



uniongas

A Spectra Energy Company

April 18, 2008

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, 26th Floor
Toronto, ON
M4P 1E4

**Re: Union Gas Disposition of 2007 Deferral Account and Other Balances
(EB-2008-0034) - Union's Responses to Interrogatories**

Dear Ms. Walli:

Enclosed please find ten copies of Union's responses to interrogatories from Board Staff, IGUA, LPMA and the City of Timmins.

If you have any questions concerning this application and evidence please contact me at (519) 436-5476.

Yours truly,

Chris Ripley
Manager, Regulatory Applications

cc M. Penny (Torys)
EB-2007-0606 Intervenors

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, Page 7

Question:

Please confirm whether the Heating Value Deferral Account (No. 179-89) has been eliminated as per the EB-2007-0606 Settlement Agreement.

Response:

Confirmed.

Question: April 11, 2008
Answer: April 18, 2008
Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, Page 8

Question:

Please confirm whether the Transformation and Exchange Services deferral account (No. 179-69) has been eliminated as per the Settlement Agreement in EB-2007-0606.

Response:

Confirmed.

Question: April 11, 2008
Answer: April 18, 2008
Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, Page 9-10

Question:

Please confirm whether the Other S&T Services deferral account (No. 179-73) has been eliminated as per the Settlement Agreement in EB-2007-0606.

Response:

Confirmed.

Question: April 11, 2008
Answer: April 18, 2008
Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, Page 9

Question:

Please confirm whether the Other Direct Purchase Services deferral account (No. 179-74) has been eliminated as per the Settlement Agreement in EB-2007-0606.

Response:

Confirmed.

Question: April 11, 2008
Answer: April 18, 2008
Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1

Question:

Do the deferral account balances being requested for final disposition and recovery include any deferred income taxes?

- a) If so, what are the balance(s) and in which account(s)?*
 - b) If so, please provide supporting calculations.*
 - c) If so, please provide regulatory reasons for including deferred income taxes in the account.*
-

Response:

The deferral account balances being requested for final disposition and recovery do not include deferred income taxes.

a), b), c) N/A

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, pages 12-13

Question:

The evidence on the 2007 LRAM deferral account balance states that "any true-up amount will be captured in a deferral account for future disposition in the same way the 2006 variance has been trued up in this proceeding."

a) Please state when "any true-up amount" will be disposed.

Response:

The true-up amount on the LRAM deferral account balance related to unaudited 2007 DSM activities will be disposed of as part of the 2008 year end deferral account disposition. This is consistent with the process approved by the Board in the 2006 deferral disposition proceeding (EB-2007-0598).

Question: April 11, 2008

Answer: April 18, 2008

Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, pages 13-14

Question:

The evidence states that "the Board approved a direct DSM budget of \$15.300 million for 2007 in the EB-2006-0021 proceeding" and that there is a "credit balance of \$0.863 million", please provide the reasons for the credit balance.

Response:

The credit balance of \$0.863 million is due to spending under budget in several program areas, including distribution contract, low income and market transformation, as well as in research and evaluation.

Question: April 11, 2008
Answer: April 18, 2008
Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, page 16

Question:

The evidence on 2007 SSM activities state the following:

“Recognizing this balance may still change following the audit, any amount disposed of would be subject to a future true-up. Any amount will be captured in a deferral account for future disposition.”

a) Please state when any “future true-up” will be disposed.

Response:

The true-up amount on the SSM deferral account balance related to unaudited 2007 DSM activities will be disposed of as part of the 2008 year end deferral account disposition. This is consistent with the process approved by the Board in the 2006 deferral disposition proceeding (EB-2007-0598).

Question: April 11, 2008

Answer: April 18, 2008

Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, page 16

Question:

The evidence on 2007 Market Transformation activities states that “the variance between Market Transformation payout balances calculated out of audited and unaudited results would be subject to a future true-up.”

a) Please state when any “future true-up” will be disposed.

Response:

The true-up amount on the Market Transformation deferral account balance related to unaudited 2007 DSM activities will be disposed of as part of the 2008 year end deferral account disposition. This is consistent with the process approved by the Board in the 2006 deferral disposition proceeding (EB-2007-0598).

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, page 6-7

Question:

With respect to the disposition of the deferral account balances for residential customers, please answer the following questions:

- a) Please confirm whether the \$0.47 charge in the Southern Operations area and the \$12.84 credit in the Northern and Eastern Operations area will be a one-time credit or charge on customer bills.*
 - b) Will the charge or credit be applied in the first month's bill after the Board Decision with respect to this application is issued?*
-

Response:

- a) and b) No. For residential customers, Union will recover/refund the deferral balances prospectively using a temporary rate adjustment, starting July 1 or October 1, 2008 depending on the timing of the Board Decision. The end date for temporary adjustments will remain at December 31, 2008.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 1, page 9

Question:

With respect to Account No. 179-72 Long Term Peak Storage Services, please answer the following questions:

- a) Has the forecast that has been used to calculate the balance in the deferral account been approved by the Board?*
- b) Please provide a summary of the S&T Transactional Margin included in 2007 Rates.*
- c) Will the methodology that was used to calculate the balance in Account No. 179-72 in 2007 be duplicated going forward? If not, please provide the proposed changes.*

Response:

- a) Yes. The net revenue forecast approved by the Board in EB-2005-0520.*
- b) Please see Attachment 1 for the summary of the S&T Transactional Margin included in 2007 rates.*
- c) Yes.*

Question: April 11, 2008

Answer: April 18, 2008

Docket: EB-2008-0034

UNION GAS LIMITED
Summary of S&T Transactional Margin Included In 2007 Rates

Line No.	Particulars (\$ 000's)	Total Revenue (1) (a)	Allocated Cost (2) (b)	Total Margin (c) = (a - b)	Included in 2007 Rates (d) = (c) * 90%
	Transportation & Exchange Services Acct. 179-69				
1	Transportation and Exchanges (3)	4,000	1,417	2,583	
2	M12 Transportation Overrun	-	-	-	
3	Total Transportation & Exchanges	4,000	1,417	2,583	2,325
	Short Term Storage & Balancing Services Acct. 179-70				
4	Short Term Peak Storage	13,794	847	12,947	
5	Off Peak Storage, Balancing & Loans	4,092	1,285	2,807	
6	Enbridge LBA	75	-	75	
7	Total Short Term Storage & Balancing Services	17,961	2,132	15,829	14,246
8	Total Long Term Peak Storage Services Acct. 179-72	42,058	20,653	21,405	19,264
9	Other S&T Services Acct. 179-73	895	42	853	768
10	Total	64,914	24,244	40,670	36,603

Notes: (1) EB-2005-0520, Rate Order, Working Papers, Schedule 6, Page 10, Col (g).
(2) EB-2005-0520, Rate Order, Working Papers, Schedule 6, Page 10, Col (e).
(3) Cost adjusted to reflect allocated costs not recovered through fuel ratios.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 3

Question:

Please confirm whether any of the terms and conditions have changed for the replacement contracts with Trunkline Gas Company and Panhandle Eastern Pipeline. If terms and conditions have changed, please provide the changes and provide an explanation of their impact?

Response:

Terms and conditions for the replacement contracts on Trunkline Gas Company and Panhandle Eastern Pipe Line are unchanged from the predecessor contracts.

Question: April 11, 2008

Answer: April 18, 2008

Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 3

Question:

Are all tolls and charges the same as the previous contracts? If not, please provide the new tolls and charges.

Response:

Tolls and charges for the replacement contracts on Trunkline Gas Company and Panhandle Eastern Pipe Line are unchanged from the predecessor contracts.

Question: April 11, 2008
Answer: April 18, 2008
Docket: EB-2008-0034

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 3

Question:

Does Spectra Energy or any of its affiliates own a portion of Trunkline Gas Company or the Panhandle Eastern Pipeline?

Response:

No.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Reference: Exhibit A, Tab 3

Question:

Please provide any publicly available or published data that shows the tolls and rates charged by Trunkline Gas Company and the Panhandle Eastern Pipeline to transport gas on its network.

Response:

The tariff sheets showing the tolls and rates for the transportation services that Union has contracted for are shown in the following attachments.

Attachment A – Sheets 10 and 40 through 47 of the Trunkline Tariff.

Attachment B – Sheets 5 and 39 through 47 of the Panhandle Tariff.

For further information, please see the complete tariffs for Trunkline and Panhandle at <http://infopost.panhandleenergy.com/InfoPost>.

TRUNKLINE GAS COMPANY, LLC
FERC GAS TARIFF
Third Revised Volume No. 1

Sixteenth Revised Sheet No. 10
Superseding Fifteenth Revised Sheet No. 10

CURRENTLY EFFECTIVE RATES

Each rate set forth in this Tariff is the currently effective rate pertaining to the particular rate schedule to which it is referenced, but each such rate is separate and independent and the change in any such rate shall not thereby effect a change in any other rate or rate schedule.

	Base Rate Per Dt	Adjustment ----- Sec. 24	Maximum Rate Per Dt	Minimum Rate Per Dt	Fuel Reimbursement
	(1)	(2)	(3)	(4)	(5)
RATE SCHEDULE FT					

Field Zone to Zone 2					
- Reservation Rate	\$ 9.7097	-	\$ 9.7097	-	-
- Usage Rate (1)	0.0141	-	0.0141	\$ 0.0141	2.62 % (2)
- Overrun Rate (3)	0.3192	-	0.3192	-	-
Zone 1A to Zone 2					
- Reservation Rate	\$ 6.0096	-	\$ 6.0096	-	-
- Usage Rate (1)	0.0117	-	0.0117	\$ 0.0117	2.24 % (2)
- Overrun Rate (3)	0.1976	-	0.1976	-	-
Zone 1B to Zone 2					
- Reservation Rate	\$ 4.5557	-	\$ 4.5557	-	-
- Usage Rate (1)	0.0062	-	0.0062	\$ 0.0062	1.15 % (2)
- Overrun Rate (3)	0.1498	-	0.1498	-	-
Zone 2 Only					
- Reservation Rate	\$ 3.4350	-	\$ 3.4350	-	-
- Usage Rate (1)	0.0011	-	0.0011	\$ 0.0011	0.77 % (2)
- Overrun Rate (3)	0.1129	-	0.1129	-	-
Field Zone to Zone 1B					
- Reservation Rate	\$ 8.4890	-	\$ 8.4890	-	-
- Usage Rate (1)	0.0130	-	0.0130	\$ 0.0130	2.23 % (2)
- Overrun Rate (3)	0.2791	-	0.2791	-	-
Zone 1A to Zone 1B					
- Reservation Rate	\$ 4.7889	-	\$ 4.7889	-	-
- Usage Rate (1)	0.0106	-	0.0106	\$ 0.0106	1.85 % (2)
- Overrun Rate (3)	0.1574	-	0.1574	-	-
Zone 1B Only					
- Reservation Rate	\$ 3.3350	-	\$ 3.3350	-	-
- Usage Rate (1)	0.0051	-	0.0051	\$ 0.0051	0.76 % (2)
- Overrun Rate (3)	0.1096	-	0.1096	-	-
Field Zone to Zone 1A					
- Reservation Rate	\$ 7.3683	-	\$ 7.3683	-	-
- Usage Rate (1)	0.0079	-	0.0079	\$ 0.0079	1.85 % (2)
- Overrun Rate (3)	0.2422	-	0.2422	-	-
Zone 1A Only					
- Reservation Rate	\$ 3.6682	-	\$ 3.6682	-	-
- Usage Rate (1)	0.0055	-	0.0055	\$ 0.0055	1.47 % (2)
- Overrun Rate (3)	0.1206	-	0.1206	-	-
Field Zone Only					
- Reservation Rate	\$ 3.7001	-	\$ 3.7001	-	-
- Usage Rate (1)	0.0024	-	0.0024	\$ 0.0024	0.76 % (2)
- Overrun Rate (3)	0.1216	-	0.1216	-	-
Gathering Charge (All Zones)					
- Reservation Rate	\$ 0.3257		\$ 0.3257		
- Overrun Rate (3)	0.0107		0.0107		

- (1) Excludes Section 21 Annual Charge Adjustment: \$0.0019
(2) Fuel reimbursement for backhauls is 0.31%
(3) Maximum firm volumetric rate applicable for capacity release

Issued by: Michael T. Langston
Sr. Vice President
Issued on: February 29, 2008

Effective: April 1, 2008

RATE SCHEDULE FT
FIRM TRANSPORTATION

1. AVAILABILITY

This Rate Schedule FT is available to any party (hereinafter called Shipper) which has requested firm Transportation service pursuant to Section 2 of the General Terms and Conditions of this Tariff and, after review and acceptance of such request by Trunkline, has executed a Service Agreement with Trunkline for service under this Rate Schedule FT. Such Service Agreement shall be in the form contained in Trunkline's FERC Gas Tariff, Third Revised Volume No. 1, of which this Rate Schedule FT is a part.

2. APPLICABILITY AND CHARACTER OF SERVICE

The firm service provided hereunder is the Transportation of Natural Gas on a uniform hourly basis up to the Maximum Daily Quantity (MDQ) set forth in the Service Agreement, subject to the availability of capacity, the General Terms and Conditions and the further provisions of the Service Agreement. Shipper's MDQ shall be a uniform Quantity throughout the term of the Service Agreement, except that Trunkline may, but shall not be obligated to, agree on a not unduly discriminatory basis to certain differing levels in Shipper's MDQ for specified periods during the term of the Service Agreement. The effective period of each MDQ level shall be specified in the executed Service Agreement. Trunkline is not obligated to provide any Transportation service for which capacity is not available or which would require the construction or acquisition of new facilities or the modification or expansion of existing facilities.

2.1 Points of Receipt

Shipper may designate in the Service Agreement multiple primary Points of Receipt, each of which will have a Maximum Daily Receipt Obligation (MDRO). Shipper's MDQ shall equal the sum of the MDROs at Shipper's primary Points of Receipt. Points of Receipt on Trunkline's Master Receipt Point List (MRPL) are available as secondary Points of Receipt if the points are within or between the Zones used to calculate the Reservation Charge in accordance with Section 3.1 herein. If the Gathering Charge is applicable in accordance with Section 3.3 herein, Points of Receipt identified as Gathering Points of Receipt on the MRPL are also available as secondary Points of Receipt.

RATE SCHEDULE FT (Continued)
FIRM TRANSPORTATION

2.2 Points of Delivery

Shipper may designate in the Service Agreement multiple primary Points of Delivery, each of which will have a Maximum Daily Delivery Obligation (MDDO). Shipper's MDQ shall equal the sum of the MDDOs at Shipper's primary Points of Delivery. Points of Delivery on Trunkline's Master Delivery Point List (MDPL) are also available as secondary Points of Delivery if the points are within or between the Zones used to calculate the Reservation Charge in accordance with Section 3.1 herein.

2.3 Service provided at the primary and secondary Points of Receipt and primary and secondary Points of Delivery shall be provided on a firm basis subject to the scheduling, curtailment and interruption provisions of Sections 3 and 4 of the General Terms and Conditions.

2.4 Tolerance Level

The Tolerance Level under this Rate Schedule FT shall be ten percent (10%) at Points of Delivery and the greater of ten percent (10%) or 1,000 Dt at Points of Receipt. Daily scheduling variances in excess of the Tolerance Level shall be subject to a daily scheduling penalty calculated in accordance with Section 5 of the General Terms and Conditions.

3. RATE

The rates and charges for firm service under this Rate Schedule FT shall be as follows:

3.1 Reservation Charge

- (A) If both the primary Points of Receipt and primary Points of Delivery as designated in the Service Agreement are located within the same Zone, the monthly Reservation Charge shall be the product of the MDQ, or applicable portion thereof, at such primary Points of Delivery and the applicable reservation rate per Dt for service within the Zone, as set forth on the effective Tariff Sheet No. 10; and

RATE SCHEDULE FT (Continued)
FIRM TRANSPORTATION

- (B) If the primary Points of Receipt and primary Points of Delivery as designated in the Service Agreement are located in different Zones, then the monthly Reservation Charge shall be the product of the MDQ, or applicable portion thereof, at such primary Points of Delivery and the sum of the applicable reservation rates per Dt for service within the respective Zones and any Zones located between such Zones, as set forth on the effective Tariff Sheet No. 10.

Shipper may elect to participate in the Customized Reservation Pattern™ program pursuant to Section 3.9 herein.

The Reservation Charge shall be prorated for the first and last contract Months to adjust for the number of days during those Months for which service was contracted. In the event commencement of services contracted for is contingent upon the repair, upgrade, construction of facilities, financial considerations or third party contingencies, Trunkline may waive any or all Reservation Charges until a mutually agreed upon date following the resolution of the applicable contingency.

3.2 Usage Charge

- (A) If both the applicable Points of Receipt and applicable Points of Delivery as determined in accordance with Section 3 of the General Terms and Conditions are located within the same Zone, the monthly Usage Charge shall be the product of the actual Quantity of Gas delivered, or applicable portion thereof, during the Month and the applicable usage rate per Dt for service within the Zone, as set forth on the effective Tariff Sheet No. 10; and
- (B) If the applicable Points of Receipt and applicable Points of Delivery as determined in accordance with Section 3 of the General Terms and Conditions are located in different Zones, then the monthly Usage Charge shall be the product of the actual Quantity of Gas delivered, or applicable portion thereof, during the Month and the sum of the applicable usage rates per Dt for service within the respective Zones and any Zones located between such Zones, as set forth on the effective Tariff Sheet No. 10.

RATE SCHEDULE FT (Continued)
FIRM TRANSPORTATION

3.3 Gathering Charge

If Shipper designates a primary Point of Receipt identified as a Gathering Point of Receipt on the MRPL then, in addition to the Reservation and Usage Charges established in Sections 3.1 and 3.2 of this Rate Schedule FT, Shipper shall pay a monthly Gathering Charge which shall be the product of the MDRO at such primary Point of Receipt and the applicable Gathering reservation rate per Dt as set forth on the effective Tariff Sheet No. 10.

3.4 Surcharges

Shipper shall pay all reservation and usage surcharges specified in Section 21 of the General Terms and Conditions and as set forth on the effective Tariff Sheet No. 10. In addition, the Reservation and Usage Charges shall include all other applicable surcharges specified in the General Terms and Conditions and as set forth on the effective Tariff Sheet No. 10 or which otherwise may be applicable to service under this Rate Schedule FT from time to time.

3.5 Range of Rates

Unless otherwise agreed to in writing between Shipper and Trunkline, any rate applicable to a Shipper for service hereunder shall be the applicable Maximum Rate per Dt as set forth on the effective Tariff Sheet No. 10, plus all surcharges specified in the General Terms and Conditions, as may be applicable from time to time. If an amount less than the applicable Maximum Rate and not less than the applicable Minimum Rate is agreed upon, such amount shall be applied prospectively and only to those Points of Receipt and Points of Delivery identified in writing. Trunkline shall be responsible for compliance with any reporting requirements prescribed by the Commission. Trunkline shall not be required to enter into any Service Agreement for Transportation service at a rate less than the Maximum Rate per Dt.

