Union Target (a)	Enbridge Metric(s)	Enbridge Target (b)	Variance (c = a - b)
Resource Acquisition	Deep Measures	3,490	No comparable metric	--	--
	Cumulative Natural Gas Savings (000 m^3)	558,041	Lifetime Cubic Meters (000 m^3)	820,400	237,641
Large Industrial Rate 100/ Rate T1	Cumulative Natural Gas Savings (000 m^3)	500,000			
	Percentage of Customers Participating	55%	No comparable metric	--	--
Low-Income	Cumulative Natural Gas Savings (000 m^3)	36,409	Single Family (000 m^3)	17,000	(25,591)
			Multi-Residential (000 m^3)	45,000	
	Residential Deep Measure Participants	550	No comparable metric	--	--
	Multi-Family Deep Measures	190	No comparable metric	--	--
Market Transformation	Market Uptake (1)	15%	No comparable metric	--	--
	Participating Builders (1)	50	No comparable metric	--	--
	Education Sessions & Consumer/Industry Shows (1)	15	No comparable metric	--	--
	New Participating Builders (2)	8	No comparable metric	--	--
	Prototype Homes Built (2)	30% of Participating Builders	No comparable metric	--	--
	Assessments Completed (3)	7	No comparable metric	--	--
	Implementation/ Installation (3)	2	No comparable metric	--	--

(1) Metric specific to the High Efficiency Water Heating Program
(2) Metric specific to the New Home Efficiency Program
(3) Metric specific to the Integrated Energy Management Systems Program

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 29-36

Please identify any individual measures that could be included in, or promoted as part of, any of the proposed Market Transformation Programs, but whose attributes (such as cumulative gas savings) can also be included in the calculation of Resource Acquisition program results. By way of example, if as a result of an assessment under the IEMS Program for an industrial customer, a new HVAC system is recommended and installed, could the savings associated with that new system be counted in the relevant Resource Acquisition program?

Response:

There are no individual measures that are included in, or promoted as part of, one of Union's Market Transformation programs whose attributes can also be included in the calculation of Resource Acquisition program results.

The opportunity to target prescriptive or custom capital improvement projects may be identified through the course of Union's involvement with a customer targeted in a Market Transformation program. To the extent Union's Resource Acquisition programs can translate these opportunities into program participants, the measure/project will be counted towards Union's Resource Acquisition scorecard targets. Such prescriptive or custom capital improvement projects will not be considered part of the results for the Market Transformation program for the purpose of measurement.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 25

Please explain the benefit to be achieved by the "Percentage of Customers Participating" metric. Please explain the 40% weighting of this metric. Please explain how the targets were selected. Please convert each percentage into a discrete number of customers (e.g. 30% = 22 customers).

Response:

The benefit of the Percentage of Customers Participating metric is that it drives Union to reach 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 40% weighting of this metric was established following the August 18, 2011 Consultation with Stakeholders. At that meeting, 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 subsidization is minimized. Union responded to stakeholder feedback from this meeting by allocating a lower weighting to the Percentage of Customers Participating metric. This resulted in the 40% weighting.

The targets were established using a bottom up analysis. Participation rates were forecasted using market fundamentals and historical data. The 100% target was based on the three year average from 2008 – 2010.

As there are 71 customers in the Rate T1 and Rate 100 rate classes:

30% = 21 customers
55% = 39 customers
65% = 46 customers

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 26

Please confirm that a single customer can be counted multiple times if they have multiple contracts with the Applicant.

Response:

Confirmed.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A., p. 26

Please provide the numbers of customers in this customer group that are a) hospitals, b) greenhouses, c) primary manufacturing, d) mining and extraction, e) all other.

Response:

Type of customers in T1 and Rate 100:

Customer Type	Number
Hospital	2
Greenhouse	4
Primary Manufacturing	48
Mining and Extraction	0
All Other	17

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 3

Please advise how much less natural gas volume is being consumed in Ontario in 2011 as a result of the programs delivered since 1997. Please provide all documentation known to the Applicant that demonstrates how much of the 4.3 billion m^3 referred to is currently persisting and having an impact on current demand/load. If the Applicant has any data on a rate class or customer group level dealing with the continuing impact of past programs, please provide.

Response:

As a result of Union's DSM programs delivered since 1997, 812 million m^3 less of natural gas is being consumed in Ontario in 2011 (see table below). Documentation that demonstrates the savings of Union's DSM programs are: Measure substantiation documents and Union's annual evaluation report, which contain DSM program results, verification and evaluation studies. Union does not have data on a rate class or customer group level.