Issued by: William W. Grygar
Vice President
Issued on: July 1, 2004

Effective: August 1, 2004

RATE SCHEDULE FT (Continued)
FIRM TRANSPORTATION

3.6 Fuel Reimbursement

Shipper shall reimburse Trunkline in kind for fuel usage and lost or unaccounted for Gas:

- (A) If Shipper's Points of Receipt and Points of Delivery are located within the same Zone, the monthly Fuel Reimbursement shall be the product of the actual Quantity of Gas received, or applicable portion thereof, during the Month and the applicable Fuel Reimbursement percentage for service within the Zone, as set forth on the effective Tariff Sheet No. 10; and
- (B) If the Points of Receipt and Points of Delivery are located in different Zones, then the monthly Fuel Reimbursement shall be the product of the actual Quantity of Gas received, or applicable portion thereof, during the Month and the sum of the applicable Fuel Reimbursement percentages for service within each of the respective Zones and any Zones located between such Zones, as set forth on the effective Tariff Sheet No. 10.
- (C) In lieu of the fuel charges in Section 3.6(A) or (B) above, Trunkline shall assess a zero charge for fuel usage for transactions specified in Section 28.8 of the General Terms and Conditions that do not require the use of compression on Trunkline's system. The lost or unaccounted for Gas component, which is identified as the backhaul fuel reimbursement percentage on the effective Tariff Sheet No. 10, shall apply.

3.7 Overrun Charge

- (A) If during the Month, Shipper takes Quantities in excess of the MDQ as stated in the Service Agreement for the service provided hereunder, the applicable charge per Dt shall be the product of such excess Quantities and the sum of the applicable overrun rates for the Zones used to calculate the Reservation Charge in accordance with Section 3.1 herein, as set forth on the effective Tariff Sheet No. 10.

RATE SCHEDULE FT (Continued)
FIRM TRANSPORTATION

- (B) If during the Month, Shipper takes Quantities in excess of the MDRO, as stated in the Service Agreement for the service provided hereunder, from a Point of Receipt identified as a Gathering Point of Receipt on the MRPL, the applicable charge per Dt shall be the product of such excess Quantities and the applicable overrun rate as set forth on the effective Tariff Sheet No. 10.

In addition, Shipper may be subject to the unauthorized overrun penalty as set forth in Section 5.3 of the General Terms and Conditions.

Issued by: William W. Grygar
Vice President
Issued on: December 22, 2003

Effective: January 22, 2004

RATE SCHEDULE FT (Continued)
FIRM TRANSPORTATION

3.8 Transportation Balancing and Other Charges

If balancing or other charges are incurred in accordance with the General Terms and Conditions, including Sections 5, 6 or 13 thereof, then such charges shall also be applicable.

3.9 Customized Reservation Pattern™ (CRP™)

- (A) The CRP™ election provides an alternative method of paying the uniform monthly billing of the Reservation Charge set forth on the effective Tariff Sheet No. 10. Billing and payment of CRP™ Reservation Charges shall be in accordance with the reservation pattern elected by Shipper. Rates reflecting such Shipper CRP™ election shall be posted on the Messenger® system and will be filed with the Commission on or before the first day of the Month of effectiveness of such election. The total annual Reservation Charges resulting from CRP™ will equal the total Reservation Charges Shipper would pay without the CRP™ election for the same annual period. An adjustment, if necessary, will be included on the invoice for the last month of the CRP™ period to ensure that the total Reservation Charges due Trunkline under Trunkline's uniform currently effective rates equals the Reservation Charges received by Trunkline under the CRP™ rates. All rights and obligations of Section 16 of the General Terms and Conditions shall apply to the Reservation Charge for each billing Month as elected by Shipper. In the event any CRP™ invoice shall be based on rates in effect subject to refund and refunds shall be required, refunds shall be calculated as if the CRP™ election had not been made.
- (B) Shipper may elect flexible maximum reservation charges under CRP™ that are derived from the maximum uniform charges for service on the effective Tariff Sheet No. 10; provided, however, CRP™ election is not available to a Shipper with an effective rate agreement pursuant to Section 3.5 herein nor a Replacement Shipper pursuant to Section 9 of the General Terms and Conditions. Shipper shall submit to Trunkline an executed Exhibit B to its Service Agreement in order to participate in the CRP™ program.

RATE SCHEDULE FT (Continued)
FIRM TRANSPORTATION

In addition to the otherwise applicable charges set forth for monthly service on the effective Tariff Sheet No. 10 for November through March, a Shipper electing CRP™ will be allowed to pay up to 80% of the Reservation Charges due for the period April through October in the preceding November through March period. CRP™ elections which specify the portion of the April through October Reservation Charges to be paid during the preceding November through March period will be due by October 1 of each year to be effective November 1. Revised CRP™ elections will be allowed up to the fifteenth Business Day preceding the Month of Gas flow, for prospective application only, so long as the Shipper's total annual obligations for Reservation Charges during the 12 month CRP™ Period are not affected by such revisions and provided that such revisions do not result in the Reservation Charge for any month during the April through October period exceeding the charge which would have been applicable had the CRP™ election not been made.

- (C) Maximum CRP™ reservation rates for each Shipper shall be reflected on effective Tariff Sheet No. 27.
- (D) The usage rates set forth on effective Tariff Sheet No. 10 shall not be affected by the provisions of this Section 3.9.

3.10 Negotiated Rates

Shipper and Trunkline may agree, on a prospective basis, to a Negotiated Rate with respect to the charges identified in Sections 3.1, 3.2 and 3.3 herein which may be less than, equal to or greater than the Maximum Rate; shall not be less than the Minimum Rate; may be based on a rate design other than straight fixed variable; and may include a minimum quantity. Such Negotiated Rate shall be set forth on Exhibit C of the executed Service Agreement and on the currently effective Tariff Sheet No. 28. The Maximum Rate shall be available to any Shipper that does not choose a Negotiated Rate.

Shippers paying a Negotiated Rate which exceeds the Maximum Rate will be considered to be paying the Maximum Rate for purposes of scheduling, curtailment and interruption, calculating the economic value of a request for unsubscribed firm capacity, and matching competing bids for the right of first refusal. Replacement Shippers may not bid or pay a rate greater than the Maximum Rate and are not eligible for Negotiated Rates.

RATE SCHEDULE FT (Continued)
FIRM TRANSPORTATION

In the event that capacity subject to a Negotiated Rate which is based on a rate design other than straight fixed variable is released, Shipper and Trunkline may agree on billing adjustments to the Releasing Shipper that may vary from or are in addition to those set forth in Section 9.9 of the General Terms and Conditions in order to establish the basis of accounting for revenues from a Replacement Shipper as a means of preserving the economic bases of the Negotiated Rate. Such payment obligation and crediting mechanism for capacity release shall be set forth on Exhibit C of the executed Service Agreement. Nothing in this Section 3.10 shall authorize Trunkline or Shipper to negotiate terms and conditions of service.

4. GENERAL TERMS AND CONDITIONS

All of the General Terms and Conditions of Trunkline's FERC Gas Tariff are hereby incorporated by reference in this Rate Schedule FT.

In the event of a conflict between the General Terms and Conditions and the provisions of this Rate Schedule FT, the provisions of this Rate Schedule FT shall govern.

5. RESERVATIONS

Trunkline reserves the right from time to time unilaterally to make any changes to, or to supersede, the rates and charges and other terms in this Rate Schedule FT and the other provisions of Trunkline's FERC Gas Tariff, and the applicability thereof, including the Form of Service Agreement hereunder, subject to the provisions of the Natural Gas Act and the Commission's Regulations thereunder.

PANHANDLE EASTERN PIPE LINE COMPANY, LP
FERC GAS TARIFF
Third Revised Volume No. 1

Seventeenth Revised Sheet No. 5
Superseding Sixteenth Revised Sheet No. 5

CURRENTLY EFFECTIVE RATES
RATE SCHEDULE EFT
ENHANCED FIRM TRANSPORTATION SERVICE

Each rate set forth on this tariff sheet is the currently effective rate pertaining to the particular rate schedule to which it is referenced, but each such rate is separate and independent and the change in any such rate shall not thereby effect a change in any other rate schedule.

Description	Base Rate Per Dt.	Section 25.1 Adjustment	Section 18 Surch. 1/	Maximum Rate Per Dt.	Overrun Charge Per Dt. 2/	Minimum Rate Per Dt.	Fuel Reimbursement
<u>Gathering</u>							
Reservation Rate	\$ 8.67	\$ (0.01)	-	\$ 8.66	28.50 ¢	-	-
Commodity Rate	0.16 ¢	-	0.19 ¢	0.35 ¢	-	0.16 ¢	0.71 ¢
<u>Transmission Charge</u>							
<u>Field Zone</u>							
Reservation Rate	\$ 4.73	\$ (0.01)	-	\$ 4.72	15.55 ¢	-	-
Commodity Rate	1.95 ¢	-	0.19 ¢	2.14 ¢	-	1.95 ¢	0.96 ¢
<u>Market Zone</u>							
Access Charge	\$ 3.30	\$ (0.01)	-	\$ 3.29	10.85 ¢	-	-
Commodity Rate	0.06 ¢	-	0.19 ¢	0.25 ¢	-	0.06 ¢	-
<u>Mileage Charge (per 100 Miles)</u>							
1 - 100 Reservation Rate	\$ 0.60			\$ 0.60	1.97 ¢	-	-
Commodity Rate	0.25 ¢			0.25 ¢	-	0.25 ¢	0.53 ¢
101 - 200 Reservation Rate	\$ 1.20			\$ 1.20	3.94 ¢	-	-
Commodity Rate	0.50 ¢			0.50 ¢	-	0.50 ¢	1.06 ¢
201 - 300 Reservation Rate	\$ 1.80			\$ 1.80	5.91 ¢	-	-
Commodity Rate	0.75 ¢			0.75 ¢	-	0.75 ¢	1.59 ¢
301 - 400 Reservation Rate	\$ 2.40			\$ 2.40	7.88 ¢	-	-
Commodity Rate	1.00 ¢			1.00 ¢	-	1.00 ¢	2.12 ¢
401 - 500 Reservation Rate	\$ 3.00			\$ 3.00	9.85 ¢	-	-
Commodity Rate	1.25 ¢			1.25 ¢	-	1.25 ¢	2.65 ¢
501 - 600 Reservation Rate	\$ 3.60			\$ 3.60	11.82 ¢	-	-
Commodity Rate	1.50 ¢			1.50 ¢	-	1.50 ¢	3.18 ¢
601 - 700 Reservation Rate	\$ 4.20			\$ 4.20	13.79 ¢	-	-
Commodity Rate	1.75 ¢			1.75 ¢	-	1.75 ¢	3.71 ¢
701 - 800 Reservation Rate	\$ 4.80			\$ 4.80	15.76 ¢	-	-
Commodity Rate	2.00 ¢			2.00 ¢	-	2.00 ¢	4.24 ¢
801 - 900 Reservation Rate	\$ 5.40			\$ 5.40	17.73 ¢	-	-
Commodity Rate	2.25 ¢			2.25 ¢	-	2.25 ¢	4.77 ¢
901 - 1000 Reservation Rate	\$ 6.00			\$ 6.00	19.70 ¢	-	-
Commodity Rate	2.50 ¢			2.50 ¢	-	2.50 ¢	5.30 ¢

Surcharges

- 1/ Surcharges pursuant to Section 18.2 of the General Terms and Conditions. See currently effective Sheet No. 19. Reservation and Commodity surcharges will be billed in accordance with the provisions of the General Terms and Conditions under which they are authorized.
- 2/ Maximum firm volumetric rate applicable for capacity release, exclusive of surcharges.

Issued by: William W. Grygar
Vice President
Issued on: February 29, 2008

Effective: April 1, 2008

RATE SCHEDULE EFT
ENHANCED FIRM TRANSPORTATION SERVICE

1. AVAILABILITY

This Rate Schedule is available for Natural Gas Transportation and Gathering service performed by Panhandle Eastern Pipe Line Company, LP (hereinafter called Panhandle) for any party (hereinafter called Shipper):

- (a) which has executed a Service Agreement in the form prescribed under Panhandle's FERC Gas Tariff for service under this Rate Schedule;
- (b) which delivers Natural Gas or causes Natural Gas to be delivered to Panhandle for delivery by Panhandle for the account of Shipper; and
- (c) which receives such Gas from Panhandle at a physical Point(s) of Delivery or at a Pool Point(s).

This service is available for firm service at a Point(s) of Delivery without regard to the presence of a Flow Control Device.

2. APPLICABILITY AND CHARACTER OF SERVICE

This Rate Schedule shall apply to the firm Transportation and Gathering of Natural Gas on Panhandle's system, subject to the General Terms and Conditions herein and the further provisions of the Service Agreement.

The service provided by Panhandle under this Rate Schedule consists of the receipt of Natural Gas by Panhandle at Point(s) of Receipt located on Panhandle's system and specified in the executed Service Agreement and the delivery of such Gas, after appropriate reductions, at Point(s) of Delivery located on Panhandle's system and specified in the executed Service Agreement up to the Maximum Daily Contract Quantity (MDCQ) set out in the executed Service Agreement on a basis consistent with Section 5 hereof. Shipper's MDCQ shall be a uniform quantity throughout the term of the Service Agreement, except that Panhandle may, but shall not be obligated to, agree on a not unduly discriminatory basis to certain differing levels in Shipper's MDCQ for specified periods during the term of the Service Agreement. The effective period of each MDCQ level shall be specified in the executed Service Agreement.

Service at the primary and secondary Point(s) of Receipt and Point(s) of Delivery shall be provided on a firm basis subject to the scheduling, curtailment and interruption provisions of Sections 8 and 9 of the General Terms and Conditions.

RATE SCHEDULE EFT (Continued)
ENHANCED FIRM TRANSPORTATION SERVICE

In no event shall Panhandle be obligated to provide any Transportation or Gathering service for which capacity is not available or which would require the construction or acquisition of new facilities or the modification or expansion of existing facilities.

3. RATES

The rates and charges for service under this Rate Schedule EFT shall be as follows:

3.1 Transmission Charge

If Shipper designates a Point(s) of Receipt or a Point(s) of Delivery on the transmission portion of Panhandle's system, Shipper shall pay a Monthly Transmission Charge which consists of a reservation component and a commodity component.

- (a) The reservation component of the Transmission Charge shall be the product of the MDCQ times the applicable Transmission reservation rates per Dt. as set forth on the effective Tariff Sheet No. 5. The reservation component shall be pro-rated for the first and last contract Months to adjust for the number of Days during those Months service was available. Shipper may elect to participate in the Customized Reservation Pattern™ program pursuant to Section 3.10 herein.
- (b) The commodity component of the Transmission Charge shall be the product of the actual Quantity of Gas delivered during the Month times the applicable Transmission commodity rates per Dt. as set forth on the effective Tariff Sheet No. 5.
- (c) If both the Point(s) of Receipt and the Point(s) of Delivery are located within the Field Zone, the applicable rates shall be as set forth on the effective Tariff Sheet No. 5 for service within the Field Zone only; if both the Point(s) of Receipt and Point(s) of Delivery are located within the Market

RATE SCHEDULE EFT (Continued)
ENHANCED FIRM TRANSPORTATION SERVICE

Zone, the applicable rates shall be as set forth on the effective Tariff Sheet No. 5 for service within the Market Zone only; if the Point(s) of Receipt and the Point(s) of Delivery are located in different zones, the applicable rates shall be derived by adding the effective rates for service in the Field Zone and the Market Zone.

3.2 Gathering Charge

If Shipper designates primary Point(s) of Receipt or Point(s) of Delivery on the Gathering portion of Panhandle's system or utilizes the Gathering portion of Panhandle's system for firm service hereunder, Shipper shall pay a Monthly Gathering Charge which shall consist of a reservation component and a commodity component.

- (a) The reservation component of the Gathering Charge shall be the product of the MDCQ times the applicable reservation rate per Dt. as set forth on the effective Tariff Sheet No. 5. The reservation component shall be pro rated for the first and last contract Months to adjust for the number of Days during the Months service was available.
- (b) The commodity component of the Gathering Charge shall be the product of the actual Quantity of Gas delivered during the Month times the applicable commodity rate per Dt. as set forth on the effective Tariff Sheet No. 5.

If Shipper designates a Point(s) of Receipt on the Gathering portion of Panhandle's system as a secondary firm Point(s) of Receipt pursuant to Section 10.3(c) of the General Terms and Conditions, the otherwise applicable charges shall also include the Gathering commodity rate and overrun charge per Dt. as set forth on the effective Tariff Sheet No. 5.

RATE SCHEDULE EFT (Continued)
ENHANCED FIRM TRANSPORTATION SERVICE

3.3 Special Rate for Limited Class of Backhaul Service

For firm service hereunder for all volumes received at or East of Tuscola and delivered on Panhandle's Transmission facilities at or West of the Haven, Kansas Compressor Station, the rate charged shall be one-half the applicable Transmission charge per Dt. as set forth on the effective Tariff Sheet No. 5. Backhaul services provided which do not satisfy the foregoing specified criteria shall be charged the generally applicable rate.

3.4 Transportation Involving Pooling

The rates for firm Transportation under Rate Schedule EFT involving pooling, as set forth in Section 14 of the General Terms and Conditions, shall be as specified in this Section 3; provided that the rates charged for service under a Pooling Transportation Agreement shall not include the Field Zone Transmission Charges, so long as title to such Gas passes to another Shipper and the Quantities of Gas are delivered for immediate receipt and subsequent Transportation on Panhandle's system under a Service Agreement to which the Field Zone Transmission Charges apply. If the Pooling Shipper notifies Panhandle in writing at the time its initial nomination for the Month is submitted that it has agreed to pay the Field Zone charges, such charges shall not apply to the Quantities transported under the Corresponding Transportation Agreement but shall apply to the Pooling Transportation Agreement for such Month. In addition, if the Corresponding Shipper notifies Panhandle in writing at the time its initial nomination for the Month is submitted that it has agreed to pay the Gathering charges, such charges shall not apply to the Quantities transported under the Pooling Transportation Agreement but shall apply to the Corresponding Transportation Agreement for such Month.

3.5 Surcharges

Shipper shall pay all surcharges specified in the General Terms and Conditions or which otherwise may be applicable to service under this Rate Schedule from time to time.

RATE SCHEDULE EFT (Continued)
ENHANCED FIRM TRANSPORTATION SERVICE

3.6 Overrun Charges and Unauthorized Overrun Penalties

(a) Overrun Charge for Takes in Excess of MDCQ

If during one or more Days in the billing Month Shipper takes Quantities of Gas in excess of the applicable Maximum Daily Contract Quantity as stated in the Service Agreement (hereinafter called overrun quantities) for firm service hereunder, Shipper shall be subject to an Overrun Charge in addition to the applicable reservation and commodity charges and any balancing charges that may be applicable pursuant to Section 12 of the General Terms and Conditions. The applicable Overrun Charge per Dt. for such overrun quantities shall be as set forth on the effective Tariff Sheet No. 5. In addition, subject to the provisions of Section 3.6(c) of this Rate Schedule, Shipper shall be subject to an Unauthorized Overrun Penalty as set forth in Section 12.16 of the General Terms and Conditions.

(b) Takes in Excess of Permissible Hourly Deliveries

If, pursuant to Section 5 hereof, Shipper has been notified that it must limit takes to one-sixteenth of the Quantities nominated for delivery at the Point(s) of Delivery, Shipper must use its best efforts to limit its takes to one-sixteenth of the Quantities nominated for delivery at the Point(s) of Delivery as soon as possible, but in no event later than two hours following notification. If, after such two hours, the Shipper's takes exceed such hourly limitation for any hour during the next twenty-four hour period, Shipper shall pay the overrun charges as set forth on the effective Tariff Sheet No. 5, in addition to the applicable commodity rates.

RATE SCHEDULE EFT (Continued)
ENHANCED FIRM TRANSPORTATION SERVICE

(c) Unauthorized Overrun Penalty for Takes During an OFO

Panhandle may issue an OFO and, if it does so, Panhandle shall notify Shippers through the Messenger® system, the Web Site and by telephone, and facsimile or via e-mail communication. Once issued the OFO shall continue until Panhandle notifies Shippers to the contrary using the above methods. If the OFO requires the elimination of unauthorized overruns, the applicable Unauthorized Overrun Penalty shall be as set forth in Section 12.17(f) (ii) of the General Terms and Conditions.

3.7 Range of Rates

Unless otherwise agreed to in writing by Shipper and Panhandle, any rate applicable to a Shipper for service hereunder, by reference to the effective Tariff Sheet No. 5 shall be the applicable Maximum Rate(s) set forth thereon. If an amount less than the applicable Maximum Rate(s) and not less than the applicable Minimum Rate(s) is agreed upon, such amount shall be applicable prospectively.

3.8 Fuel Reimbursement

Shipper shall reimburse Panhandle in kind for fuel usage and lost or unaccounted for Gas pursuant to the terms and conditions of the Service Agreement and as stated on the effective Tariff Sheet No. 5 for service hereunder.

3.9 Balancing Charges

If balancing charges are incurred in accordance with Section 12 of the General Terms and Conditions, then such balancing charges shall also be applicable.

RATE SCHEDULE EFT (Continued)
ENHANCED FIRM TRANSPORTATION SERVICE

3.10 Customized Reservation Pattern™ (CRP™)

- (a) The CRP™ election provides an alternative method of paying the uniform monthly billing of the Reservation Charge set forth on the effective Tariff Sheet No. 5. Billing and payment of CRP™ Reservation Charges shall be in accordance with the reservation pattern elected by Shipper. Rates reflecting such Shipper CRP™ election shall be posted on the Messenger® system and will be filed with the Commission on or before the first day of the Month of effectiveness of such election. The total annual Reservation Charges resulting from CRP™ will equal the total Reservation Charges Shipper would pay without the CRP™ election for the same annual period. An adjustment, if necessary, will be included on the invoice for the last month of the CRP™ period to ensure that the total Reservation Charges due Panhandle under Panhandle's uniform currently effective rates equals the Reservation Charges received by Panhandle under the CRP™ rates. All rights and obligations of Section 17 of the General Terms and Conditions shall apply to the Reservation Charge for each billing Month as elected by Shipper. In the event any CRP™ invoice shall be based on rates in effect subject to refund and refunds shall be required, refunds shall be calculated as if the CRP™ election had not been made.
- (b) Shipper may elect flexible maximum reservation charges under CRP™ that are derived from the maximum uniform charges for service on the effective Tariff Sheet No. 5; provided, however, CRP™ election is not available to a Shipper with an effective rate agreement pursuant to Section 3.7 herein nor a Replacement Shipper pursuant to Section 15 of the General Terms and Conditions. Shipper shall submit to Panhandle an executed Exhibit B to its Service Agreement in order to participate in the CRP™ program.

RATE SCHEDULE EFT (Continued)
ENHANCED FIRM TRANSPORTATION SERVICE

In addition to the otherwise applicable charges set forth for monthly service on the effective Tariff Sheet No. 5 for November through March, a Shipper electing CRP™ will be allowed to pay up to 80% of the Reservation Charges due for the period April through October in the preceding November through March period. CRP™ elections which specify the portion of the April through October Reservation Charges to be paid during the preceding November through March period will be due by October 1 of each year to be effective November 1. Revised CRP™ elections will be allowed up to the fifteenth Business Day preceding the Month of Gas flow, for prospective application only, so long as the Shipper's total annual obligations for Reservation Charges during the 12 month CRP™ Period are not affected by such revisions and provided that such revisions do not result in the Reservation Charge for any month during the April through October period exceeding the charge which would have been applicable had the CRP™ election not been made.

- (c) Maximum CRP™ reservation rates for each Shipper shall be reflected on effective Tariff Sheet No. 20.
- (d) The usage rates set forth on effective Tariff Sheet No. 5 shall not be affected by the provisions of this Section 3.10.

3.11 Negotiated Rates

Shipper and Panhandle may agree, on a prospective basis, to a Negotiated Rate with respect to the charges identified in Sections 3.1, 3.2 and 3.3 herein which may be less than, equal to or greater than the Maximum Rate; shall not be less than the Minimum Rate; may be based on a rate design other than straight fixed variable; and may include a minimum quantity. Such Negotiated Rate shall be set forth on Exhibit C of the executed Service Agreement and on the currently effective Tariff Sheet No. 21. The Maximum Rate shall be available to any Shipper that does not choose a Negotiated Rate.

Shippers paying a Negotiated Rate which exceeds the Maximum Rate will be considered to be paying the Maximum Rate for purposes of scheduling, curtailment and interruption, and calculating the economic value of a request for unsubscribed firm capacity. In addition, a Shipper that does not agree to pay any surcharges will not be granted a scheduling preference that deems such surcharges have been paid. Replacement Shippers may not bid or pay a rate greater than the Maximum Rate and are not eligible for Negotiated Rates.

RATE SCHEDULE EFT (Continued)
ENHANCED FIRM TRANSPORTATION SERVICE

In the event that capacity subject to a Negotiated Rate which is based on a rate design other than straight fixed variable is released, Shipper and Panhandle may agree on billing adjustments to the Releasing Shipper that may vary from or are in addition to those set forth in Section 15.6 of the General Terms and Conditions in order to establish the basis of accounting for revenues from a Replacement Shipper as a means of preserving the economic bases of the Negotiated Rate. Such payment obligation and crediting mechanism for capacity release shall be set forth on Exhibit C of the executed Service Agreement. Nothing in this Section 3.11 shall authorize Panhandle or Shipper to negotiate terms and conditions of service.

4. MONTHLY BILL

The Monthly Bill for service under this Rate Schedule shall be equal to the Transmission Charge, the Gathering Charge, any applicable overrun and balancing charges, plus all applicable surcharges.

5. HOURLY DELIVERIES

Shipper shall deliver or cause to be delivered Natural Gas for the account of Shipper on a uniform hourly basis as nearly as practicable. At each Point(s) of Delivery Shipper may receive from Panhandle in any hour such Quantities of Gas as it requires or as are consistent with available pipeline pressures at such point(s); provided that Panhandle shall be entitled to require Shipper to restrict takes at any point during any hour to one-sixteenth of the Natural Gas nominated for Transportation to that Point(s) of Delivery on that Day by notifying Shipper through the Messenger[®] system, the Web Site and by telephone or facsimile communication.

6. RESERVATIONS

Panhandle reserves the right from time to time to unilaterally make any changes to, or to supersede, the rates and charges and other terms in this Rate Schedule and the other provisions of Panhandle's FERC Gas Tariff, and the applicability thereof, subject to the provisions of the Natural Gas Act and the Commission's Regulations thereunder.

7. GENERAL TERMS AND CONDITIONS

The General Terms and Conditions of Panhandle's FERC Gas Tariff are applicable to this Rate Schedule and are hereby made a part hereof.

UNION GAS LIMITED

Answer to Interrogatory from
Board Staff

Question:

- a) When was the Late Payment Penalty Litigation deferral account (No.179-113) created?
 - b) Please identify the years and the associated balances from previous dispositions of the LPP deferral account.
 - c) Please identify the main drivers for the LPP deferral account balances in previous years?
-

Response:

- a) and c) Union's LPP litigation deferral account (No.179-113) was established in 2004 to record the costs incurred by Union to defend itself in LPP litigation. The account includes the Company's legal costs, costs of actuarial services and the cost of analyzing historic billing records.
- b) With respect to the clearing of the account, Union disposed an \$807,000 balance as part of its 2005 year end deferral account balance and a \$303,000 balance as part of its 2006 year-end deferral account balance proceeding. Union is proposing to dispose a \$147,000 balance as part of EB-2008-0034 (Union's 2007 year-end deferral account balance proceeding).

Question: April 16, 2008

Answer: April 18, 2008

Docket: EB-2008-0034

UNION GAS LIMITED

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

Reference: Exhibit A, Tab 1, Page 15 of 19

Question:

Union seeks clearance of a debit balance of \$6.754 million related to DSM activity in 2006 and 2007. The DSM activity in 2006 has been subject to audit and represents an incentive payment of \$0.179 million and interest of \$0.008 million through December 31, 2007. The remaining debit balance of \$6.941 million relates to unaudited 2007 DSM activity. IGUA recognizes that this balance may change following the audit, and any amount disposed of would be subject to a future true-up. IGUA seeks to understand the level of confidence that the Board can have with the unaudited 2007 amount, and why it is necessary to clear this deferral account at this time.

- (a) On April 7, 2008 the Union DSM Consultative was provided with a Draft Demand Side Management 2007 Evaluation Report dated April 1, 2008. Please produce a copy of that Draft Report.*
 - (b) When does Union expect to finalize the Draft Report?*
 - (c) When does Union expect to have all verification studies and audit(s) relating to its DSM activity in 2007 complete?*
 - (d) When does Union expect that the post audit true-up process for 2007 DSM activity will occur?*
-

Response:

- a) A copy of the 2007 Demand Side Management Evaluation Report is attached.
- b) The draft unaudited 2007 DSM Evaluation Report will be complete on April 21 with the exception of Appendix K "Custom Free Riders". The results of this report impact the final LRAM disposition amount but not the methodology to calculate LRAM. When the Custom Free Rider evaluation report is complete the LRAM will be updated as soon as possible in order to meet the OEB submission deadline of June 30.
- c) Union expects to have its verification work completed by April 18, 2008. The Audit of the 2007 DSM Evaluation Report will be completed by June 15, 2008.
- d) Please see interrogatory responses at Exhibits B1.6, B1.8 and B1.9.

Question: April 10, 2008
Answer: April 18, 2008
Docket: EB-2008-0034

Demand Side Management 2007 Evaluation Report

April 1, 2008

DRAFT REPORT



uniongas

A Spectra Energy Company

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1. Introduction

Union Gas has consistently delivered cost effective Demand Side Management (DSM) programs since 1997. Over the past ten years Union has delivered approximately 540 million m³ of natural gas savings and net Total Resource Costs (TRC) benefits of over \$829 million¹.

Union's 2007-2009 DSM Plan was approved by the Ontario Energy Board (OEB) on January 26, 2007 in the EB-2006-0021 proceeding. Union's 2007 DSM budget was \$17.0 million. Included in the \$17 million budget was \$1.0 million for Market Transformation programs and \$1.3 million for programs targeted to low income customers. The TRC target for 2007 was set at \$188 million in Phase 1 of the DSM Generic Proceeding.

The primary purpose of this evaluation is to report on Union's energy efficiency initiatives and summarize the results delivered through the DSM program in 2007. This evaluation report plays an important role in documenting 2007 program results in comparison to plan, and demonstrates Union's success in achieving greater results than it has in previous years. A secondary purpose for the report is to summarize the outcomes of the evaluation research undertaken in 2007. The tertiary purpose for the evaluation report is to disclose the 2008 target and to file new measure input assumptions to the DSM Plan on a going forward basis.

In 2007, Union's DSM program generated net TRC benefits of \$229.2 million and conserved 93 million m³ of natural gas savings. Program spending in 2007 totalled \$16.1 million. The Shared Savings Mechanism (SSM) approved by the OEB, earned Union an incentive of \$6.94 million for 2007. The Market Transformation activities measured by OEB approved scorecard metrics generated an incentive of \$0.5 million.

¹ The historical TRC number is based on the avoided cost metrics in place at the time the results were achieved.

2. Planning and Evaluation Overview

Union's 2007-2009 DSM Plan creates a framework is consistent with achieving the company's objective of being a leader in the emerging cultural shift towards energy efficiency and conservation. The three year OEB approved plan is primarily focused on delivering natural gas savings, but also facilitates participation during changes in the market through the Market Transformation portfolio.

In 2007, Union continued to develop the scope and reach of programs delivered through the DSM portfolio, incorporating new incentives and technologies as well as eliminating or ramping down efforts on programs that were deemed not to be cost effective. All measures are screened for cost effectiveness using the Total Resource Cost (TRC) test as detailed in section 2.1 below.

The evaluation of the 2007 DSM year is based upon two sets of planning input assumptions.

1. For the m³ savings, TRC results and the SSM incentive, the planning input assumptions used in this evaluation report are those established through Phase 2 of the DSM Generic Proceeding, issued on October 18, 2006.
2. For the Lost Revenue Adjustment Mechanism (LRAM) section of the evaluation report, the m³ savings have been calculated using the most current input assumptions available at the time the evaluation report was completed.

Appendix A summarizes the input assumptions agreed to in Phase 2 of the DSM Generic Proceeding and approved with the 2007 – 2009 DSM Plan. Within Appendix A there are two sets of input assumptions. The first set, titled SSM, are used to determine the TRC calculations throughout the majority of this report and are the input assumptions, noted in (1.) above. The second sets of input assumptions, titled LRAM, are used to calculate m³ savings for LRAM and reflect the outcomes of the evaluation research.

2.1. Cost Effectiveness Screening

All DSM measures and programs are screened using the TRC test, which measures the benefits and costs of DSM investments from a societal perspective. The TRC benefit/cost test measures the overall net benefits of DSM measures assuming a value of zero for the environmental benefits and other externalities.

Benefits include the avoided use of natural gas, electricity and water resources as well as incentives for participants. Savings benefits are calculated over the life of the measure and discounted back to calculate a net present value². Costs include equipment purchases and installation costs for participants and program costs for the utility. Some of the benefits and costs net out to zero – incentives, for example, are a benefit to participants and a cost to the utility. All TRC results reported are net of free rider calculations.

Measures delivered through Union's DSM program are expected to yield a benefit-cost ratio of 1.0 or more to be included in the portfolio. Programs are evaluated annually to determine if they

² A discount rate of 10% is used to calculate the net present value.

pass the cost effectiveness screening. Starting in 2007, all measures (with the exception of pilot programs and market transformation programs) were required to pass the TRC test.

The methodology used in calculating the avoided costs to screen for cost effectiveness in 2007 was settled in the Decision in Phase 1 of the DSM Generic Proceeding. The OEB approved avoided cost methodology for Enbridge Gas Distribution (Enbridge) in EB-2005-0001/EB-2005-0437 proceeding was also used by Union. However, the costs applied in the calculations were specific to Union's franchise area and gas supply management policies and practices.

2.2. Monitoring and Tracking

Effective and reliable tracking is essential to accurately report on program results. With proper reporting processes, Union can make informed projections, pinpoint trends, and identify problems.

Union has a complete tracking system, supported by data checks at various points in the monitoring process. In 2007 Union began the process of updating the I.T. system that supports the tracking and reporting of results. This system will increase the audit controls and reduce manual intervention in reporting. This project continues in 2008 and will be in place for reporting 2008 results.

A flowchart outlining Union's program tracking process is included in Appendix G.

2.3. 2007 Program Evaluation

Program evaluation can include impact evaluation, process evaluation, and/or market evaluation studies. Impact evaluations are designed to verify participation and savings associated with given programs. Process evaluation assesses the effectiveness of channels and approaches to DSM delivery. The same study may look at both impact and process issues. Market evaluation is directed at understanding markets and establishing market shares.

A summary of the evaluation studies undertaken in 2007 is provided in the Verification and Evaluation section of this report.

2.4. 2007 Evaluation Priorities

Over the course of the 2007 – 2009 DSM Plan, Union will evaluate approximately a third of the total measures each year. To select measure evaluation research priorities for 2007, Union consulted with members of the Evaluation and Audit Committee (EAC) to identify priorities for 2007. In 2007, Union partnered with Enbridge Gas Distribution to complete the 2007 evaluation work.

In 2007 the following measures were undertaken:

- Commercial Custom project free rider rate;
- Industrial Custom project free rider rate;
- Low flow showerhead, faucet aerator, residential programmable thermostat and residential furnace free rider rates; and

- Low flow showerhead, faucet aerator and programmable thermostat deemed savings calculations

Three evaluations were completed and a summary of the evaluation studies undertaken in 2007 is provided in the 2007 Research Evaluation of Measures section of this report. The custom project free rider research for the two segments were combined in one study, as was the research for the four measures in the residential free rider study and the research for the three measures in the residential deemed savings study. The evaluation research is reflected in the TRC used to calculate LRAM.

2.5. 2007 Evaluation Report Audit

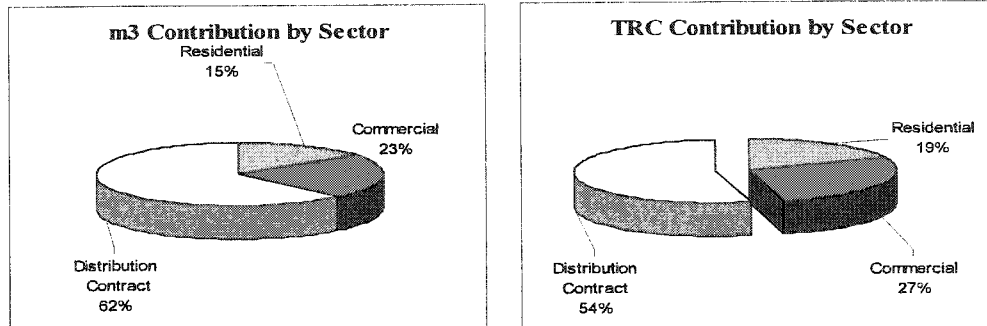
This evaluation report is subject to an independent external audit. The goal of the audit is to confirm to DSM stakeholders that claimed savings, Shared Savings Mechanism incentive, Lost Revenue Adjustment Mechanism, and Market Transformation incentive calculations are accurate.