Year	Annual Natural Gas Volume Savings (m^3) *	Running Total of Accumulated Natural Gas Volume Savings (m^3) **	Running Total of Accumulated Natural Gas volume Savings Formula	Source
	(a)	(c)	$(c_n) = [(a_n)/2 + SUM(a_1:a_{n-1})] + (c_{n-1})$	
1997	21,084,441	10,542,221	$(c_1) = (a_1)/2$	EB-2005-0507 Appendix H: DSM 2004 Evaluation Report Oct-2005
1998	27,504,776	45,379,050	$(c_2) = [(a_2)/2 + (a_1)] + (c_1)$	EB-2005-0507 Appendix H: DSM 2004 Evaluation Report Oct-2005
1999	30,968,054	109,452,294	$(c_3) = [(a_3)/2+SUM(a_1:a_2)] + (c_2)$	EB-2005-0507 Appendix H: DSM 2004 Evaluation Report Oct-2005
2000	29,762,618	203,890,874	$(c_4) = [(a_4)/2+SUM(a_1:a_3)] + (c_3)$	EB-2005-0507 Appendix H: DSM 2004 Evaluation Report Oct-2005
2001	48,025,906	337,223,716	$(c_5) = [(a_5)/2+SUM(a_1:a_4)] + (c_4)$	EB-2005-0507 Appendix H: DSM 2004 Evaluation Report Oct-2005
2002	58,342,907	523,740,964	$(c_6) = [(a_6)/2+SUM(a_1:a_5)] + (c_5)$	EB-2005-0507 Appendix H: DSM 2004 Evaluation Report Oct-2005
2003	42,806,149	760,832,741	$(c_7) = [(a_7)/2+SUM(a_1:a_6)] + (c_6)$	EB-2005-0507 Appendix F: DSM 2003 Evaluation Report Apr-2004
2004	60,003,000	1,049,329,092	$(c_8) = [(a_8)/2+SUM(a_1:a_7)] + (c_7)$	EB-2005-0507 Appendix H: DSM 2004 Evaluation Report Oct-2005
2005	71,807,065	1,403,730,475	$(c_9) = [(a_9)/2+SUM(a_1:a_8)] + (c_8)$	DSM 2005 Annual Report Dec-2006
2006	90,474,642	1,839,272,712	$(c_{10}) = [(a_{10})/2+SUM(a_1:a_9)] + (c_9)$	DSM 2006 Annual Report Jun-2007
2007	55,852,485	2,347,978,513	$(c_{11}) = [(a_{11})/2+SUM(a_1:a_{10})] + (c_{10})$	DSM 2007 Annual Report Jun-2008
2008	61,852,176	2,915,536,644	$(c_{12}) = [(a_{12})/2+SUM(a_1:a_{11})] + (c_{11})$	DSM 2008 Annual Report Jun-2009
2009	92,604,301	3,560,323,013	$(c_{13}) = [(a_{13})/2+SUM(a_1:a_{12})] + (c_{12})$	DSM 2009 Annual Report Aug-2010
2010	121,115,763	4,311,969,415	$(c_{14}) = [(a_{14})/2+SUM(a_1:a_{13})] + (c_{13})$	DSM 2010 Annual Report 29-July-2011
Total =	**812,204,283**	**4,311,969,415**		

* Annual Natural Gas volume savings are first year savings based on Union's Natural Gas Savings reported in their DSM annual/evaluation reports

** Accumulated Natural Gas Volume Savings (m^3) are based on 50% savings in the first year and 100% savings in proceeding years

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 4

Please advise the most recent Ontario GDP level and the Ontario GDP level in December, 2007. Please reconcile this data with the statement on lines 1-2 of this page.

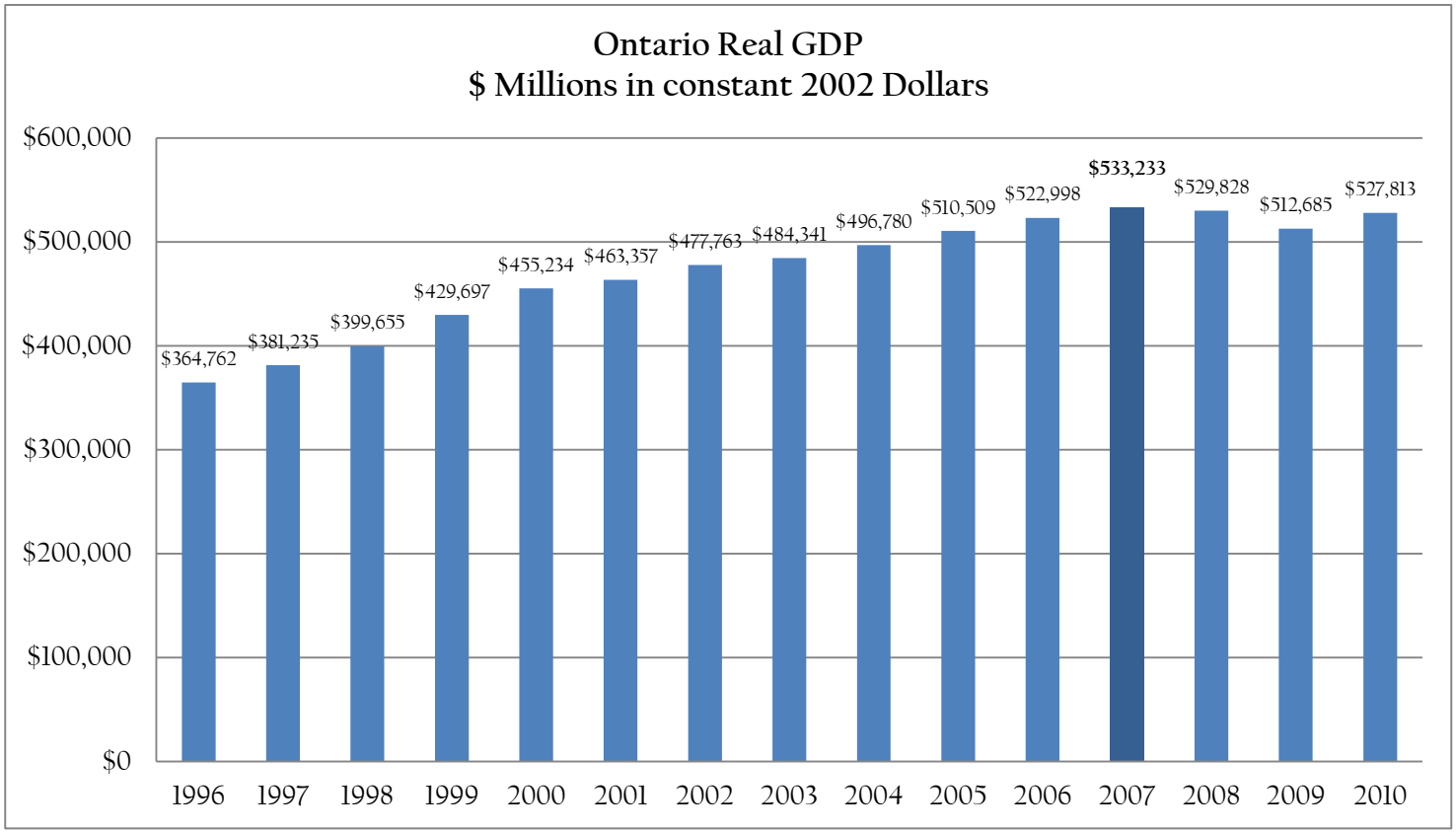
Response:

Ontario's GDP since the 2008 Recession has not regained the level of activity experienced in 2007. The chart below shows the total provincial Real Gross Domestic Product (in 2002 dollars) for the period 1996 to 2010.