To complete the stated goal, the audit involved a review of program results, evaluation activities and tracking processes. Nexant Inc. was awarded the contract auditing the 2007 results.

3. Overall 2007 DSM Program Results

In 2007, Union's DSM program generated net TRC benefits of \$229.2 million and 93 million m³ in natural gas savings. Program spending in 2007 totalled \$16.1 million, including \$0.77 million for Market Transformation.

Figure 3.1 - % Distribution by Sector



In Phase 1 of the DSM Generic Proceeding Union's TRC target for 2007 was established as \$188 million. In an effort to achieve this target, Union focused on a balance of programs in the three markets that would create an opportunity for success. Table 3.1 summarizes Union's overall DSM results for 2007. Appendix B compares actual results to the program plan for each measure.

Table 3.1 - Overall 2007 Program Results by Sector

Table 3.1 - Overall 2007 Program Results by Sector								
2007 DSM Program Results	Residential	Commercial	Distribution Contract	Market Trans-formation	Indirect Costs	**Actual 2007 Results	2007 Plan	Variance Actual vs Plan
Net TRC (\$000s)	\$ 44,675	\$ 64,449	\$ 126,660	\$ (365)	\$ (6,245)	\$ 229,175	\$ 196,356	\$ 32,819
Natural Gas Savings	14,263	21,383	57,331			92,976	76,683	16,293
Participants	338,942	119,275	176			458,393	286,720	171,673
*Expenditures	3,321	\$ 3,255	\$ 2,540	\$ 770	\$ 6,245	\$ 16,131	\$ 17,000	\$ (869)
TRC/\$ Spent	13.45	\$ 19.80	\$ 49.87			\$ 14.21	\$ 11.55	\$ 2.66

The Distribution Contract market delivered the largest portion of savings in 2007 as well as the highest TRC value per dollar spent, followed by the Commercial and then the Residential market. To generate results in 2007, DSM initiatives were delivered through the sector programs outlined in Table 3.2.

3.2 - Sector Programs

Sector	Programs
Residential	New Home Construction; Home Retrofit; Low Income
Commercial	New Building Construction; Building Retrofit, Audit Programs
Distribution Contract	Custom Projects and Audit Programs
Market Transformation	Drain Water Heat Recovery

These programs are designed to achieve savings in the areas of space heating, water heating, and the building envelope, as well as process related energy applications. Union targets each customer sector with specific DSM programs.

Table 3.3 details the breakdown of overall savings results by sector and by program.

Table 3.3 –Detailed 2007 Sector and Program Results

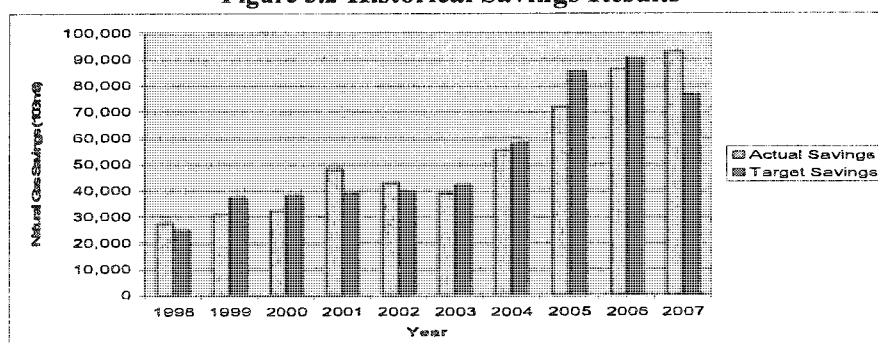
Sector	Program	Natural Gas Savings (103m ³)	Participants	*Total Costs (\$000) Program & Incentive	**Program TRC (000's)
<i>Residential</i>	New Home Construction	308	396	\$ 64	\$ 191
	Home Retrofit	12,533	310,294	\$ 2,096	\$ 38,457
	Low Income	1,422	28,252	\$ 1,161	\$ 6,028
	Market Transformation			\$ 770	\$ (365)
	Total Residential	14,263	338,942	\$ 4,091	\$ 44,310
<i>Commercial</i>	New Building Construction	1,296	766	\$ 299	\$ 2,842
	Building Retrofit	20,087	118,509	\$ 2,956	\$ 61,607
	Total Commercial	21,383	119,275	\$ 3,255	\$ 64,449
<i>Distribution Contract</i>	Distribution Contract	57,331	176	\$ 2,540	\$ 126,660
	Total Distribution Contract	57,331	176	\$ 2,540	\$ 126,660
Total Program Results		92,976	458,393	\$ 9,886	\$ 235,419
<i>Indirect Costs</i>	Overhead			\$ 1,700	\$ (1,700)
	Salaries			\$ 3,484	\$ (3,484)
	Research & Evaluation			\$ 919	\$ (919)
	Administration			\$ 142	\$ (142)
	Total Indirect Costs			\$ 6,245	\$ (6,245)
					Net TRC (000's)
TOTAL 2007 PROGRAM RESULTS		92,976	458,393	\$ 16,131	\$ 229,174

* Total Costs include program, incentive & indirect costs

**Program TRC net of free rider & program costs including market transformation

Figure 3.2 demonstrates that Union's level of savings achievement has increased significantly over the past three years. In 2007, total natural gas savings across all programs was 93 million m³. This was 8% higher than 2006 and 146% higher when compared to annual savings achieved in 2003.

Figure 3.2 Historical Savings Results



To achieve increasing volumetric natural gas savings, Union's spending on DSM also increased. The 2007 Board approved budget of \$17 million is considerably higher than the \$13.9 million

budget approved in 2006. In 2007 Union spent \$16.1 million on DSM, including \$1.2 million on Low Income programs and \$770K on Market Transformation. A breakdown of 2007 actual expenditures by sector, compared to 2007 planned expenditures and 2006 actual expenditures, is shown in Table 3.4

Table 3.4 - Overall 2007 Direct DSM Program Costs

DSM Sector Direct Program Costs	Incentives (\$000)	Program Costs (\$000)	2007 Total (\$000)	2007 Plan (\$000)	2006 Total (\$000)
Residential	\$ 2,140	\$ 1,181	\$ 3,321	\$ 3,284	\$ 3,163
Commercial	\$ 2,775	\$ 480	\$ 3,255	\$ 3,004	\$ 3,090
Distribution Contract	\$ 2,247	\$ 293	\$ 2,540	\$ 3,405	\$ 3,500
Market Transformatio	\$ 406	\$ 365	\$ 770	\$ 1,000	-
Total Costs			\$ 9,886	\$ 10,693	\$ 9,753
Indirect Costs			\$ 6,245	\$ 6,307	\$ 3,129
Total Spending			\$ 16,131	\$ 17,000	\$ 12,882

A breakdown of spending by program is contained in Appendix C.

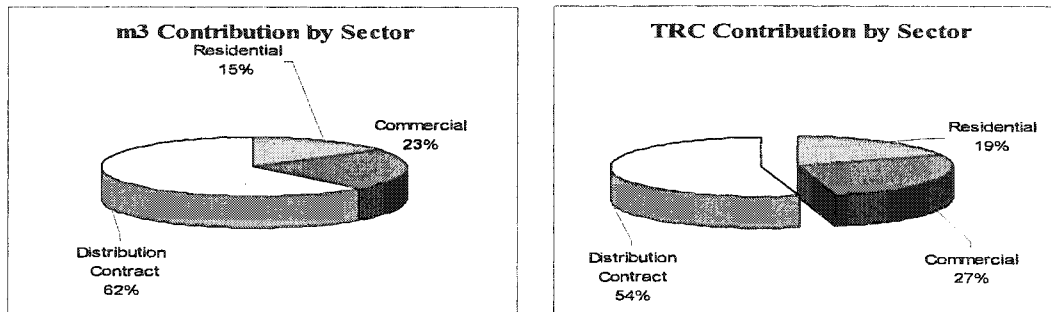
Specific details on program savings, participants³, and costs by sector are outlined in the next three sections of this report.

³ Participant counts are the number of measures installed for each program.

4. Residential Market

The residential program accounted for 19% of all DSM savings in 2007, contributing almost 14.3 million m³ of savings, and with a net TRC of \$44.3 million. Direct program spending in the residential market was \$3.321 million last year.

Figure 4.1 - % Distribution by Sector



The residential sector delivered natural gas savings through the New Home Construction, Home Retrofit and Low Income programs in 2007. The concentrated effort on the Low Income program was one of the more significant program changes that took place in 2007. Table 4.1 summarizes the residential program results for 2007.

Table 4.1 - 2007 Residential Program Results

2007 Residential Results Summary	New Home Construction	Home Retrofit	Low Income	Actual 2007 Results	2007 Plan	Variance Actual vs Plan
Net Program TRC (\$000)	\$ 191	\$ 38,457	\$ 6,028	\$ 44,676	\$ 32,449	\$ 12,228
Natural Gas Savings	308	12,533	1,422	14,263	11,365	2,898
Participants	396	310,294	28,252	338,942	209,600	129,342
Direct Expenditures (\$000)	\$ 64	\$ 2,096	\$ 1,161	\$ 3,321	\$ 3,284	\$ 37
TRC/\$ Spent	\$ 2.99	\$ 18.35	\$ 5.19	\$ 13.45	\$ 9.88	\$ 3.57

In 2007, the residential DSM program achieved higher TRC results than originally planned. This was largely the result of the concentrated efforts focused on existing ESK programs.

4.1. 2007 Residential Program Framework

Residential programs are designed to achieve savings in the areas of home heating, water heating and the building envelope in both new buildings and retrofit applications for residential M2 and R1 customers. Programs are delivered through a variety of channels, utilizing existing trade allies and partnership relationships as well as direct to customer promotions designed to cost-effectively promote energy efficiency within Union's residential customer base.

This section outlines the programs available to residential customers in 2007, including program changes, existing initiatives and delivery methods.

4.1.1. New Initiatives in 2007

In the new home construction market, the ENERGY STAR® for New Homes program was introduced in 2007. There was also a greater emphasis directed toward the Low Income program that was introduced in the fall of 2006.

ENERGY STAR for New Homes (ESNH)

Union's alignment with ESNH provided the company with an opportunity to drive energy efficiency in the new home construction market. Through a partnership with EnerQuality Corporation, Union participated as a member on the Policy and Procedures Advisory Council (PPAC), thereby influencing the direction of new building policies, technical specifications and training and marketing programs

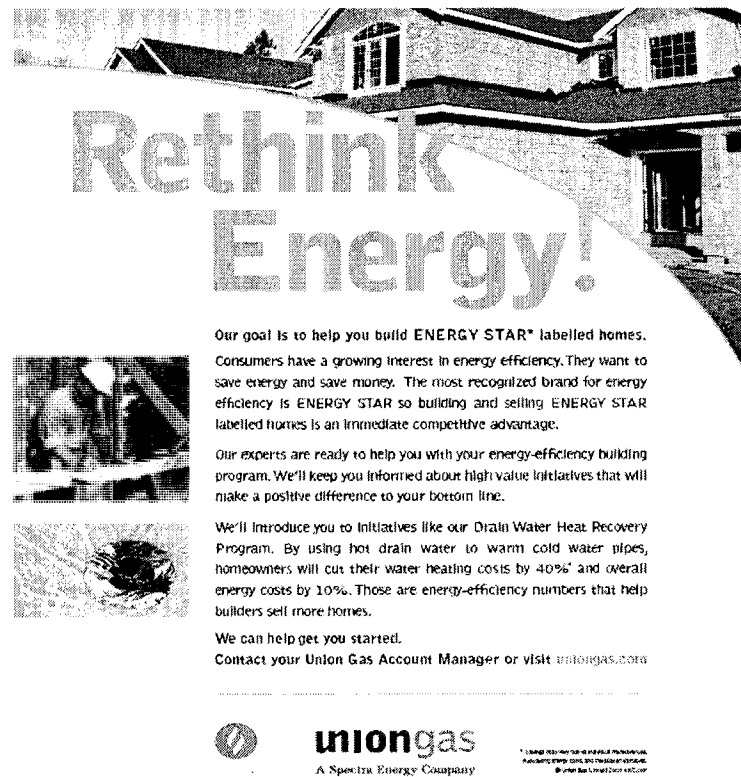
Union's participation on PPAC involved assisting in the development of the marketing platform and a strategy for ESNH, as well as introducing the offer to builders in Q3, and helping them recognize the value of the ESNH program in new construction by improving the awareness of the program for new home buyers in the market.

Union Gas introduced an incentive program for builders in 2007 who built to ESNH specifications for homes that had been permitted in 2006. Builders signed a Participation Agreement with Union Gas and for every new home registered under the ESNH program (up to a specified limit) Union Gas paid the builder an incentive of \$100. The program also included training and education for builders on the ESNH requirements.

In partnership with EnerQuality, Union Gas helped promote the ESNH program using the following marketing communication tools:

- Joint sales meetings with specific builders
- Joint presentation to Home Builder's Associations and other industry forums
- Table top displays at builder workshops
- Press releases
- Bestthings magazine & bill messaging
- POS material, print & web advertising, email campaigns
- Show Guide sponsor for Home Builders & Renovators Expo (see Figure 4.2)

Figure 4.2 Show Guide Ad for Home Builder & Renovator Expo




Rethink Energy!

Our goal is to help you build ENERGY STAR® labelled homes. Consumers have a growing interest in energy efficiency. They want to save energy and save money. The most recognized brand for energy efficiency is ENERGY STAR so building and selling ENERGY STAR labelled homes is an immediate competitive advantage.

Our experts are ready to help you with your energy-efficiency building program. We'll keep you informed about high value initiatives that will make a positive difference to your bottom line.

We'll introduce you to initiatives like our Drain Water Heat Recovery Program. By using hot drain water to warm cold water pipes, homeowners will cut their water heating costs by 40%* and overall energy costs by 10%. Those are energy-efficiency numbers that help builders sell more homes.

We can help get you started.
Contact your Union Gas Account Manager or visit uniongas.com

 **uniongas**
A Spectra Energy Company

* Using hot water to pre-heat cold water. Actual results may vary. © 2007 Union Gas Ltd.

Low Income (LI) Program Helping Homes Conserve

Union's DSM plan earmarked \$1.3 million in 2007 for programs targeted to low income customers. Union designed a new program based on learnings from a 2006 pilot with Enbridge. This new program called, Helping Homes Conserve, targeted customers living in the Hamilton and Brantford area who had an income at 125%, or below, the Statistics Canada's pre-tax, post-transfer Low-Income Cut-Off (LICO).

To qualify for the program customers had to meet the following criteria:

- Pay their own Union Gas bill
- Live in a low-rise dwelling
- Have a gas-fired water heater (for low-flow showerhead & aerator)
- Have a gas-fired furnace (for programmable thermostats)

The 2007 target was to install 6,000 low-flow showerheads, 1200 metres of pipe wrap and 3,000 programmable thermostats free of charge to Union's low-income customer base. Kitchen and bathroom aerators were given to the customer for self installation. To reach the targeted customers Union implemented a targeted door-to-door strategy executed through a third party delivery agent, Annron Services Ltd. Targeted Forward Sortation Addresses (FSAs)(3-digit postal codes) were used in areas where there was a high concentration of low-income households.

A door-to-door strategy was successfully executed that included pre-notification flyers dropped at customers' doorsteps, followed by a visit from a professional technician. Customers could also book an appointment by calling the Helping Homes Conserve dedicated toll-free line (1-866-354-5098) or by visiting Union's Website at www.helpinghomesconserve.ca

A landlord strategy was put in place to gain landlords' consent to install programmable thermostats in their tenants' dwellings. Union worked with the Social Agency Housing Help Centre to help identify landlords who had tenants that were eligible for this program. For tracking purposes, each customer who had one or more measures installed signed an acknowledgment form once the installation was complete.

Union's approach in 2007 was much more direct than in 2006. Instead of relying heavily on third parties such as the United Way to drive the program, Union contracted with Annron Services Ltd., to perform installations and drive the program internally. This partnership proved to be successful as approximately 7,300 showerheads, 12,800 metres of pipe wrap and 1,590 programmable thermostats were installed in 2007. Over 6,300 kitchen and 6,500 bathroom aerators were also distributed for self-installation, as outlined in the Low Income Program Summary in Table 4.2.

Table 4.2 Low Income – (Helping Homes Conserve) Program Summary

Measure	2007 Actual Participants	2007 Plan Participants	2006 Actual Participants
Low-flow showerheads	7,338	6,000	14
Kitchen Aerators	6,363	6,000	21
Bathroom Aerators	6,519	6,000	20
Pipe Insulation 2m	6,442	6,000	28
Programmable Thermostats	1,590	4,000	17

Programmable thermostats proved to be the biggest challenge as many low-income customers are renters and required landlord approval prior to installation. Although numerous low-income buildings were identified through the process, many did not qualify for the program because the utilities were included in the rent.

4.1.2. Existing Initiatives

A number of existing residential initiatives continued in 2007.

Energy Savings Kit (ESK)

A residential low-flow showerhead, two aerators and pipe wrap were distributed free of charge in the home retrofit market as part of an Energy Savings Kit (ESK). Energy Savings Kits are pre-packaged measures designed to reduce a customer's energy demand and water consumption, as well as provide consumers with further education on the efficient use of energy.

ESK contents include:

- 1) Pipe Wrap -2m
- 2) Low Flow Showerhead
- 3) Low Flow Kitchen Aerator

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Doing Our Part
For The
Environment

Plastic Packaging Made From
100% Corn... Not Oil

Benefits of corn-based plastic include:

- Protected from a toxic, potentially irreversible reaction found in plastic sugars
- Uses up to 80% less fossil fuel energy to produce in comparison to what it takes to create traditional plastic
- Emits up to 80% less greenhouse gases in comparison to what it takes to create traditional plastic
- Contains no harmful toxins
- Recyclable
- Compostable where facilities exist

(Recycling and composting are not required.)

FREE
energy saving kit

\$35 value

Packaging made from a 100% annually renewable resource

FREE
energy saving kit
saves energy, water & money

Did you know that one tree can replace up to 22,000 lb of carbon dioxide a year?

Kit Components	Yearly Savings	Water
Chemical-free	12.0%	41,000%
Fluorine-based color	30.0%	4.0%
Reservoir-filler additive	30.0%	4,000%
Pipe Insulation	20.0%	10%
Total	62.0%	30,030%

The savings in this kit can reduce the CO₂ equivalent in water & energy use by over 100% in a single year.

This kit contains everything you need to save energy & water.

- 1. Low-Flow Showerhead
- 1. Low-Flow Faucet Aerator
- 1. 1/2 in. x 1/2 in. Showerhead Adapter
- 1. 1/2 in. x 1/2 in. Faucet Adapter
- 2. Sheets of 1/2 in. x 1/2 in. Pipe Insulation

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Table 4.3 2007 ESK Summary of delivery by Segment

	Third Party	RAM Delivery						
	Home Depot	Guelph	Energy Days	Banner Retail	Municipal*	Home Trade shows	HVAC	Total
Total	16,892	14,814	10,126	7,750	7,245	6,317	4775	67,919

The largest single delivery method for ESKs was targeted events at Home Depot stores in the Union franchise area. Union held events at eight Home Depot stores over two weekends in May. The ESK distribution events were supported by messaging through Union Gas channels including on-bill messaging, Union's website, as well as targeted radio and newspaper advertising. Each store had at least one Union Gas Account Manager present, to qualify customers, distribute ESKs and provide energy saving advice. Approximately 17,000 ESKs were distributed during this promotion.

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Leadership (GEL), HVACs, other banner retailers, municipalities, and Union's Industrial Sales and Marketing team.

In the fall of 2007, Union partnered with the Guelph Environmental Leadership (GEL), the City of Guelph, and Project Porchlight to participate in GEL's Green Impact Guelph project. GEL fosters sustainable community conservation practices requiring cross sector collaboration. The goal of the project was to distribute 10,000 ESKs, augmented by a Compact Florescent Light bulb and a toilet leak repair kit. The partnership proved successful results, with the distribution of almost 15,000 ESKs by the end of December.

The Residential Account Managers also partnered with the Industrial Sales & Marketing team to deliver over 10,000 ESK kits to the employees of Union's large industrial & commercial customers. These events were labelled Energy Days and were coordinated in order to build energy awareness with the employees of Distribution Contract customers.

Programmable Thermostat

Union promoted a \$15 on-bill rebate for the purchase and installation of a programmable thermostat to its customers. This \$15 rebate, offered in the form of a coupon, was distributed through a number of channels in 2007:

- Bill inserts distributed to the entire Union residential customer base (February, August, September and October)
- ESKs
- Home Depot stores
- Home Hardware stores
- Direct mail to targeted conversion customer (i.e. customers converting from electric heating to gas heating)
- HVAC dealers
- Union Gas Website

In 2007, coupons were included in ESKs and customers receiving the kits were encouraged to purchase a programmable thermostat. Homeowners submitting an application to convert to natural gas space heating received a welcome letter which included a section on energy efficiency along with a coupon to promote the purchase of a programmable thermostat.

Both Home Depot and Home Hardware had coupons provided to them for promotion to their customers. Coupon pad inventory levels were monitored and refilled as necessary by the RAMs. In order to receive the on-bill rebate customers had to submit their active Union Gas account number on the completed coupon, along with a copy of the bill of sale and the original UPC symbol.

Over 8000 customers received on- bill rebates in 2007.

HVAC Partnership Initiative

The HVAC partnership was designed to promote, through channel partners, the sale of high efficiency natural gas measures to customers at the time of equipment replacement. HVAC partners received incentive programs to effectively influence the purchase of energy efficient

technologies. HVAC partners⁴ were eligible to receive an \$25 incentive for the sale of a high-efficiency furnace and a \$15 rebate towards the sale of a programmable thermostat.

In 2007, approximately 14,800 furnace and 14,000 programmable thermostat incentives were paid to HVAC partners.

4.1.3. Initiatives Exited in 2007

Union either phased out or did not continue supporting a number of initiatives in 2007.

TAPS (Installation of ESKs measures) Pilot

The TAPS program, implemented as a pilot in 2006 was not resumed in 2007. Union did not undertake the same program design in 2007. Further evaluation of this and other delivery methods for ESKs will be explored in 2008 to determine the most effective approach.

Meter Reading Campaign Pilot

The 2006 pilot to distribute ESKs through meter readers was not implemented as a delivery method for ESKs in 2007. The packaging of the kits was not conducive for meter readers to carry on their routes.

4.1.4. Education and Awareness Efforts

Dedicated funding to develop educational materials to keep customers informed on energy efficiency issues continues to be a priority at Union. Residential consumers have access to a variety of mediums to enrich their knowledge of energy efficiency, such as monthly InTouch bill inserts, an interactive Website, and Union's Wise Energy Guides.

Wise Energy Guide (WEG)

In 2007 Union continued with the distribution of the Wise Energy Guide (WEG) at ESK giveaway events. Included in the guide is information on a wide variety of related energy issues which include:

- An easy-to-use checklist to help get customers look at energy efficiency in the home
- Simple solutions to cut heating costs
- Tips to prevent air leakage
- Weather-stripping and caulking advice
- Home insulation tips
- Suggestions to solve moisture problems
- Natural gas equipment options
- Energy efficient product choices
- Government program offers and contact information

InTouch Monthly Newsletter

⁴ Any HVAC company is eligible to participate in Union Gas's energy efficiency programs.

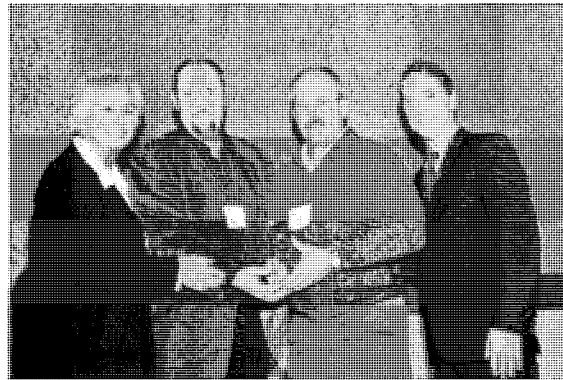
Union continued to distribute monthly InTouch Newsletters in 2007. These newsletters are Union Gas bill inserts that cover a range corporate communications. Educational messages on residential energy efficiency are highlighted in every issue. The December newsletter provided a link for customers to download their Wise Energy Guide (WEG) from the Website. It also illustrated the savings associated with ESKs.

Bi-Annual Residential HVAC Newsletter

Union developed a spring and fall newsletter targeting residential HVAC contractors. The newsletters contained information on Union's energy efficiency programs, such as ESKs, high efficiency furnaces and programmable thermostats. The Government of Ontario and the Federal ecoENERGY Retrofit grants in addition to the Ontario Power Authority's cool savings rebate program were also highlighted in the newsletters.

EnerQuality Awards of Excellence

EnerQuality Corporation is a for-profit organization that delivers ENERGY STAR® for New Homes in Ontario, as well as other building leadership programs such as R-2000. In 2007, Union sponsored an EnerQuality Building Excellence Award. Doug Tarry Ltd. was awarded the ENERGY STAR Builder of the Year (mid-size).



Pictured: Union Gas employee with Doug Tarry Ltd award recipients

Residential Energy Efficient Website

Union continued to expand and upgrade its interactive energy efficient Website (www.uniongas.com/energyefficiency) with the aim of making it easier for customers to navigate. The energy efficiency section of Union's Website provides residential customers with energy efficiency tips and program offers to save energy and money in their homes.

Visitors to the Website can navigate topics such as:

- Tips to save money and energy
- Comparison tools on energy costs
- New technology information (e.g. Drain Water Heat Recovery)
- Details on ESNH and EnerGuide
- Downloadable Wise Energy Guides
- Energy efficiency rebates and incentives
- ESK depots available for customers to pick up kits
- Engee's Kids – Energy efficiency information for kids

The different pages on this Website contain links to DSM specific programs associated with selected technologies. Additional links provide Union's customers with access to energy conservation information and promotional offers through other Ontario and Canadian organizations.

4.2. 2007 Residential Program Results

The Residential program accounted for 19% of DSM savings in 2007, contributing almost 14.3 million m³ with a net program TRC of \$44.6 million. As Table 4.4 shows, 88% of total m³ savings came from the Home Retrofit program.

Table 4.4 – 2007 Residential Results by Program

Program	Natural Gas Savings (10 ³ m ³)	% of Total	Program TRC (\$000)	% of Total
New Home Construction	308	2.16%	\$ 191	0.43%
Home Retrofit	12,533	87.87%	\$ 38,457	86.08%
Low Income	1,422	9.97%	\$ 6,028	13.49%
Total	14,263	100%	\$ 44,676	100%

A comparison of 2007 actual results versus plan by measure is contained in Appendix B. In 2007, the Home Retrofit program offered the greatest potential for savings due mostly to the size of the retrofit market as compared to the new home market.

As shown in Table 4.5, ESKs, and programmable thermostats contributed the majority of savings in 2007.

Table 4.5 - Major Residential Savings Drivers in 2007

Initiative	* 2007 TRC (\$000)	2007 Gas Savings(10 ³ m ³)	2006 Gas Savings(10 ³ m ³)
Energy Savings Kit	\$ 29,413	6,359	5,746
Programmable Thermostat	\$ 13,171	4,628	1,428
High Efficiency Furnace	\$ 3,056	2,968	1,959
Energy Star For New Homes	\$ 215	308	-
Total	\$ 45,856	14,263	9,133

* Gross TRC - program costs not allocated

Every year Union verifies the ESK initiatives to determine if people are installing the measures within the ESK. The verification results provided unique adjustment factors that are based upon the ESK program delivery type. Adjustment factors are applied to 2007 results to ensure only those participants who install, and keep installed, the ESK measures are included in savings calculations. The adjustment factors from the verification work are outlined in the Verification and Evaluation section of this report.

4.3. 2007 Residential Program Costs

Direct program spending in the residential market was \$3,321 million last year, slightly above the planned budget of \$3,284 million. Table 4.6 summarizes the direct expenditures by residential program in 2007.

Table 4.6 – 2007 Residential Program Direct Expenditures

Program	Incentives (\$000)	Program Costs (000's)	Total Direct Costs (000's)
New Home Construction	\$ 39	\$ 24	\$ 63
Home Retrofit	\$ 1,299	\$ 798	\$ 2,097
Low Income	\$ 802	\$ 359	\$ 1,161
Total	\$ 2,140	\$ 1,181	\$ 3,321

The emphasis on the Low Income program was the primary reason for the increase in spending. The overall residential program TRC per dollar spent for 2007 was \$13.45. This was higher than the planned TRC per dollar spending of \$9.88.

4.4. Lessons Learned

1) Research and Development into New TRC Positive Measures is Required

The residential sector has few measures which generate positive TRC results. The new building code requirement have highlighted this issue due to increases in base efficiency requirements. Ever increasing codes and standards for appliances is diminishing measure opportunities for the retrofit market, too. Additional research needs to be completed to identify new technologies and/or strategies which generate positive TRC results and can be incorporated into the residential program portfolio.

2) Proactive Targeting of Low Income Neighbourhoods

Union Gas succeeded in finding an approach that overcame the barriers to Low Income programming experienced in 2005 and 2006. The approach used mapping software in combination with several public sources to determine low income neighbourhoods. In 2008, Union will continue to narrow its targeting using more refined neighbourhood data.

3) Walking the Talk

Union Gas recognizes its role as a steward of energy efficiency and champion of environmental issues. To this end, Union proactively sourced and utilized a corn-based plastic for the ESK packaging.

4) Ontario Based Research

The cost of delivering programs continues to rise in relation to the TRC earned as there is continual downward pressure on the achievable savings and free rider rates. There is insufficient Ontario based research to support savings claims so as a result data from U.S jurisdictions that may not be appropriate is used as a proxy for the Ontario market place.

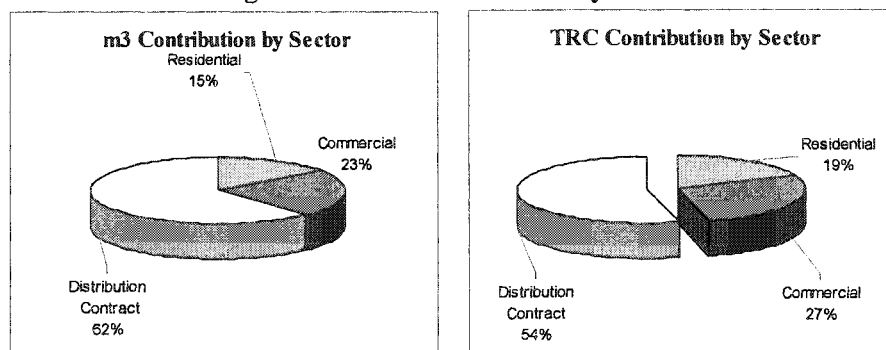
5) Education

There are continual requests of the utility to provide financial and program assistance for educational platforms that will reach the residential sector and educate them about energy conservation. Union is a trusted source of energy information that touches 1.3 million Ontarians. Education programs do not generate TRC and therefore do not pass the cost effectiveness test. This suggests there is a void in the market that needs to be addressed.

5. Commercial Market

Commercial programs accounted for 27% of DSM savings in 2007, totalling over 21.4 million m³ in natural gas savings with a net program TRC of \$64.4 million. Direct program spending in the commercial market was \$3.25 million last year.

Figure 5.1 – % Distribution by Sector



In 2007, Union continued to offer commercial programs in the New Build Construction and Building Retrofit markets. The percentage of commercial savings driven through the building retrofit market continued to grow representing 95% of sector savings last year. Table 5.1 summarizes the commercial market program results for 2007.

Table 5.1 - 2007 Commercial Program Results

2007 Commercial Results Summary	New Building Construction	Building Retrofit	Actual 2007 Results	2007 Plan	Variance Actual vs Plan
Program TRC (\$000)	\$ 2,842	\$ 61,608	\$ 64,449	\$ 68,229	\$ (3,779)
Natural Gas Savings (103m3)	1,296	20,087	21,383	15,318	6,065
Participants	766	118,509	119,275	77,120	42,155
Direct Expenditures	\$ 300	\$ 2,956	\$ 3,256	3,004	\$ 252
TRC/\$ Spent	\$ 9.49	\$ 20.84	\$ 19.80	\$ 22.71	\$ (2.92)

The four programs that delivered the largest savings in 2007 were custom projects, hot water conservation, condensing boilers and pre-rinse spray nozzles. Custom projects represented the largest portion of savings with 6.5 million m³ or 30% percent of the overall commercial result.

The 2007 TRC results in the Commercial sector were slightly higher than in 2006, but lower than what was planned. While some programs performed significantly better than planned (i.e. hot water conservation), others did not perform as well as originally anticipated (i.e. infrared heaters).

In 2007, promotion and participation in the Feasibility Study and Design Assistance Programs continued to increase. These programs are key to the future success and sustainability of savings in the commercial sector, as they assist customers in identifying opportunities that they can incorporate in their long term business plans.

5.1. Commercial Program Framework

The commercial programs are designed to achieve savings in the areas of space heating, water heating, and the building envelope across nine customer segments – office, institutional, retail, multi-family, food service, hotel/motel, warehouse, recreational and small agricultural within the commercial M2, RO1 and R10 rate classes. Industrial general service customers in the M2 and R10 rate classes are also included in the commercial programs targeting space-heating and water-heating and other process related loads

Union's Account Managers market the programs both directly to customers and indirectly through trade allies and channel partners, working to cost effectively promote energy efficiency to Union's commercial customer base.

This section outlines the programs available to commercial customers in 2007, including incentives paid, program changes in 2007, existing programs and the delivery methods utilized.

5.1.1. Commercial Program – 2007 Incentives

A portfolio of technologies was available to commercial customers in 2007 through the New Building Construction and Building Retrofit programs. The incentives for supported technologies remained unchanged from 2006 levels. Table 5.2 outlines the incentive levels for technologies supported in 2007.

Table 5.2 Financial Incentives for 2007 Programs

Technology	2007 Incentive per Unit
Energy Recovery Ventilators (ERV)	\$250-\$1,000
Condensing Boilers	\$500-\$3,000
Infrared Heaters	\$50
Heat Recovery Ventilators (HRV)	\$250
Rooftop Units	\$500
High Efficiency Furnaces	\$100
Programmable Thermostats	\$15
Low Flow Pre-Rinse Spray Nozzle	\$100
Kitchen Ventilation (DCKV)	\$1,000-\$2,000
Custom Project Equipment Incentives	\$0.05/m3 saved up to \$15,000
Steam Trap Survey	50% of the cost (up to \$6,000)
Feasibility Studies	30% of the cost (up to \$4000)
Boiler Audit	\$250

5.1.2. New Initiatives in 2007

Quasi-Prescriptive Measures

In 2007 Union introduced input assumptions for condensing boilers, infrared heaters, heat recovery ventilators (HRV), energy recovery ventilators (ERVs) that are prescriptive based on the size of the equipment. These input assumptions were created in a spreadsheet tool that Union

called a “quasi-tool” to generate accurate energy the savings corresponding to the actual capacity of equipment for condensing boilers, infrared heaters, HRVs and ERVs.

The “quasi-tool” creates a more accurate assessment of energy savings while keeping the incentive amounts more prescriptive in nature. Where a technology yields a wide range of savings and has a variety of sizes, the quasi-tool allows for bands of assumptions that are specific to the specific measure, size and application and, therefore provides a more accurate understanding of savings.

The quasi-tool was new to the 2007 portfolio and applied to the following applications:

- Boilers
- Infrared Heaters
- ERVs
- HRVs

Information sheets on the savings calculations for these measures are in Appendix F.

5.1.3. Existing Initiatives

The following initiatives were continued in the commercial program for 2007. With the exception of the Design Assistance Program, these initiatives are promoted to customers in both the new building construction and building retrofit markets.

Energy Savings Program (ESP)

The Energy Savings Program was designed to promote the sale of high efficiency natural gas technologies by participating with commercial HVAC channel partners and promoting directly to end users. In order to ensure program success, Union provided incentives, information, tools and support to educate and promote participation.

In addition to the four quasi-prescriptive measures described above, the technologies supported through this program included:

- Rooftop Units
- High Efficiency Furnaces
- Enhanced Furnaces (up to 299 Mbtu/h)
- Programmable Thermostats
- Demand Commercial Kitchen Ventilation
- Low Flow Pre-Rinse Spray Nozzle

The ESP program includes technologies with predictable savings by classification sizes, which are referred to as “prescriptive” measures.

Demand Control Kitchen Ventilation (DCKV)

Demand control kitchen ventilation systems were added to the portfolio of technologies available to commercial customers in 2006. Traditional ventilation systems operate at one speed only, whereas the speed of demand control kitchen ventilation systems respond to changes in cooking volume resulting in a much more efficient application.