Statistics Canada reported in December 2011 a total real GDP amount for Ontario of 527.8 billion dollars. The peak year occurred in 2007 when 533.2 billion was produced in the province.

The average annual growth rate over the period 1996 to 2007 was 3.5% per year. The average growth rate for the 2008 to 2010 period is a negative 0.3% per year.

Please see the attached spreadsheet.


Ontario Real GDP
$ Millions in constant 2002 Dollars
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
$364,762
$381,235
$399,655
$429,697
$455,234
$463,357
$477,763
$484,341
$496,780
$510,509
$522,998
$533,233
$529,828
$512,685
$527,813
1996
1997
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2008
2009
2010

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 24-34

Please provide, for each of Tables 4 through 7, a further table calculating the incentive per unit and the incremental incentive per unit at each of the 100%, and 150% levels. By way of example, if the 2012 incentive for Deep Measures at 100% is, say $846,560, the incentive per deep measure is $242.57, and if the incentive at 150% is, say $2,116,400, the average incentive per unit is $485.08, and the incremental incentive per unit for those over 100% is $1,454.57 [($2,116,400-$846,560)/(4363-3490)]. Please use the incentive levels, weightings, scorecards, and formulae proposed in the Application to prepare these calculations.

Response:

The tables attached outline the incentive per unit and the incremental incentive per unit for tables 4 through 7 [Ex. A, p.24-34]. The calculations are completed for the 100% and 150% metric target levels.

Table 4: 2012-2014 Resource Acquisition DSM Scorecards

2012 Resource Acquisition Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0023	$ 0.0046	$ 0.0137
Incentive per Deep Measures ($/unit)	$ 242.57	$ 485.08	$ 1,454.57

2013 Resource Acquisition Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0023	$ 0.0046	$ 0.0139
Incentive per Deep Measures ($/unit)	$ 236.67	$ 473.26	$ 1,418.83

2014 Resource Acquisition Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0023	$ 0.0045	$ 0.0136
Incentive per Deep Measures ($/unit)	$ 231.37	$ 462.67	$ 1,387.08

Table 5: 2012-2014 Large Industrial Rate T1/R100 DSM Scorecards

2012 Large Industrial T1/R100 Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0006	$ 0.0012	$ 0.0036
Incentive per Percentage of Customers Participating ($/%)	$ 3,645.09	$ 7,710.77	$ 30,072.00

2013 Large Industrial T1/R100 Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0006	$ 0.0012	$ 0.0036
Incentive per Percentage of Customers Participating ($/%)	$ 3,645.09	$ 7,710.77	$ 30,072.00

2014 Large Industrial T1/R100 Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0006	$ 0.0012	$ 0.0036
Incentive per Percentage of Customers Participating ($/%)	$ 3,645.09	$ 7,710.77	$ 30,072.00

Table 6: 2012-2014 Low Income DSM Scorecards

2012 Low Income Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0150	$ 0.0299	$ 0.0898
Incentive per Residential Deep Measure Participants ($/unit)	$ 495.27	$ 989.83	$ 2,960.87
Incentive per Multi-Family Deep Measures ($/unit)	$ 1,433.68	$ 2,861.34	$ 8,512.50

2013 Low Income Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0171	$ 0.0342	$ 0.1027
Incentive per Residential Deep Measure Participants ($/unit)	$ 419.08	$ 837.64	$ 2,506.75
Incentive per Multi-Family Deep Measures ($/unit)	$ 1,210.67	$ 2,423.49	$ 7,296.43

2014 Low Income Scorecard			
Metric	**Metric Target Levels**		
	100%	**150%**	**Incremental Incentive**
Incentive per Cumulative Natrual Gas Savings ($/m3)	$ 0.0175	$ 0.0350	$ 0.1050
Incentive per Residential Deep Measure Participants ($/unit)	$ 363.20	$ 726.01	$ 2,173.40
Incentive per Multi-Family Deep Measures ($/unit)	$ 1,602.35	$ 3,197.18	$ 9,502.33

Table 7: 2012-2014 Market Transformation DSM Scorecards

2012 Market Transformation Scorecard				
Programs	**Metric**	**Metric Target Levels**		
		100%	**150%**	**Incremental Incentive**
High Efficiency Water Heating	**Incentive per Market Uptake ($/%)**	$ 6,304.00	$ 14,775.00	$ 141,840.00
	Incentive per Participating Builders ($/unit)	$ 945.60	$ 1,970.00	$ 7,092.00
	Incentive per Education Sessions & Consumer/Industry Shows ($/unit)	$ 3,152.00	$ 5,372.73	$ 10,131.43
New Home Efficiency	**Incentive per New Participating Builders ($/unit)**	$ 14,775.00	$ 29,550.00	$ 88,650.00
	Incentive per Prototype Homes Built ($/unit)	N/A	N/A	N/A
Integrated Energy Management Systems	**Incentive per Assessments Completed ($/unit)**	$ 16,885.71	$ 29,550.00	$ 59,100.00
	Incentive per Implementation/Installation ($/unit)	$ 11,820.00	$ 19,700.00	$ 35,460.00

2013 Market Transformation Scorecard				
Programs	**Metric**	**Metric Target Levels**		
		100%	**150%**	**Incremental Incentive**
High Efficiency Water Heating	**Incentive per Market Uptake ($/%)**	N/A	N/A	N/A
	Incentive per Participating Builders ($/unit)	N/A	N/A	N/A
	Incentive per Education Sessions & Consumer/Industry Shows ($/unit)	$ 2,018.18	$ 3,827.59	$ 9,514.29
New Home Efficiency	**Incentive per New Participating Builders ($/unit)**	$ 11,100.00	$ 18,500.00	$ 33,300.00
	Incentive per Prototype Homes Built ($/unit)	N/A	N/A	N/A
	Incentive per Homes Built (>15% above OBC 2012) by participating builders ($/%)	$ 11,100.00	$ 18,500.00	$ 33,300.00
Integrated Energy Management Systems	**Incentive per Assessments Completed ($/unit)**	$ 9,712.50	$ 16,187.50	$ 29,137.50
	Incentive per Implementation/Installation ($/unit)	$ 16,650.00	$ 20,812.50	$ 24,975.00
	Incentive per Persistence Reports ($/unit)	$ 11,100.00	$ 18,500.00	$ 33,300.00

2014 Market Transformation Scorecard				
Programs	**Metric**	**Metric Target Levels**		
		100%	**150%**	**Incremental Incentive**
High Efficiency Water Heating	**Incentive per Market Uptake ($/%)**	N/A	N/A	N/A
	Incentive per Participating Builders ($/unit)	N/A	N/A	N/A
	Incentive per Education Sessions & Consumer/Industry Shows ($/unit)	$ 2,238.18	$ 4,244.83	$ 10,551.43
New Home Efficiency	**Incentive per New Participating Builders ($/unit)**	$ 12,310.00	$ 20,516.67	$ 36,930.00
	Incentive per Prototype Homes Built ($/unit)	N/A	N/A	N/A
	Incentive per Homes Built (>15% above OBC 2012) by participating builders ($/%)	N/A	N/A	N/A
Integrated Energy Management Systems	**Incentive per Assessments Completed ($/unit)**	$ 7,386.00	$ 12,310.00	$ 22,158.00
	Incentive per Implementation/Installation ($/unit)	$ 16,413.33	$ 24,620.00	$ 36,930.00
	Incentive per Persistence Reports ($/unit)	$ 12,310	$ 20,517	$ 36,930.00

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 39-40

Please confirm that, under the Applicant's proposal, the 15% DSMVA limit applies to each program category, e.g. if the low income budget is $6,839,000, the Applicant can access a further $1,026,000 for program funding for low income programs in excess of the 100% target levels, but cannot use that additional funding for other types of programs, such as market transformation or large industrial.

Response:

No, the DSMVA limit applies to the annual Board-approved DSM budget. For example, in 2012 Union would be eligible to access a further $4.643 million for the Low-income program in excess of the 100% overall Low-income scorecard target level. Union cannot use that additional funding for other types of programs, such as market transformation or large industrial, until those scorecards have achieved the overall 100% target level.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 40

Please confirm that, under the Applicant's proposal, if the Applicant achieves 100% of its scorecard target on any one of its scorecards, it can access a further $4,643,000 of program funding, but that additional funding can only be used for programs after they have achieved the 100% scorecard level. Please provide examples of how this would work.

Response:

Confirmed. For example, should Union achieve the 100% overall target level for the Resource Acquisition scorecard in 2012, Union can access a further $4.643 million of program funding to be used for its Residential and/or Commercial/Industrial program measured by this scorecard.

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition ("SEC")

Ref: Ex. A, p. 44-48

Please confirm that pages 44-48 of Exhibit A have been entirely superseded by the settlement agreement on the Joint Terms of Reference. If any parts of those pages continue to be applicable, please provide details.

Response:

Union agrees that it has entered the Joint Terms of Reference Agreement on November 10, 2011. This agreement supersedes the originally filed terms of reference in Appendix E.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

References: Exhibit A Tables 2 & 3; Exhibit A Schedules 2 and 3;
Section 18.1, subsection 4 OEB Guidelines

a) Provide a schedule that shows the **total maximum spend** broken down by program by year, including base budgets, budget increments, and also show/add budgets for audit and evaluation, research and incentives.

b) Provide the maximum annual cost for a typical average use residential customer and for a low volume residential customer.

c) Translate these costs into rate impacts for the North, Eastern and South zones.

Response:

a) b) and c)

The table below shows the base budgets broken down by program, by year. For each program the promotion budget, incentive budget, administration budget (as can be attributed directly to the program) and evaluation budget (as can be attributed directly to the program) is shown. The administration and evaluation budget that cannot be attributed directly to a program is shown under Portfolio Budget (portfolio evaluation budget includes audit costs). The research budget is also shown under Portfolio Budget.

Before inflation, if Union meets the criteria to access the incremental 15%, the maximum Union can spend each year is $34.604 million (15% or $4.514 million above the base budget of $30.091 million). At this time, Union is unable to anticipate where the incremental budget would be spent and is unable to determine what the total maximum spend would be for a program.

	Year		
	2012 ($000)	**2013 ($000)**	**2014 ($000)**
Program Budget			
Resource Acquisition			
Residential Incentives	1,668	2,208	2,092
Residential Promotion	2,048	1,688	1,576
Residential Administration	366	366	366
Residential Evaluation	20	20	20
Total Residential Program	4,103	4,282	4,054
Commercial/Industrial Incentives	5,564	974	899
Commercial/Industrial Promotion	974	5,564	5,564
Commercial/Industrial Administration	2,583	2,583	2,583
Commercial/Industrial Evaluation	60	60	60
Total Commercial/Industrial Program	9,181	9,181	9,106
Large Industrial T1/R100 Incentives	1,840	360	360
Large Industrial T1/R100 Promotion	360	1,840	1,840
Large Industrial T1/R100 Administration	907	907	907
Large Industrial T1/R100 Evaluation	40	40	40
Total Large Industrial T1/R100 Program	3,147	3,147	3,147
Low-Income			
Low-Income Incentives	1,329	1,329	1,329
Low-Income Promotion	4,498	4,498	4,498
Low-Income Administration	972	972	972
Low-Income Evaluation	40	40	40
Low-Income Program	6,839	6,839	6,839
Market Transformation			
High Efficiency Water Heating Incentives	900	461	499
High Efficiency Water Heating Promotion	433	558	788
High Efficiency Water Heating Administration	219	219	219
High Efficiency Water Heating Program	1,552	1,238	1,506
High Efficiency Residential New Build Incentives	232	350	300
High Efficiency Residential New Build Promotion	300	316	326
High Efficiency Residential New Build Administration	194	194	194
High Efficiency Residential New Build Program	726	860	820
Integrated Energy Management Systems Incentives	300	150	125
Integrated Energy Management Systems Promotion	300	450	550
Integrated Energy Management Systems Administration	90	90	90
Integrated Energy Management Systems Program	690	690	765
Programs Sub-total	**26,236**	**26,236**	**26,236**
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**
Cumulative Inflation @2.87%	864	1,753	2,667
Total	**$30,954**	**$31,843**	**$32,757**

The Rate 01 unit DSM rate for the 2012 DSM budget including Low-income plus a 150% DSM incentive level is 0.6486 cents/m3.