In 2007, the prescriptive savings for DCKV were generated for three ranges of total range hood exhaust: 0 – 4999 CFM, 5000 – 9999 CFM, and 10,000 – 14,999 CFM. The midpoint of each exhaust range was used to generate the calculated savings (both gas and electrical). The DCKV savings were determined using the methodology described in the Detailed Energy Savings Report (www.melinkcorp.com).

In 2006, the program did not realize much success. As a result, efforts were made to understand and start to address the barriers to increased penetration of the DCKV technology in the marketplace. Union held three professionally facilitated focus groups with different target markets in the foodservice sector in order to understand their interest in energy efficiency, their preferred mode of communication on energy issues, and their awareness and interest in DCKV. Through the focus groups it was revealed that stakeholder awareness of the DCKV technology was relatively low and where awareness did exist, significant questions about the product still remained.

As a result of these findings, Union Gas hosted five product information and product demonstration sessions, in the franchise area, for key facility decision makers in foodservice. A total of 65 attendees, including design engineers, commercial kitchen service contractors and suppliers, and large significant end-use customers participated in the workshops.

A brochure, included in Figure 5.1, aided the education efforts with its clean design, meaningful information and testimonials.

Figure 5.1 – Demand Control Kitchen Ventilation Brochure

Demand Control Kitchen Ventilation

Lower your energy costs by increasing ventilation efficiency

SAVE \$1,200 to \$5,000

per year in energy costs!
(see report for details)

Installing a Demand Control Kitchen Ventilation system not only reduces air overhead but increases your staff's productivity in the kitchen with a better work environment.

uniongas
A Spectra Energy Company
uniongas.com/technologies/dckv

Demand Control Kitchen Ventilation

Lower your energy costs by increasing ventilation efficiency

Here's how it works

Traditional ventilation systems operate at one speed regardless of how hard the appliances, and your staff, are working. But Demand Control Kitchen Ventilation adjusts response to variations in steam use, allowing the speed of airflow to speed fans to regulate exhaust and improve airflow as necessary. Therefore, when steam is off or only a few burners are in use, the exhaust fans work at lower speeds and use less energy.

More comfortable work environment

A Demand Control Kitchen Ventilation system provides benefits beyond energy savings. It will create a more comfortable kitchen by reducing noise pollution and improving indoor air quality by controlling CO₂ levels. A more comfortable kitchen staff leads to a more productive kitchen!

Please visit our website or contact your local Union Gas representative to learn more!

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A Spectra Energy Company
uniongas.com/technologies/dckv

ENERGY • EFFICIENCY • EXCELLENCE

As a result of these efforts the DCKV program performed well in the last quarter of 2007 and program expectations were met. Additional education and customer research will be done in 2008 to further develop this program.

Low Flow Pre-rinse Spray Nozzle

In 2007 the plan was to continue delivering the pre-rinse spray nozzle program through a partnership developed in 2006. Union had success with this delivery method in 2006. Unfortunately internal management and staffing changes in the delivery partner greatly diminished the focus on the program results and jeopardized the program's success.

Union responded with a direct marketing approach and field-based delivery methodology that mitigated some of the Q1 and Q2 shortfalls. At the end of 2007, the low flow pre-rinse spray nozzle program contributed eight million less TRC than originally planned.

For 2008, the direct marketing campaign that will be targeted at potential end-use customers will be reinstituted to heighten awareness around this measure and drive installations. In addition, the partnership has been revived with a renewed focus on spray nozzle program delivery.

Infrared Heaters

Throughout 2007, Union partnered directly with major manufacturers to deliver the program to distributors and contractors at the point of purchase. The program offered a combined incentive of \$50 per unit sold to both the distributors and contractors. Under the program design the distributor reported participation levels back to the manufacturers, who in turn provided Union with the details for recording and paying the incentives. Verification checks ensured that units submitted through the Energy Savings Program would not be double counted.

The 2007 infrared program underperformed when compared to the initial plan numbers, particularly in the retrofit market. Changes in the delivery of the program from 2006 created uncertainty with partners and customers contributing to the lower performance. However, there was a 22% improvement over 2006 results indicating that there is an interest in the marketplace for the technology. In 2008 the infrared program will once again be revisited to communicate more effectively the revised program approach. To this end, a complete marketing program and customer communication push is planned.

Custom Projects

Custom projects cover opportunities where savings are linked to unique building specifications, uses and technologies. These may involve new technologies or design concepts. The program engaged channel partners in the design and engineering communities, as well as key commercial customers (multiple facility end users such as national accounts, retail chains, property management firms, non-profit housing authorities, school boards, municipalities and other end users). The program included both incentives and educational support. Custom projects incentives were set at \$0.05/m³ saved, up to a maximum of \$15,000. All custom projects must pass a TRC test for cost effectiveness before being approved.

Hot Water Conservation (HWC)

This program was designed to reduce hot water consumption through the installation of low flow showerheads and faucet aerators, which leads directly to natural gas and water savings. Union supplied the low flow showerheads and faucet aerators at no charge to participating agencies who installed these measures as a part of their maintenance programs. This program targeted non-

profit and social housing, hotel/motel., institutional sectors, property managers of other multi-family facilities, as well as end users.

Design Assistance Program (DAP)

In 2007, Natural Resources Canada discontinued its Commercial Building Incentives Program (CBIP), the basis behind Union's Design Assistance Program (DAP) program. CBIP was replaced with a set of information and modeling tools that continued to encourage the commercial marketplace to build beyond the Model National Building Code. Union continued to offer incentives under DAP to channel partners in the design and engineering communities as well as key commercial customers (multiple facility end users such as national accounts, retail chains, property management firms, non-profit housing authorities, school boards and municipalities). The program provided a \$4000 incentive to eligible participants on a per project basis to assist with breaking down the barriers of costly modeling and demonstrating that energy efficient options beyond the building code are cost effective to new building developers. The DAP program was available to New Build Construction participants only.

Feasibility Studies and Boiler Audits

The feasibility study and boiler audit programs provided financial support to channel partners and end users and worked to promote energy efficiency audits. These audits included an efficiency analysis of natural gas equipment as well as electricity and water use. An incentive of 30% of the cost (up to \$4,000) was paid for feasibility studies. The incentive for boiler audits was \$250 per unit. No savings were attributed to the programs; however, participation was tracked. Feasibility studies and boiler audits helped to ensure the sustainability of future project opportunities in the Commercial sector.

Other Market Support Initiatives

Market support initiatives included information pieces such as EnerCases, Leading Edges, the Union Gas Website, and computerized E-Tools. Customer and channel education included lunch and learn sessions, sponsorship of energy efficiency workshops, and program communication materials.

A wide ranging commercial marketing mailer that offers a walk through with a Union Gas energy efficiency expert at no cost to the customer was distributed in 2007. The direct to commercial customer approach was resource intensive, but the offer produced significant results with over 500 building walk-throughs scheduled. There have been energy efficiency gains at almost each site visit and the customers have been extremely impressed with the approach. In 2008, the offer will be refined and focused on high-value energy intensive segments.

5.1.4. Commercial Program – Delivery

Union's Commercial DSM program participants are located throughout the franchise area. To educate and deliver DSM savings to this customer segment, Union relied on a highly skilled team of Account Managers. A significant effort was required to educate potential participants on the DSM programs offered by Union, and on the benefits that can result from participation. Union's Account Managers utilized a variety of communication methods to reach potential participants. The different approaches are discussed in the following subsections.

The Channel Approach

The channel approach to program delivery involved Union's field account managers influencing channel partners (i.e. engineering, design/build firms or HVAC contractors), who were key to the end user's decision making process with regard to energy equipment, and Strategic Account Managers influencing manufacturers and distributors. Union worked with all channel partners who influenced end users in a variety of ways, from including energy efficient technologies in the design phase of new build and retrofit plans, to directly educating and selling upgraded efficient technologies to end users looking to replace existing equipment.

Participating channel partners were provided with incentives for the promotion of higher efficiency measures that later lead to an installation. Union also provided tools to channel partners to help them effectively relay the message to end users on the advantages of energy efficient technologies.

Direct to Customer

The direct-to-customer approach of delivering DSM programs involves interaction by Union's Account Managers with the potential participant, or end user. The Account Manager worked directly with the end user, educating them on programs and potential options to improve their existing energy efficiency and linked them with the appropriate delivery channels.

Union's Strategic Accounts group also utilized the direct-to-customer approach for delivery of DSM programs to national accounts. National accounts are defined as those customers with multiple property locations throughout Union's franchise area including retail chains, property management firms, food service chains and others. Strategic Accounts Managers worked with these large customers to educate them on Union's DSM initiatives and the benefits of participation.

Additional focus was placed on the direct to customer approach to delivery in 2007. This proved to be a challenge because the focus in recent years was largely on a channel approach. The resources required to manage this approach were considerable but the results proved that there was a benefit to a focused direct-to-commercial customer approach. Program awareness was an important factor and more focus in this area is expected to yield greater results in future years.

Both the channel and direct-to-customer approaches complement each other to ensure the greatest influence on all of the key decision makers. In order to drive significant DSM results, strong relationship building and on-going maintenance is required throughout all levels of the commercial customer chain to deliver the programs outlined above.

5.2. 2007 Commercial Programs Results

The Commercial program delivered natural gas savings of over 21.3 million m³ with a net program TRC of \$64.4 million through the New Building Construction and Building Retrofit markets in 2007. As shown in Table 5.3 below, the largest commercial results came from the building retrofit market which represented 95.5% of TRC results and 94% of natural gas savings last year.

Table 5.3 - 2007 Commercial Results by Program

Commercial Programs	Natural Gas Savings	% of Total	Program TRC (\$000)	% of Total
New Building Construction	1,296	6.06%	\$ 2,885.59	4.44%
Building Retrofit	20,087	93.94%	\$ 62,043.80	95.56%
Total	21,383	100%	\$ 64,929.39	100%

Overall, 2007 TRC results in the commercial sector were 21% higher than in 2006, but 5% lower than plan. While some initiatives (i.e. hot water conservation) performed significantly better than planned, others did not perform as well as originally planned (i.e. infrared and pre-rinse spray nozzle program). A comparison of actual TRC results versus plan by measure is contained in Appendix B.

In 2007, Union only supported measures with a positive TRC. The two initiatives that delivered the largest savings in 2007 were the Hot Water Conservation and Custom Projects. Table 5.4 outlines the savings achieved by these measures.

Table 5.4 – Major Commercial Savings Drivers in 2007

Program	*2007 TRC (\$000)	2007 Gas Savings (10 ³ m ³)	2006 Gas Savings (10 ³ m ³)
Hot Water Conservation	\$ 27,281	5,092	5,328
Custom Projects	\$ 18,416	7,471	10,417
Total	\$ 45,697	12,563	15,745

* Gross TRC - program costs not allocated

Hot Water Conservation projects represented the largest portion of savings with over \$27 million in TRC and 5.1 million m³ in natural gas savings. Low Flow Aerators contributed to \$6.7 million in TRC towards this program, \$4 million over the initial plan. The aerators were primarily installed in conjunction with the low flow showerheads in the multi-family market. There was a considerable focus in the field to ensure that the aerators were installed simultaneously with the showerheads creating a much higher ratio of aerators installed. This led to significantly higher actual aerators results versus plan in 2007. The focus continued to be on the social housing sector, but increased uptake was also seen from large property management firms.

For Custom Projects, Union annually completes a verification study to confirm the accuracy of custom project savings. The sampling methodology for Commercial Custom Projects is included in Appendix M. The results of the verification study are included in the Verification and Evaluation section of the report.

The increased number of feasibility studies completed in 2006 contributed to the success of the custom projects program in 2007. In 2007, promotion and participation in the feasibility study and design assistance programs increased significantly. The number of boiler audits completed was 2.5 times higher than in 2006. Overall, as shown in Table 5.5 below, 245 studies and audits were completed in 2007, up 45% compared to 2006. These programs are key to the future success and sustainability of savings in the commercial sector.

Table 5.5 – Feasibility Studies and Audits

Program Participants	2007	2006	2005
Feasibility Studies and DAP	160	135	75
Boiler Audits	85	34	48
Total	245	169	123

Although Commercial TRC program results were lower than originally planned for 2007, there was improvement when compared to 2006.

5.3. 2007 Commercial Program Costs

Direct commercial program expenditures in 2007 equalled \$3.255 million, up slightly from the 3.090 million spent in 2006, and higher than the planned budget of \$3.004 million. Table 5.6 summarizes the direct expenditures for the commercial sector in 2007.

Table 5.6 – 2007 Commercial Program Direct Expenditures

Commercial Program	Incentives (\$000)	Program Costs (\$000)	Total Direct (\$000)
New Building Construction	\$ 255	\$ 44	\$ 299
Building Retrofit	\$ 2,519	\$ 436	\$ 2,955
Total	\$ 2,774	\$ 480	\$ 3,254

In 2007, almost all of the increased spending went to incentives in the building retrofit market, which were needed to drive the savings results achieved.

For the overall commercial program a TRC of \$19.80 was achieved for every direct dollar spent in 2007. This was slightly lower than the TRC per dollar spent of \$22.71 based on the plan.

5.4. Lessons Learned

1) Customer Understanding is Critical

Customer understanding is extremely important when introducing new programs or making significant changes to existing programs. This includes the customer's understanding of the technology and Union's understanding of the information required to influence the customer's buying decision. As new technology and DSM measures are introduced in 2008, a customer's understanding of the technology will be a critical component in the program design process. Customer research, focus groups and workshops including demonstrations add significant value to Union's DSM portfolio.

2) Focused Efforts Increase Results

For certain initiatives, having focused resources can lead to higher results. In 2007, some re-alignment of resources was performed to allow Account Managers to focus on specific programs. This was evidenced in the Hot Water Conservation program, where additional resources were

added to specifically promote the aerator component of this program, which resulted in increased participation and energy savings.

3) Balancing Channel and Direct Customer Approaches

Union will need to continue to develop both channel and direct-to-customer communication methods to reach potential customers in future years. The experience learned from the pre-rinse spray nozzle program in 2007 is clear; relying on a single unpaid channel partner to deliver a program may be risky. Both the channel and the direct-to-customer approaches should continue to be leveraged to reach desired results.

4) The Value of Audits

Audit programs continue to encourage customers to pro-actively think about energy conservation and supply the support needed to build measures into their future business plans. With a planning cycle of up to two years, audit programs will ensure the long term sustainability of conservation programs in the commercial market.

6. Distribution Contract Market

The EnergyWise program for the distribution contract market accounted for 54% of total TRC results in 2007, with a net program TRC of \$126.6 million. Programs in this sector achieved 57.3 million m³ in natural gas savings. Direct program expenditures were \$2.54 million.

Figure 6.1 - % of Contribution by Sector

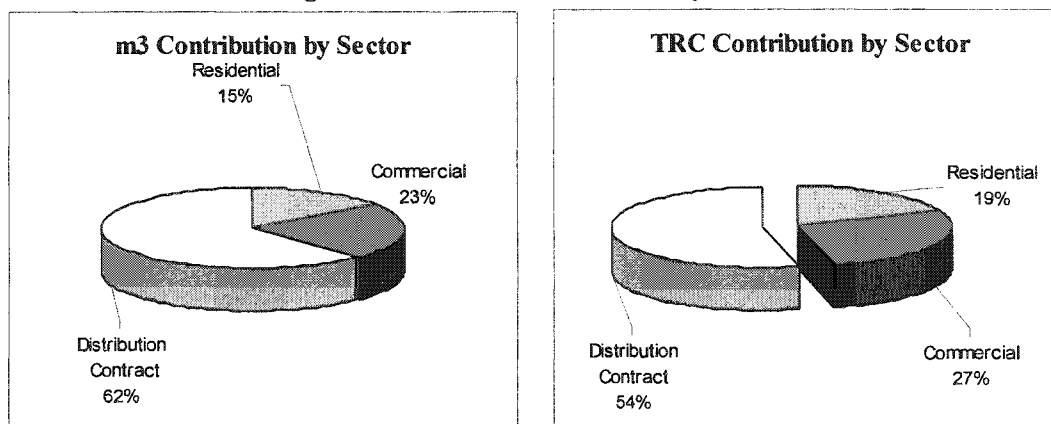


Table 6.1 summarizes the distribution contract market program results for 2007.

Table 6.1 – 2007 Distribution Contract Results

2007 Distribution Contract Summary	Actual 2007 Results	2007 Plan	Variance Actual vs Plan
Program TRC (\$000)	\$ 126,660	\$ 94,000	\$ 32,660
Natural Gas Savings (10 ³ m ³)	57,331	50,000	7,331
Participants	300	330	(30)
Direct Expenditures (\$000)	\$ 2,540	\$ 3,405	\$ (865)
TRC/\$ Spent	49.87	27.61	22.38

* Participants include feasibility study & boiler audit participants

The 2007 TRC results in the distribution contract sector were 23% higher than 2006 and 34% higher than plan. In an effort to reach the overall TRC target of \$188 million, an aggressive target of \$94 million was set for this program. Although the number of custom project participants decreased over last year, the information gained from studies over the last several years has increased. This has led to a more informed decision making process by the customer ensuring that only the projects that maximised savings and minimized capital investment were carried through to implementation.

A number of these projects also had multiple utility savings, including electricity and water, which also contributed to higher societal benefit and, therefore, a higher TRC. The level of effort

and expertise required for these multi-year, multi-disciplinary projects was high for both the customer and Union.

In 2007, a significant amount of work was completed with respect to the overall audit program. Even though the number of studies decreased, the average cost per study increased over this time period. There was an increased trend for specific engineering and process analysis to refine capital costs and determine potential savings. The increased study detail is required as the competition for capital investment continues to grow. Feasibility audits are an essential tool to ensure the future success and sustainability of the distribution contract sector.

Programs in the distribution contract market are not differentiated into new build and existing building as there is very little new build activity in this sector. All TRC benefits in this sector are the result of custom project activity and necessitated a positive TRC screening.

Program Framework

The following section outlines the programs available to distribution contract participants as well as the delivery methods utilized in 2007.

The EnergyWise programs were designed to achieve savings in boilers and process-specific energy applications, as well as space heating, water heating and the building envelope. These programs were marketed to large, volume contract-rate customers. Union's Account Managers marketed the programs directly to customers and indirectly through trade allies, channel partners, ESCO's, engineering firms, and equipment manufacturers. They worked to cost effectively promote energy efficiency within Union's Distribution Contract customer base.

All projects were jointly delivered through Union's Account Managers, and Technical Project Managers. Their knowledge and ability to build positive relationships was critical to influencing the market and achieving successful implementation of the programs.

Table 6.2 shows the incentive guidelines for the 2007 distribution contract programs. Funding guidelines did not change from 2006 levels.