Accordingly, for a typical average use residential customer using 2,600 m3/year in the Northern & Eastern zones, the resulting bill impact would be $16.86.
For a typical low volume residential customer using 1,200 m3/year in the Northern & Eastern zones, the resulting bill impact would be $7.78.

The Rate M1 unit DSM rate for the 2012 DSM budget including Low-income plus a 150% DSM incentive level is 0.6590 cents/m3.

Accordingly, for a typical average use residential customer using 2,600 m3/year in the Southern zone, the resulting bill impact would be $17.13.

For a typical low volume residential customer using 1,200 m3/year in the Southern zone, the resulting bill impact would be $7.91.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

References: Exhibit A Appendix A Page 10: Appendix A Page 18 Table 5

a) What is the unit cost of the enhanced ESKs?

b) Under the Pull Approach how many ESKs will be distributed? (# ,% of total)

c) What is the forecast percentage of installations relative to units distributed for each measure?

d) Under the Push approach does Union have data to indicate how many of the ESKs are/will be distributed by this method? (# and %)

e) What is the forecast percentage of installations relative to units distributed for each measure?

f) How many ESKs are distributed under the Install approach? (# and %)

g) Under the Install method what fees are payable to the contractor

   i. By the customer?

   ii. By Union Gas?

h) What is the forecast percentage of installations relative to units distributed for each measure?

i) What is the overall Forecast Cost/savings for each ESK, including free riders? Relate this to the overall savings target and budget and scorecard.

j) Are/Are not ESKs available to multifamily units

   i. Market rate

   ii. Social/assisted housing
   Please Discuss.

Response:

a) The cost of an Enhanced ESK is approximately $30/kit

b) Using the Pull approach, Union plans to distribute 33,600 kits in 2012 (60% of 2012 total), 32,400 in 2013 (60% of 2013 total) and 30,000 in 2014 (60% of 2014 total).

c) The table below shows the percentage of kits installed relative to the total number of kits distributed for each Pull Approach measure from the most recent ESK Verification Study (2010 program year). This is, however, just one component of the total adjustment Union takes each year on m^3's saved from ESK's; also included are adjustments that account for customers removing installed measures, customers that don't have a natural gas water heater, customers that already received a kit, and the percentage of showering that is done under the energy-efficient showerhead (applies to showerhead measure only). The total adjustment factor from the most recent ESK Verification Study (2010 program year) is shown in the Total Adjustment Factor column. This is the number Union used for planning purposes.

Measure	Installation %	Total Adjustment Factor
Pull - Faucet Aerator - Bath - 1.0gpm	52.97%	41.07%
Pull - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm	52.97%	44.11%
Pull - Faucet Aerator - Kitchen - 1.5gpm	66.34%	46.20%
Pull - Pipe Insulation - 2m	61.88%	44.39%
Pull - Showerhead - 1.25gpm	70.79%	47.33%
Pull - Showerhead - 1.25gpm replacing existing 2.0 gpm	70.79%	50.83%

d) Using the Push approach, Union plans to distribute 20,160 kits in 2012 (36% of 2012 total), 19,440 in 2013 (36% of 2013 total) and 18,000 in 2014 (36% of 2014 total).

e) The table below shows the percentage of kits installed relative to the total number of kits distributed for each Push Approach measure from the most recent ESK Verification Study (2010 program year). This is, however, just one component of the total adjustment Union takes each year on m^3's saved from ESK's; also included are adjustments that account for customers removing installed measures, customers that don't have a natural gas water heater, customers that already received a kit, and the percentage of showering that is done under the energy-efficient showerhead (applies to showerhead measure only). The total adjustment factor from the most recent ESK Verification Study (2010 program year) is shown

in the Total Adjustment Factor column. This is the number Union used for planning purposes.

Measure	Installation %	Total Adjustment Factor
Push - Faucet Aerator - Bath - 1.0gpm	48.51%	30.69%
Push - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm	48.51%	32.97%
Push - Faucet Aerator - Kitchen - 1.5gpm	56.44%	36.81%
Push - Pipe Insulation - 2m	62.87%	42.58%
Push - Showerhead - 1.25gpm	56.93%	33.21%
Push - Showerhead - 1.25gpm replacing existing 2.0 gpm	56.93%	35.67%

f) Union forecasts to install 2240 kits in 2012 (4% of 2012 total), 2,160 in 2013 (4% of 2013 total) and 2,000 in 2014 (4% of 2014 total).

g)

i. This service is free to the customer along with the kit.

ii. $40 is paid to the contractor for each kit installed.

h) The table below shows the percentage of kits installed relative to the total number of kits distributed for each Install Approach measure from the most recent ESK Verification Study (2010 program year). This is, however, just one component of the total adjustment Union takes each year on m^3's saved from ESK's; also included are adjustments that account for customers removing installed measures, customers that don't have a natural gas water heater, customers that already received a kit, and the percentage of showering that is done under the energy-efficient showerhead (applies to showerhead measure only). The total adjustment factor from the most recent ESK Verification Study (2010 program year) is shown in the Total Adjustment Factor column. This is the number Union used for planning purposes.

Measure	Installation %	Total Adjustment Factor
Install - Faucet Aerator - Bath - 1.0gpm	48.51%	34.10%
Install - Faucet Aerator - Bath - 1.0gpm replacing existing 1.5gpm	48.51%	36.63%
Install - Faucet Aerator - Kitchen - 1.5gpm	56.44%	40.90%
Install - Pipe Insulation - 2m	100.00%	81.00%
Install - Showerhead - 1.25gpm	100.00%	64.82%
Install - Showerhead - 1.25gpm replacing existing 2.0 gpm	100.00%	69.62%

i) The forecasted cost per cumulative m^3 saved (including free ridership) for each ESK approach is displayed below. Only costs that can be attributed directly to the ESK approach are included (i.e. promotion costs and incentive costs are included; administration and evaluation costs are not included). Also, costs and net cumulative m3 saved attributed to the programmable thermostat measure is not included as it cannot be differentiated between the ESK approaches.

ESK Approach	Cost per Net Cumulative m3
Install	$0.14
Push	$0.17
Pull	$0.12

The cost per net cumulative m3 for the Resource Acquisition scorecard (promotion costs and incentive costs only) is $0.02.

j)

i. No.

ii. No.

ESKs are not available to the multifamily segment. Energy efficient showerheads and aerators are available to this market through the Commercial/Industrial Program Prescriptive offering and the Low-income Social and Assisted Housing Multi-Family offering.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

Reference: Exhibit A Appendix A Page 21

Preamble: 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

a) Provide any market potential studies that Union has used in the design of this program component and discuss how this has driven the program design.

b) Provide complete information on targeting/selection criteria and protocols, including housing stock, geography, home age/ type and gas uses/consumption.

c) Provide details of individual home screening criteria and protocols.

d) What special provisions are there for targeting seniors? Provide details.

Response:

a) The 2008 Efficiency Potential Study completed by ICF Marbek and the updated Summary Report completed in 2011 were included in Exhibit A, Appendix K of Union's proposed 2012-2014 DSM Plan. However, recommendations regarding program design were beyond the scope of the Efficiency Potential Study, as noted on page iii of the Efficiency Potential Study's Executive Summary. Union Gas examined the 2008 Efficiency Potential Study in order to understand the market opportunity for insulation and air sealing measures in old homes, but the Study did not inform program design.

b) Eligibility criteria for the attic and basement insulation offering is noted in the "Target Market" section found in Exhibit A, Appendix A, page 12, line 24. To better determine target market areas, Union anticipates purchasing third party data, as well as reviewing consumption data, in order to identify particular geographic areas and/or housing types that can be targeted for participation. This analysis will help inform Union's approach to market.

c) Homes will be screened using the basic criteria noted in the "Target Market" section found in Exhibit A, Appendix A, page 12, line 24. Union will educate participating contractors on the specifications regarding eligibility and acceptable installation practices. These specifications will also inform the screening criteria.

As part of the Evaluation Plan, Union Gas also anticipates inspecting a sample of participating homes to verify that installation specifications were followed.

d) See the response to b) above. Union Gas anticipates conducting further research and analysis to inform the approach to market.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

Reference: Exhibit A Appendix A Page 9

Preamble: This offering (ESK) 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.

a) List the programs/measures within the commercial sector programs are available to owners/operators of market rate MURBs.

b) How many of the forecast participants for 2012 are market rate MURBS?

c) Is Union studying how to address the MURB segment of the residential housing market either now or in future? Discuss in detail.

Response:

a)

i. Condensing Boiler
ii. ERV
iii. HRV
iv. Condensing Rooftop Units (MUA)
v. CEE Tier 2 Front-Loading Clothes Washer
vi. Condensing Gas Water Heater
vii. HWC - Faucet Aerator - Bath - 1.0gpm
viii. HWC - Faucet Aerator - Kitchen 1.5gpm
ix. HWC - Showerhead - 1.25gpm
x. HWC - Showerhead - 1.25gpm replacing existing 2.0gpm
xi. Commercial Custom Projects

b) For the purposes of calculating the target, Union has assumed that approximately 10,000 participants will be market rate multi-unit residential buildings ("MURBs").

c) Union Gas classifies MURBs as commercial multi-family buildings. Union has and will continue to target the MURB segment with the Commercial/Industrial Program. Within the Prescriptive offering of this Program, Union's Hot Water Conservation initiative delivers the measures included in the ESK which are applicable to the Multi-Family segment. These measures are energy efficient showerheads, kitchen aerators, and bathroom aerators.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

Reference: Exhibit A Page 7 and page 28 Table 6

Preamble: 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.

a) Confirm that in the above consultation, VECC (and others) requested that the proposed Low Income Scorecard be modified to exclude participants and be solely based on gas savings.

b) Confirm that the Statements on page 27 at lines 11-14 are related to the EB-2010-0055 proceeding not to this application).

c) Provide examples of a revised scorecard that is based solely on m3 savings similar to Enbridge Gas Distribution Application EB-2011-0277

   i. Part 9 Buildings

   ii. Part 3 Buildings

d) Provide a discussion of the merits of such an approach compared to Union's current proposal including differences in verification, incentives etc..

e) Discuss whether two different scorecards (Union and Enbridge) are in the best interests of Low Income customers across the province and the advantages or otherwise of harmonizing these.

f) Breakdown the savings target in Table 6 between Residential (part 9) and Multifamily (part 3) buildings.

Response:

a) During the consultation that Union had with stakeholder on the development of the 2012 – 2014 Plan, there were some parties who proposed that Union's Low income scorecard should be solely based on gas savings. Although these opinions were considered, Union felt that it was in the best interest of the program and low-income customers to maintain a metric on the scorecard that would keep Union focused on both the customer and the energy savings. Accordingly, Union included both *Deep Measure Participants* and *Cumulative Natural Gas Savings*.

By measuring success on gas savings only, in delivering the Home Retrofit offering Union would be incented to focus strictly on homes that have the largest probable cumulative m^3 savings and to overlook the homes that have lower probable savings. Typically, the amount of overall savings you can extract from a home is based on the size (square footage) of that home, not the insulation upgrade needs of the home. However, the impacts that the customer receives from the offering, on average a 25% to 30% reduction in gas consumption and increased comfort in the home, is not dependent on the size of the home.