Table 6.2 – Program Incentives

Program Elements	2007 Incentive Guidelines
Boiler Performance Testing and Steam Plant Audits	2/3 up to \$20K
Engineering Analysis and Energy Audits	50% up to \$10K
Steam Trap Survey	1/2 up to \$6K
Equipment Incentive	10% up to \$30K
Demonstration of New Technologies	10% up to \$50K
Education and Promotion	Up to 100%

Boiler performance testing and steam plant audits

The Boiler Performance program was designed to reduce losses from steam generation systems. The program worked to support performance testing and analysis of industrial boilers, total steam

plants, thermal fluid heaters, vaporizers, furnaces and special process equipment. Analysis of the testing identified and quantified energy saving opportunities, cost saving opportunities, implementation costs and payback periods as well as NOx and CO2 impacts.

Engineering analysis and energy audits

The engineering analysis and energy audit program supported engineering feasibility studies and energy efficiency audits that included an analysis of natural gas equipment as well as electricity, compressed air, water and wastewater. The completed audit was used by Union to help customers formulate a priority list of energy efficiency projects geared to site-specific energy plans and budgets. Where appropriate, Union also assisted customers, manufacturers, and installers in putting together a business case that the customer's technical staff could utilize to secure corporate capital funding for energy efficient equipment replacement and/or process changes.

Steam trap surveys

Steam Trap surveys were designed to reduce losses from steam distribution systems. The program worked to support steam trap surveys conducted by qualified service companies. The surveys identified leaking traps, over-sized or under-sized traps, and blocked or flooded traps, as well as assessing the need for improvements in condensate return systems. Many surveys are still being completed to determine the best practices for piping insulation and resultant savings potential.

Equipment incentives

Equipment incentives were available for eligible high-efficiency equipment installations, identified with or without an audit. In either case, Union provided the customer with third party cross-sector expertise in energy efficiency opportunities. The industrial trend over the past several years has been to reduce overhead costs and many companies lack in-house experts who can analyze potential projects. Union helped fill this gap, using its knowledge and reputation, as well as incentives, to influence equipment choices.

Union's role in promoting and implementing energy efficient choices continued to help companies control energy costs and remain competitive in a global environment.

Education and promotion

In 2007, Union invested considerably in educational and promotional tools to encourage participation in the distribution contract programs. Educational and promotional efforts included:

- EnergyWise brochures
- Enercase reports
- GasWorks newsletter
- Workshops to promote the efficient use of natural gas and increase the awareness of energy saving opportunities
- Sponsorship of specific educational forums
- Promotion and attendance at independent professional development groups, trade organizations or government workshops

GasWorks is a technology newsletter designed to help support Union's energy efficiency and sustainability strategies. The focus is on technology and energy conservation solutions to help large users of natural gas to better manage their business. The newsletter contained valuable information on a variety of topics, as well as links to various tools, calculators, a large online library and the "Ask an Expert" service provided by Tech Resources. The design of the

newsletter supported the “People Energy Partners” brand and allowed Union to market the EnergyWise program, with information linking to the Union’s Website. There are over 1,100 individuals on the distribution list, and only three have opted out of the newsletter since its introduction in November of 2007.

Union created six different brochures, incorporating the theme “people, energy and partners” to assist with the education of distribution contract customers. The brochures were branded with the name “EnergyWise” and included the following topics:

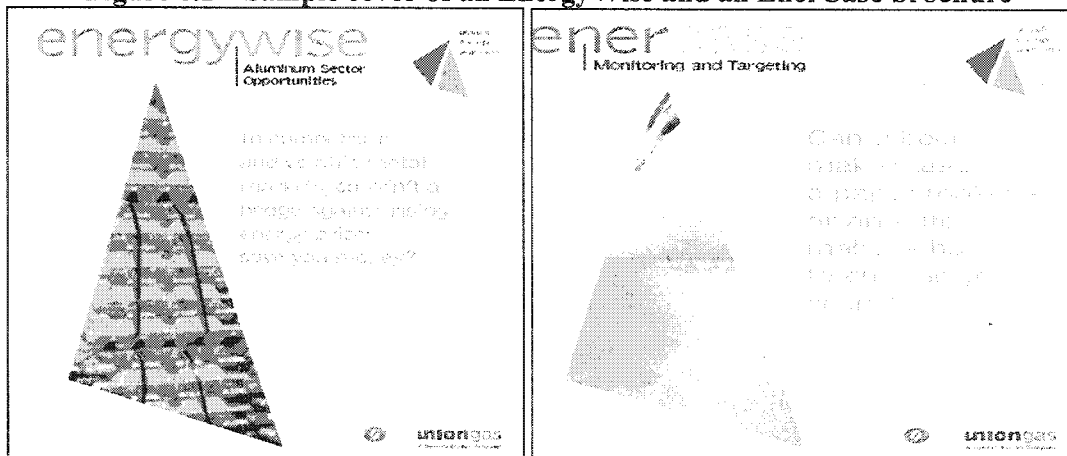
- Equipment Incentives
- Aluminium Sector Opportunities
- Steam Savings
- Process Audits
- Commercial & Industrial Energy Conservation Programs
- Institutional Sector Opportunities

In addition four EnerCase brochures, outlined below, were also created providing customer testimonials of a challenge they encountered and the solution Union helped to provide.

- Waste Heat Recovery
- High-Temperature Process Burners
- Integrated Energy Management
- Monitoring and Targeting

The covers of an EnergyWise and an EnerCase brochure are illustrated in Figure 6.1.

Figure 6.1 – Sample cover of an EnergyWise and an EnerCase brochure



Both the EnergyWise and EnerCase program brochures were highly successful in promoting Union’s energy efficiency programs to customers and facilitating partnerships within industry groups. The brochures and application forms were used as the basis to develop a Website page that also contains technology information, conversion calculations, and a series of links for additional references.

Technical presentations presented at customer meetings were archived and can be accessed at the Union Website. A customized email address was also setup to facilitate electronic transfer of project information.

Union also hosted several workshops throughout the year to promote the DSM program to distribution contract customers.

- “TAP Your Steam System Workshop” sessions were held in four different cities across Ontario
- The Great Lakes Industrial Control workshop, held in Sarnia, targeted the chemical and refinery industry
- Two workshops on Monitoring, Targeting & Reporting were held at the OHA (Ontario Hospital Association) meeting
- The forum on Energy Efficiency Improvement for Process Heating Systems in the Steel Industry was attended by 35 customers

DSM/EnergyWise programs were also promoted at IPE Windsor, IPE London, Northumberland Manufacturing Association (Energy Day) in Port Hope, and the NMA Annual Conference – 2008 “Improvement in Action... Together” in Colbourg.

Promoting the distribution contract energy efficiency programs in 2007 also included sponsoring and exhibiting in tradeshow and conferences. This included the AIST (Association for Iron and Steel Technology), CHES, Dofasco Energy/Health Fair, Excellence in Manufacturing conference, Canadian Boiler Society Tradeshow, IGUA (Industrial Gas User’s Association), Greenhouse Conference, Energy 2007 Conference, and the OAPPA.

In addition, Union’s Account Managers and Technical Project Managers also worked closely with different government efficiency, environmental and professional organizations including the Office of Energy Efficiency (OEE), the Canadian Industry Program for Energy Conservation (CIPEC), CANMET Energy Technology Centre, Conservation Bureau and Municipal Economic Development Coordinators.

6.1. 2007 Distribution Contract Program Results

As noted above, 2007 was a successful year for the distribution contract EnergyWise program, generating a net program TRC of \$126.6 million and 57.3 million in m³ savings with direct program spending of \$2.54 million.

The increase in volume savings achieved in this market continued as a result of ongoing efforts over the last several years to identify and implement multi-year projects. There was also an increase in dedicated communication and technical initiatives with customers to help them identify and implement shorter term projects. The increased focus on facility audits also helped build the sustainability of savings in the distribution contract market.

Custom Project Analysis

All savings in the distribution contract sector are achieved exclusively through custom projects. As shown in Table 6.3, in 2007 there were 176 participants in the custom projects program, down 39% from 2006. The m³ savings achieved through custom projects were 8% higher in 2007 when compared to 2006.

Table 6.3 – Custom Project Savings Results

Distribution Contract Savings Results	Actual m3 Savings (000s)	% of Total m3 Results	Actual Participants	% of Total Participant Results
2006	52,984	100%	288	77%
2007	57,331	100%	176	58%

The average size of projects in this market increased as more mid to large size projects, that maximized savings associated with the capital expenditure, were completed. As the competition for capital continues to be tight, additional expertise and time is required up front, before projects are approved and implemented in order to validate all the elements that contribute to the bottom line savings. Some of the elements requiring consideration include resources, maintenance, operations and for multi-faceted projects, natural gas, electricity and water savings need to be identified. These multi-faceted projects need to be initiated and completed in the upcoming year to sustain the savings achievements of the overall program.

As the distribution contract sector represents the largest amount of savings generated within the overall DSM program, it is prudent that Union evaluates the results appropriately. In 2007, Union continued with the custom project program verification study for distribution contract projects. The details behind this study can be found in the Verification and Evaluation section of this report.

Facility Audit Results

Facility audits continued as part of the EnergyWise program in 2007 with 77 studies at individual sites completed. Table 6.4 below shows that participation in the Boiler Audit program decreased 38% in 2007 but participation in the Feasibility Study program increased by 5%.

Table 6.4 – Facility Audit Participation

Program Participants	2007 Studies Completed	2006 Studies Completed	2005 Studies Completed
Feasibility Studies	59	56	29
Boiler Audits	18	29	23
Total	77	85	52

The facility audits program is very important in the distribution contract sector as funding to complete facility efficiency upgrades are often difficult to find. Many customers are unclear where to start evaluating their facility's potential. This is largely due to the fact that until recently, energy has been a small component of total production costs; therefore, in house expertise and executive interest in the matter was limited.

Feasibility studies work to effectively demonstrate the potential and cost savings associated with improving energy efficiency within a customer's facility and can be used to obtain appropriate internal support and, eventually the necessary funding, to implement one or more projects. These studies have proven to be essential to many of our customers who are putting capital-project requests forward to management for approval. Union must work with customers from start to finish; both identifying potential energy efficiency opportunities and helping to direct these projects through to implementation.

The existence of a feasibility study program is essential to driving savings in the future.

6.2. Program Costs

The actual direct budget expenditures in 2007 totalled \$2.5 million – 28% lower than 2006 levels and 11% under budget.

Table 6.5 – Distribution Contract Program Expenditures

Distribution Contract Direct Program Costs	Incentives (\$000)	Market Support (\$000)	Total (\$000)
2006	\$ 3,322	\$ 178	\$ 3,500
2007	\$ 2,247	\$ 293	\$ 2,540

Table 6.3 shows that a significant portion of spending in 2007 went to incentives, which were required to drive higher savings results. Custom project incentive guidelines were maintained at the 2006 level. The incentives impacted the project payback and, in turn, improved the competition for capital within the customer's organization. Offsetting the incremental costs of these projects has worked well in generating both participants and savings in the sector.

6.3. Lessons Learned

1) Union's Involvement Remains Critical

Many Distribution Contract customers are production focused and often lack the internal expertise to evaluate energy savings potential in their facilities. Union's Account Managers and Technical Project Managers play a critical role in helping to identify, implement and validate energy efficiency options. In addition, Union's Technical Project Managers provide valuable technical advice, equipment performance testing and project assessment assistance.

Union must continue to work with participating customers and pursue new customers, to realize the savings potential of energy efficiency options.

2) Education is the Cornerstone

Union's focus on education with its customer continues to be the cornerstone to change perceptions and behaviour. Many customers turn to Union for technically relevant and cost effective training. In the future Union will look for additional opportunities to partner with other organizations and associations to promote education on energy efficiency options.

3) Continuous Improvement Processes Aid Energy Efficiency Adoption

The experience of Union's Account Managers shows that customers who have continuous improvement processes in place are more likely to support energy efficiency. Customers who already support the idea of continuous improvement in other areas of their business find it easier to adopt energy efficiency as a continuous improvement process.

4) Technical Resources Valued Over Incentives

Union's customers have stated that technical help was considered to be the greatest benefit of Union's program. Also important to Union's customers were incentives, the ability to help secure internal funding and capital cost reductions. As the focus on the environment and energy efficiency grows, the labour market for technical specialists will become very tight. It is imperative that Union actively recruit and train individuals for these key roles.

5) Employee Teams Are Having An Impact

Customers are starting to fully realize the benefits informing employee teams to achieve energy efficiency goals. Union has developed a whole section on its website to be used as an Employee Team start-up reference. Those that have long-standing teams are starting to broaden the scope to include exploring overall sustainability goals.

7. Market Transformation (Drain Water Heat Recovery)

Market Transformation (MT) was a new element agreed upon in the OEB's Generic Hearing for the 2007 – 2009 DSM Plan. Market Transformation was allocated a \$1 million dollar budget for 2007, increasing by 10% for each year within the three year plan. Market Transformation is unique from the other DSM portfolio programs as it is not required to drive TRC; however, it is expected to meet clear criteria, as shown in the approved Market Transformation Scorecard for 2007 (Table 7.1).

7.1 2007 Market Transformation Program Framework

Union Gas selected the Drain Water Heat Recovery (DWHR) as the technology central to the Market Transformation (MT) portfolio. It was deemed important by the EAC and Union that MT initiatives be significant and sustained until the market has been successfully transformed (i.e. ideal state being code or standard change), or market dynamics altered. DWHR in the new build market was selected as the MT focus for 2007. The technology was selected as it was relatively new to the market and awareness and availability was nonexistent. The new build market was seen as an excellent target market as it is well defined in terms of size and provided a solid opportunity for increasing the technology's penetration.

To achieve increased technology penetration and awareness in the marketplace the program focused on residential builders and contractors. Union provided training and incentives to those builders and contractors who installed the drain water heat recovery units in their new homes. Union Gas worked collaboratively with retail companies, and a DWHR manufacturer to provide effective education and program initiatives. The program was evaluated against a scorecard approach approved through the OEB's Generic Hearing. The MT scorecard tracked results against a number of different metrics to measure program performance.

These metrics included:

- the number of builders participating in the program
- the number of units installed through the program
- customer & builder awareness of technology
- contractor education

Union undertook baseline research to understand the awareness in the marketplace of key stakeholders in the new home construction field – Builders and Residential Customers. The baseline awareness levels for Builders and Customers were 31% and 12% respectively. In addition, only 12% of Builders already offered DWHR as an option to their customers.

Second, Union planned a number of educational seminars through EnerQuality and the Ontario Home Builders Association to raise awareness of the DWHR technology to Builders. Union also had a presence at several Trade/Builder Shows. In addition, Union ensured that it addressed the potential barrier to technology penetration with education aimed at the contractors (specifically plumbers) utilized by participating Builder partners. Four contractor education sessions were held in total at various locations in South Western Ontario.

Lastly, and most importantly Union devised a strategy to have Builders commit to purchasing and installing a specific number of DWHR units for their new residential developments. Union provided an installation allowance of \$450/DWHR unit to the Builder upon confirmation of installation. Furthermore, if the Builder installed within 10% of the committed number of units in

2007 they received a bonus per unit. Each Builders signed commitment letters at the outset of the program to establish their committed unit target.

Figure 7.1 – An advertisement providing exposure to participating builders

Builders Make a Difference

Take the lead your customers are looking for and sign up for the bonus program. For every unit you build that meets the criteria, you'll receive a bonus per unit.

Participating Builders:

<ul style="list-style-type: none"> BK Construction Bone Homes Carruth Development Chancellor Homes Dave Vankist Construction Dominion Construction Dominion Park Homes Don-Art Homes Eastwood Homes Ed DeMauro Custom Homes Ethan Homes Emerald Homes Emilio Communities Evans Homes French Hill Homes Gardner Homes Gillespie Construction Harbor Homes J. Carr Development, Inc. Lakeview Homes Loren Homes U.S. Dock Development Inc. 	<ul style="list-style-type: none"> Palmbe Homes Rail's Heritage Homes Russell Construction Sawwood Homes Wm. L. Kres Construction Z. Group Zavarela Construction
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Builders are making a big difference for our environment by doing the little things better.

Congratulations for making improvements to your homes that will reduce over 376 tonnes of greenhouse gas emissions every year!¹⁴ This equates to the removal of 420 cars from the road.

*Emissions of impacts of these projects on climate change. Greenhouse gas emissions from all sources are estimated to be 376 tonnes per year. This is equivalent to the removal of 420 cars from the road.

www.uniongas.com/dwhr

uniongas
A part of the energy company

7.2 2007 Market Transformation Program Results

The MT Scorecard listed in Table 7.1 outlines the results achieved in the MT program during 2007.

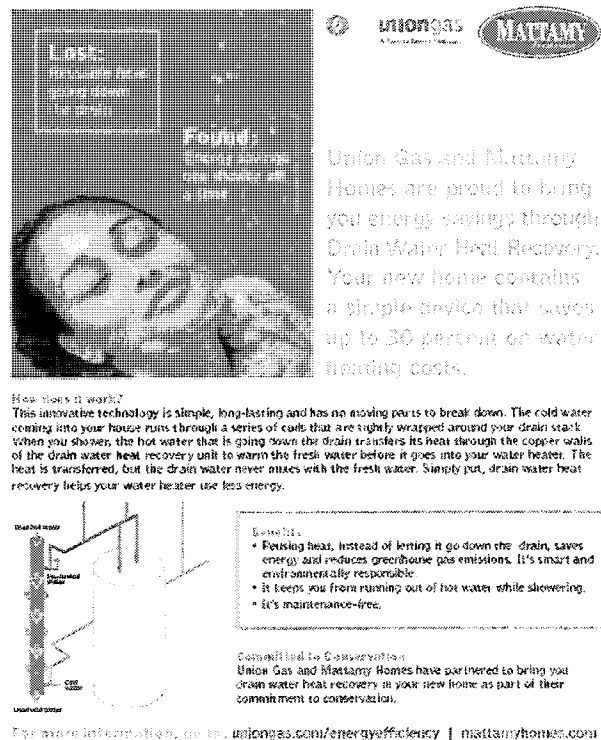
Table 7.1 – 2007 Market Transformation Scorecard Results

Element	Indicator (weighting)	50%	100%	150%	Actual Outcome	Result	Score
ULTIMATE OUTCOMES	Builder's Enrolled (25)	4	8	12	20	150%	75/50
	Units Installed (25)	250	500	750	906	150%	
MARKET EFFECTS (Research)	Customer Awareness Survey (10)	5%	10%	n/a	25%	150%	29/30
	Builder Knowledge Survey (10)	25%	50%	n/a	87%	100%	
	Builder Promotion (10)	50%	100%	n/a	92%	92%	
PROGRAM PERFORMANCE (Training/Awareness Building)	Builder Training Workshop (7.5)	1	3	5	5	150%	25/20
	Contractor/Sub-contractor Workshop (7.5)	1	3	5	4	100%	
	Trade Show / Builder Show (5)	1	2	3	2	50%	
Total Score							129/100

The score listed at the bottom right shows that overall Union exceeded its 100% target and therefore achieved the maximum MT incentive payout. In more descriptive terms Union undertook the following to promote DWHR to Builders and Customers:

- Promoted and educated stakeholders using the following:
 - Union Gas Website
 - Two targeted brochures – one for consumers and one for Builders (see Figure 7.2)
 - Press releases
 - Co-branded marketing material with various partnering Builders
- Participated as an exhibitor in the following:
 - ASHRAE Conference in April
 - OHBA annual conference in September
 - Construct Canada in November
- Facilitated the following:
 - Contractor training sessions
 - ENERGY STAR® for New Homes workshops
 - Home Builder Association (HBA) meetings
 - A builder focus group to aid in future program design

Figure 7.2 – 2007 Market Transformation Promotional Materials



Lost: Heatable fluids going down the drain

Found: Energy savings from reusing all a home

Union Gas and Mattamy Homes are proud to bring you energy savings through Drain Water Heat Recovery. Your new home contains a simple device that saves up to 30 percent on water heating costs.