Focusing solely on the largest m^3 producers would, in effect, prioritize low-income customers who live in larger homes. Union feels that low-income customers should have equal access to the Home Retrofit offering based on the needs of the home and the customers who reside within it, not based on the size of the home that the customers happen to live in.

b) Confirmed. This statement was a reference to the recent negotiations (fall 2010) on EB-2010-0055 where Union reached full consensus with the Low-income subcommittee of stakeholder groups that a deep measure participant metric was appropriate for the measurement of Union's Low-income program.

c) **2012 Sample Scorecard**

Metric	50%	100%	150%
Single Family Cumulative Natural Gas Savings (m^3)	16,192,983	32,385,967	40,482,458
Multi-Family Cumulative Natural Gas Savings (m^3)*	2,011,346	4,022,693	5,028,366
Total	**18,204,329**	**36,408,660**	**45,510,824**

2013 Sample Scorecard

Metric	50%	100%	150%
Single Family Cumulative Natural Gas Savings (m^3)	12,321,971	24,643,942	30,804,927
Multi-Family Cumulative Natural Gas Savings (m^3)*	3,601,818	7,203,636	9,004545
Total	**15,923,789**	**31,847,578**	**39,809,472**

2014 Sample Scorecard

Metric	50%	100%	150%
Single Family Cumulative Natural Gas Savings (m^3)	12,701,306	25,402,613	31,753,266
Multi-Family Cumulative Natural Gas Savings (m^3)*	2,868,981	5,737,962	7,172,452
Total	**15,570,287**	**31,140,575**	**38,925,718**

**Multi-Family m3's may be realized from both Part 9 and Part 3 Multi-Family Buildings*

d) Please refer to the response to a) above.

e) Union believes that it is in the best interests of low-income customers across Ontario to have closely aligned program design with Enbridge and the Ontario Power Authority to present energy consumers with consistent messaging and offerings in the market. This has been achieved on many fronts, including consistent eligibility criteria, consistent measure offerings and consistent measure screening.

The scorecard that each utility deems appropriate for program measurement should be a decision made by each respective utility and should be reflective of what the said utility feels is most appropriate for their program and their customer base.

f) Please refer to the response to c) above.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

Reference: Exhibit A Page 17

Preamble: 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.

a) Provide a discussion regarding what other allocations were considered and rejected.

b) Provide a discussion regarding LEAP funding and how this would be allocated IF Union was participating from rates.

c) Provide a schedule that shows alternative allocations of the Low Income Budget to rate classes

   i. Distribution Revenue

   ii. # customers

Discuss the pro/cons of each approach compared to Union's rate base allocation.

Response:

a) Please see the response at Exhibit B1.6.

b) Union would allocate LEAP funding in the same manner as it is proposing to allocate its low-income budget.

c) Please see the responses at Exhibit B1.6 and Exhibit B10.2.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

Reference: Exhibit A Appendix A Page 73

Preamble: The (Low Income Program) 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

a) Provide any market potential studies/working papers that relate to the low income program for non-social housing units.

b) Provide the screening /selection criteria and protocols for non-social housing component of the Low Income Program.

c) Indicate which areas of the franchise will be targeted initially (North, South and Eastern rate zones) and why these were chosen.

d) Has Union developed collaboration agreements with any Electricity Distributors in its franchise and if so discuss how this has/will influence (d) targeting of the LI program.

Response:

a) The Efficiency Potential Study (see Exhibit A, Appendix K) did not exclude low-income non-social housing units; however low-income energy consumers were not distinguished from the residential sector in the Study. Union has not engaged in any market potential studies specifically relating to the low-income program for non-social housing. In 2011, Union executed a study to understand how low-income private homeowners and tenants interact with social service agencies to better understand how Union can engage low income customers residing in the private market.

b) When homeowners and social housing providers/tenants apply for the Home Retrofit offering, Union's delivery agent pre-screens them prior to scheduling an A

audit. This is to confirm that the home/unit does not have any characteristics that would automatically disqualify them (i.e. high insulation levels), that the home/unit is likely to yield cost-effective savings and to confirm that they meet income eligibility criteria.

The following are some examples of the pre-screening questions:

- Are your walls are insulated?
- Do you have bare concrete walls in the basement?
- Are there windows in your basement? How big/above ground?

Candidates are also asked if they meet prescribed income eligibility requirements. If they do, they are required to submit proof in the form of:

- Notice of assessment, or
- Government benefits documentation

c) Helping Homes Conserve Offering

Union will continue to target the populations with a large density of low-income residents. In Q1, the basic measures installation offering (HHC) will commence campaigns in cities in the South as seasonal factors impact the door to door campaign. Cities such as Windsor, London, Brantford, and Hamilton will be the first approached in the 2012 campaign. In Q2, Union will have additional reach in communities across the 401 corridor including the Eastern Zone (Cornwall and Belleville) as well as in northern communities, (potentially Sudbury, North Bay Sault Ste. Marie, and Thunder Bay).

Home Retrofit Offering

In 2011 Union focused its weatherization initiative on Hamilton, Windsor and Belleville/Trenton as these areas have high concentrations of low-income housing stock in our franchise area. Union will continue to work in these areas while working to expand the geographic reach of the program into new areas in Northern Ontario, South-western Ontario and Central Ontario (exact cities are not yet determined). Union will decide on regions for growth on a number of factors, including market saturation levels in current cities, market potential of new cities and delivery capacities in these new areas.

Social & Assisted Housing Multi-Family Offering

The Social and Assisted Housing Multi-Family offering will be offered throughout the Union Gas franchise area from 2012 to 2014.

d) Earlier this year, Union entered into a Memorandum of Understanding with the OPA and Enbridge Gas Distribution to address collaboration efforts between the Natural Gas Utilities and the Electricity Distributors on low-income programming. To the extent possible, Union will look to deliver our Low-income Program in areas in our franchise where LDC's are actively delivering the Home Assistance Program to help streamline the gas and electric offerings for the low-income customer.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

References: Exhibit A Appendix A Page 73; Appendix K ICFMarbek Report Exhibit 11

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

a) Provide any market potential studies/working papers that relate to the housing stock targeted by the low income program for social housing units.

b) Provide a profile of Social housing Units in the franchise by rate zone.

Response:

a) The Efficiency Potential Study (see Exhibit A, Appendix K) did not exclude low-income social housing units; however low-income energy consumers were not distinguished from the commercial sector in the Study. Union has not engaged in any market potential studies specifically relating to the low-income program for non-social housing. Union has not embarked to date on any market potential studies relating to social housing stock in our franchise area.

b) Union does not have this information.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

Reference: Exhibit A Page 30

Preamble
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.

a) What other (than budget) ranking/weighting criteria (e.g. market share, gas savings) did Union use for weighting the MT scorecard. Provide the working/discussion paper(s)

b) For the HEWHP the evaluation plan Appendix J states

The total market is estimated to be between 15,500 and18,000 homes annually, and the program intends to shift HEWH to an approximate market penetration rate of 25% in 6 years. Over the course of the first 3 years of the program, it is expected that the adoption / market share will be 15% in year one, 2012 results plus 2% points increase in year 2, and 2013 results plus an additional 2% points increase in year 3. Minimum efficiency water heaters currently dominate the market. Moving the market from 0.57 EF to 0.80 EF represents a significant shift.

Provide the analysis that shows the current market and supports the Scorecard Targets for HEWHP.

c) For New home Energy Efficiency How is the 15% above Code determined? List all comparables square feet livable space, occupancy etc..

d) Is the 15% a pass/fail absolute or will lesser/greater incentives be provided below/above this level?

e) How will Union affect the new housing market over the longer term? Provide the working/discussion papers

f) With respect to IEMS, Has Union piloted the program? If so provide the reports on the pilot programs.

Response:

a) Union did not use other formal criteria in establishing the cumulative metric weights of the programs. A straightforward comparison based on market share or natural gas savings is not feasible due to the unique nature of each market transformation program. As the DSM Incentive amounts paid to Union will be allocated to rate classes in proportion to the amount actually spent on DSM activities in each rate class, Union considers the budget shares to be the appropriate methodology by which to establish the cumulative metric weights at the program level for this scorecard.

b) For the HEWHP the evaluation plan Appendix J states

The total market is estimated to be between 15,500 and18,000 homes annually, and the program intends to shift HEWH to an approximate market penetration rate of 25% in 6 years. Over the course of the first 3 years of the program, it is expected that the adoption / market share will be 15% in year one, 2012 results plus 2% points increase in year 2, and 2013 results plus an additional 2% points increase in year 3. Minimum efficiency water heaters currently dominate the market. Moving the market from 0.57 EF to 0.80 EF represents a significant shift.

Provide the analysis that shows the current market and supports the Scorecard Targets for HEWHP.

The number of homes constructed, and 2011 – 2014 forecast, is provided in the table below.

Year	Number of Single Family Homes constructed in Union's service territory
2007 Actual	18,728
2008 Actual	18,428
2009 Actual	12,677
2010 Actual	14,829
2011 Forecasted	13,015
2012 Forecasted	**15,552**
2013 Forecasted	**17,702**
2014 Forecasted	**18,117**

Information/analysis to support Union's HEWH Program targets:

Union's New Build Penetration Study (2010) shows that 14% of housing starts in the new build market installed a natural gas HEWH (tankless). With Ontario Building Code (OBC) changes happening January 1, 2012 this 14% penetration is expected to drop significantly. The upcoming OBC changes will make it difficult for builders to choose a natural gas HEWH (tankless) because:

- Natural gas HEWH (tankless) are excluded from the pre-set builder packages (A to M).
- For a builder to claim credit for installing a natural gas HEWH (tankless) towards achieving energy efficiency compliance they must use the custom performance path. This requires the builder to perform energy modeling on every house, at a cost of approximately $400 per house. Few builders will want to incur the cost and administration complexities associated with the performance path.

In addition to the above, please reference the "Challenges Union will Face in Achieving New Home Efficiency Targets" in the Plan, Exhibit A, Appendix A, p 93-94.

c) Beginning January 1, 2012 the Ontario Building Code will change to a higher efficiency. For the New Home Efficiency Program, builders must now build 15% above this new efficiency code. This 15% above code will be determined as follows:
   - Union will work closely with consultants who will use modelling software (such as HOT-2000 or HOT-3000).
   - The modelling software will factor in the builder's base case, as well as other variables such as square feet, insulation, appliances, etc. Many of the variables inputted into the software will depend on what efficiency options the builders chooses – and what the builders chooses will be influenced by what they learn about during their participation in Union's New Home Efficiency Program.
   - The modelling software will take the base case, along with the chosen inputted variables, and will then determine if/when the home has reached 15% above code.

d) The 15% is absolute. A builder must commit to Union's program eligibility criteria (including the 15% above code) to be eligible for this program and to receive the

associated incentives. Union doesn't anticipate offering additional incentives to those that go beyond 15% above code.

a) Union Gas will affect the new housing market over the longer term by continually pushing builders towards higher efficiency homes (above code). For specific information on how Union's Market Transformation programs will affect the new housing market over the longer term, the appropriate references for Union's Residential Market Transformation Programs are provided:

High-Efficiency Water Heating Program

- "Program Duration" – Exhibit A, Appendix A, page 79-80 of 107
- "Program Evolution" – Exhibit A, Appendix A, Table 24, page 81 of 107

Reference the New Home Efficiency Program information in the plan, including:

- "Program Duration" – Exhibit A, Appendix A, page 90-91 of 107

f) Three pilot assessment projects are currently underway with the purpose of testing program design concepts to ensure program design is both robust and comprehensive and will satisfy stakeholder requirements. Reports are not available due to confidentiality agreements with customers. Reports include sensitive information about customers' processes, management structure, management practises, etc.

UNION GAS LIMITED

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition ("VECC")

Reference: Exhibit A page 52

Preamble: 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.

a) Provide more details of the plans for research in the Residential and Low Income Markets.

b) Do these plans include research on penetration into the MURB market rate housing market?

c) Is Enbridge involved in any of these research projects? Please discuss.

Response:

a) Residential:

Research on Residential Zone-Heating would include looking at what gas savings could be generated by splitting a home's heating systems into separately controlled zones and also what the cost-effectiveness associated with these changes would be.

Low-income:

Research on energy benchmarking would attempt to establish behaviour and equipment characteristics in low-income and non-low income residential households. The intent of this research would be to establish a basis for uncovering and launching additional DSM measures that specifically address opportunities in low-income households.

b) There are currently no plans to include this in the research.

c) Union consults regularly with Enbridge on research projects.