How does it work?
This innovative technology is simple, long-lasting and has no moving parts to break down. The cold water coming into your house runs through a series of coils that are tightly wrapped around your drain stack. When you shower, the hot water that is going down the drain transfers its heat through the copper walls of the drain water heat recovery unit to warm the fresh water before it goes into your water heater. The heat is transferred, but the drain water never mixes with the fresh water. Simply put, drain water heat recovery helps your water heater use less energy.

Benefits:

- Reusing heat, instead of letting it go down the drain, saves energy and reduces greenhouse gas emissions. It's smart and environmentally responsible.
- It keeps you from running out of hot water while showering.
- It's maintenance-free.

Committed to Conservation
Union Gas and Mattamy Homes have partnered to bring you drain water heat recovery in your new home as part of their commitment to conservation.

For more information, go to: uniongas.com/energyefficiency | mattamyhomes.com

7.3 2007 Market Transformation Program Costs

Union budgeted \$1 million dollars within its 2007 Plan for MT activity. Union spent \$770 thousand, under spending by about \$230 thousand. Union was able to mitigate some costs related to Builder and Contractor training sessions as a result of leveraging partnerships with EnerQuality, HBA and various individual Builders.

7.4 Lessons Learned

1) DWHR continued support required

Union is well on its way to helping transform the marketplace with respect to DWHR. However, much work is still to be done. Union believes it is necessary to continue with a large scale DWHR effort in 2008, and likely in 2009 as well. A new MT Scorecard has been developed for 2008 and is attached as Appendix H.

8. Verification and Evaluation – 2007 Results

In order for Union to provide assurance to the accuracy of claimed savings, several verification studies are undertaken each year. These evaluation projects are designed to ensure that the claimed participation and installation rates for technologies delivered through Union's programs are accurate. As well, an assessment of claimed savings obtained through custom projects is completed.

Related research is also completed to allow Union to better understand the overall impacts and benefits that specific programs provide our customers.

8.1. Residential Verification Studies

Union undertook two verification studies on 2007 residential programs to ensure the savings claimed are accurate. Union also used the collected information to assess areas of program success and areas for potential improvement.

Table 8.1 lists the residential verification studies undertaken for 2007.

Table 8.1 – Summary of Project Audits for Residential Programs

Program	Title	Source	Objective
ESKs – Union Direct and HVAC Partnership	Final Report Following an Audit in 2007 of the Union Gas ESK- Residential Initiative	Beslin Communications Group Inc.	<ul style="list-style-type: none"> - Verify product installation - Gauge customer satisfaction with equipment - Gauge performance of Channel Partners in delivery of products and ESK info.
ESKs – Home Depot	Final Report Following an Audit in 2007 of the Union Gas ESK- Home Depot Initiative	Beslin Communications Group Inc.	<ul style="list-style-type: none"> - Verify product installation - Gauge customer satisfaction with equipment - Determine reasons why customer did not install products

The results of these evaluations summarized below.

8.1.1. ESK Program Audit

In order to fully assess the impact of the ESK program on participants, Union completed a verification study. This study provided the adjustment factors used in the calculation of program savings results. The adjustment factor ensured that only those participants who installed, and kept the ESK measures installed, were included in the program savings calculations that contributed to both SSM and LRAM. The results from the verification study of the ESK program are presented in Table 8.2 and Table 8.3.

Table 8.2 - Adjustment Factors – Union Gas Direct and HVAC

Table 7.4 - Adjustment Factors - Residential Account Manager Delivered ESKs			
ESK	Measure Verified Installed	Measure Remained Installed	Adjustment Factor
Low Flow Showerhead	71%	97%	68.9%
Kitchen Faucet Aerators	61%	94%	57.3%
Bathroom Faucet Aerators	48%	95%	45.6%
Pipe Wrap	70%	99%	69.3%

Table 8.3 - Adjustment Factor - Home Depot

ESK	Measure Verified Installed	Measure Remained Installed	Adjustment Factor
Low Flow Showerhead	77%	95%	73.2%
Kitchen Faucet Aerators	72%	92%	66.2%
Bathroom Faucet Aerators	56%	96%	53.8%
Pipe Wrap	77%	99%	76.2%

The higher adjustments factors for the Home Depot campaign indicate that the additional efforts made to educate consumers on the benefits and proper installation of the ESKs when they picked up the kits had a positive impact on results. Also, as a result of proactive targeted marketing for Home Depot events, Union attracted customers who were engaged by the ESK product.

8.2. Custom Project Verification Study

Each year Union conducts a verification study of both the commercial and industrial sector custom projects. In completing this work, Union looks to validate that the claimed savings reported through the custom project process are accurate.

For 2007, upon recommendation from the Evaluation and Audit Committee (EAC), Union jointly with Enbridge Gas Distribution (EGD) contracted Summit Blue Consulting to develop an appropriate sample design for the annual engineering review of custom DSM projects. The development of this sample methodology was based, at a minimum, on the OEB's TRC guide for electric CDM requirements for sampling and incorporated the following:

- A review of verification protocols developed by a number of organizations;
- The application of industry practice as demonstrated in program evaluation; and,
- The application of appropriate assumptions for a custom project program.

8.2.1 Commercial Custom Project Verification Study

Summit Blue was contracted to extract a sample group for commercial custom project verification using the methodology outlined in Appendix M. Due to differences across customers and project types, the commercial sector was stratified by building type with a separate stratum for retrofit projects due to their large energy savings. The population in the both the new building sector and agriculture sector were statistically insignificant (collectively representing ~ 1.4% of

total commercial custom project net m³ savings) and therefore, samples were not drawn from these two sectors. Table 8.4 summarizes the commercial sector sample selected based on the size and strata recommended in the report.

Table 8.4 - Commercial Sector Custom Project Sample Selected for Verification

Sample Size	Strata	Net M ³ Gas Savings	% of savings of Total Net m ³ Savings	Total Commercial Sector 2007 Net m ³ Savings
4	Strata C-1 (Census of largest projects)	1,430,430	18.2%	-
8	Strata C-2 (Sample of Retrofit)	268,527	3.4%	-
8	Strata C-3 (Sample of Multi)	131,628	1.7%	-
20	Total	1,830,585	23.32%	7,869,417

*The Commercial Agriculture & New Building sectors were not stratified for the sample as they collectively represented ~1.4% of the total Commercial Custom Project Net m³ savings.

Summit Blue recommended a paper review study for the verification of savings results for 20 commercial projects.

The deliverables of the paper verification studies include:

- A description of approach used to measure savings (including gas, water, and electricity savings and measure life, as appropriate)
- The results of telephone interview to confirm installation and operating conditions
- A detailed review of the methodology used by the evaluator to project the savings that would results from project implementation
- A discussion of reasons (if applicable) for any variance between the projected and the evaluated savings
- A report on calculation methodologies employed and recommendations for refinements for future savings calculations

Engineering reviews are currently being conducted by Jacques Whitford. Engineering reviews were conducted on 20 sample projects representing over 23% of the total net m³ natural gas commercial custom project savings.

8.3. Distribution Contract Custom Project Verification Study

The Summit Blue recommended sample size and stratification were based on the Industrial projects completed in 2007. The industrial sector was stratified by size of project. Table 8.5 summarizes the industrial sectors randomly selected sample based on the three strata recommended in the report.

In completing this work, Union is looking to validate whether or not the claimed savings reported through the custom projects process are accurate.

Table 8.5 Union Gas Sample Plan

Sample Size	Sector	Strata	Savings	% of savings of Total Net m ³ Savings	Total Distribution Contract Sector 2007 Net m ³ Savings
2	Industrial	Strata I-1 (Census of largest projects)	20,917,459	36%	-
3		Strata I-2 (Sample)	5,650,872	10%	-
3		Strata I-3 (Sample)	554,098	1%	-
10	Total		27,122,429	47%	57,330,659

For 2007, Summit Blue selected ten custom projects from the distribution contract sector for the verification study, based on the methodology outlined in Appendix M.

The objectives of the verification studies include:

- A determination as to whether savings calculations made in application were reasonable based on information available at time made
- The assumptions used in calculations
- A discussion as to any variations between projected savings and measures savings
- Verification that the equipment installation was completed at site
- A discussion as to the confidence level in the results and statement of errors for calculations

The on-site verification studies are currently being conducted by Diamond Engineering. The ten randomly selected projects represent over 47% of the total net m³ natural gas savings of all Distribution Contract custom projects.

9. 2007 Measures Evaluation Research

During the course of the three year DSM framework, Union agreed to provide a review of each measure within the portfolio. This was roughly expected to translate to one-third of the measures for each year of the plan.

Union undertook evaluation research for 2007 based on the information filed in the 2007 – 2009 DSM Plan and developed in consultation with the Evaluation and Audit Committee. Union partnered with Enbridge Gas Distribution in 2007 to complete the evaluation research priorities detailed in Table 9.1.

Table 9.1 – 2007 Evaluation Research Measure Priorities

Free Rider & Spillover Research	Deemed Savings Research
Low flow Showerheads	Low flow Showerheads
Low flow Aerators	Low flow Aerators
Programmable Thermostats – Residential	Programmable Thermostat - Residential
High Efficiency Furnaces – Residential	
Custom Projects – Commercial	
Custom Projects - Industrial	

The following three draft reports outlining the results of these studies are currently under development and will be sent for review to the Evaluation and Audit Committee (EAC).

- Deemed Savings Residential Prescriptive Measures
- Custom Project Free Rider
- Free Rider & Spillover Residential Prescriptive measures

The required adjustments to the LRAM calculation incorporating results from these studies will be included in the report once finalized.

The final results of the Evaluation Research will be reflected in Appendix J – L inclusive (currently those appendices are being held as place holders).

Prioritization of the remaining measures to be evaluated in 2008 and 2009 is currently under consultation with the EAC. The final 2008 list will be incorporated in the 2007 Final Evaluation Report.

10. Lost Revenue Adjustment Mechanism (LRAM)

The LRAM is approved by the Ontario Energy Board to allow Union to recover the lost distribution revenues associated with DSM activity. These lost revenues are calculated for each rate class impacted by DSM energy efficiency programs using the following formula:

$$\sum(\text{Rate Class Volume Reduction} \times \text{2007 Delivery Rate}) = \text{LRAM Claimed}$$

For 2007, the year one⁵ LRAM amount is \$1.36 million based on 2007 delivery rates and natural gas savings of 93.0 million m³. The 2007 LRAM statement is detailed in Table 10.1 below.

Table 10.1 - 2007 LRAM Statement

UNION GAS LIMITED Lost Revenue Adjustment Mechanism 2007 Unaudited Forecast				
Line No.	Particulars	Net Volume Savings 10 ³ m ³	Annualized Impact	
			2007 Delivery Rate \$/10 ³ m ³	2007 Revenue Impact (\$)
		(a)	(b)	(c) = (a) x (b)
	<u>South</u>			
1	M2 Residential	12,166	61.01	742,271
2	M2 Commercial	16,400	50.736	832,082
3	M2 Industrial	902	40.168	36,240
	<u>Industrial</u>			
4	M4	5,836	9.291	54,220
5	M5	969	15.631	
6	M7	6,813	3.344	22,783
7	T1	26,384	0.798	21,054
8		<u>69,470</u>		<u>1,708,651</u>
	<u>North</u>			
9	Residential 01	2,423	112.971	273,699
10	Commercial 01	1,786	105.147	187,785
11	Commercial 10	2,063	66.749	137,707
12	Industrial 10	6,359	61.265	389,590
	<u>Industrial</u>			
13	Rate 20	1,042	2.877	2,998
14	Rate 100	9,833	2.102	20,669
15		<u>23,506</u>		<u>1,012,447</u>
16	Total	<u>92,976</u>		<u>2,721,098</u>
17	Year One Impact ⁽¹⁾	<u>46,488</u>		<u>1,360,549</u>
(1) Year One is calculated as 50% of the total				

⁵ In RP-2006-0021 Decision with Reasons the Board ruled that the year one impact of DSM activities is equivalent to 50% of the savings in the first year in which the DSM measure is undertaken.

The 2007 LRAM statement has been prepared using the measure input assumptions agreed to by the Board in EB-2006-0021 Decision with Reasons. These assumptions are detailed in Appendix A. LRAM results by measure are shown in Appendix D.

11. Shared Savings Mechanism (SSM)

For 2007, Union is eligible to earn an SSM incentive based on DSM program results. The SSM incentive payment has been calculated using the methodology approved by the Board in the DSM Generic Hearings. The SSM incentive is calculated using the following structure:

- For TRC savings between 0 percent and 25 percent of the TRC target, an SSM payout shall equal \$900 for each 1/10 of 1 percent of target reached.
- For TRC savings between 25 percent and 50 percent of the TRC target, an SSM payout shall equal \$225,000 plus \$1,800 for each 1/10 of 1 percent of target reached.
- For TRC savings between 50 percent and 75 percent of the TRC target, an SSM payout shall equal \$675,000 plus \$6,300 for each 1/10 of 1 percent of target reached.
- For TRC savings greater than 75 percent of the TRC target, an SSM payout shall equal \$2,250,000 plus \$10,000 for each 1/10 of 1 percent of target reached up to the maximum SSM annual cap of \$8,500,000.

Union's net TRC calculation for 2007 is shown in Table 11.1.

Table 11.1 – 2007 Net TRC Calculation

New Home Construction	\$	215,394	
Home Retrofit	\$	39,254,131	
Low Income	\$	6,386,792	
Residential Program Costs	\$	(1,545,691)	
Total Residential TRC			\$ 44,310,626
New Building Construction	\$	2,885,593	
Building Retrofit	\$	62,043,795	
Commercial Program Costs	\$	(480,236)	
Total Commercial			\$ 64,449,152
Distribution Contract	\$	126,953,169	
Distribution Contract Program Costs	\$	(292,685)	
Distribution Contract			\$ 126,660,484
Program TRC			\$ 235,420,262
Salaries and Wages and Admin	\$	(3,625,782)	
Research and Evaluation	\$	(919,120)	
Overhead	\$	(1,700,000)	
O&M Expenditures			\$ (6,244,902)
NET TRC			\$ 229,175,360

Union's TRC target for 2007 is \$188 million, which results in the following SSM calculation:

$$\begin{aligned}
 \text{SSM} &= \{[(\text{Net TRC} - (\text{Range End Percentage} \times \text{Target TRC})) / (\text{Payout Increment} \\
 &\quad \text{Percentage} \times \text{Target TRC})] \times \text{Incremental Payout}\} + \text{Base Payout} \\
 &= \{[(\text{Net TRC} - (75\% \times \$188,000,000)) / (0.1\% \times \$188,000,000)] \times \$10,000\} + \\
 &\quad \$2,250,000 \\
 &= \{[(\$229,175,360 - \$141,000,000) / \$188,000] \times \$10,000\} + \$2,250,000 \\
 &= \$469.02 \times \$10,000 + \$2,250,000 \\
 &= \mathbf{\$6,940,178}
 \end{aligned}$$

The TRC breakdown by measure is included in Appendix E.

The SSM breakdown by rate class is shown in Table 11.2 below.

Table 11.2 – 2007 SSM by Rate

<p style="text-align: center;">UNION GAS LIMITED Shared Savings Mechanism <u>2007 Pre-Audited Results</u></p>		
Line No.	Particulars	Amount ⁽¹⁾ (\$)
	<u>South</u>	
1	M2 Residential	1,169,173
2	M2 Commercial	1,523,847
3	M2 Industrial	67,713
4	<u>Industrial</u>	
5	M4	481,735
6	M5	51,256
7	M7	522,977
8	T1	1,465,959
9		<u>5,282,660</u>
	<u>North</u>	
10	Residential 01	218,791
11	Commercial 01	125,346
12	Commercial 10	126,130
13	Industrial 10	398,680
	<u>Industrial</u>	
14	Rate 20	78,259
15	Rate 100	711,134
16		<u>1,658,340</u>
17	Total	<u><u>6,941,000</u></u>
Notes:		
(1)	The allocation is based on 2007 TRC results achieved by rate class.	

2008

Although the primary purpose for this Evaluation Report is the review of the 2007 outcomes, there is a secondary purpose, to establish targets and assumptions for 2008. This section focuses on the items that need to be considered for 2008.

The new TRC target for 2008 takes form based upon the 2007 results as outlined in the 2007 - 2009 DSM Plan. The Auditor serves the useful function by ensuring the new target has been set according to the agreed upon guidelines.

In addition, new measures to the 2008 DSM portfolio need to be filed with the OEB. To keep the process for filing in DSM as clean and organized as possible, the new measures are outlined in the New Measures section listed below. The inputs into the new measures can be found in Appendix I.

1. Target Setting

In EB-2006-0021 Decision With Reasons, the approach to determining annual TRC is explained.

“Parties to this partial settlement further agree that there will be an annual TRC target. The parties agree to phase in a formula over the next three years which will set this target, as described below, by averaging the Utility’s actual audited TRC results over the previous three years and applying to this figure an escalation factor equal to 1.5 times the amount by which the utility’s budget is increased. The parties agree to phase in the aforementioned formula over the next three years beginning with an agreed upon target for each utility in 2007 which, for Union will be \$188 million.

Furthermore, the parties agree that, in the event the avoided costs used by the utility are, at a later date, updated, the actual audited results from previous years used to calculate the target will be adjusted to reflect these updated avoided costs.”

Union has developed market segment targets that ensure each target is represented appropriately while optimizing the actual TRC per dollar spent. Based upon the 2008 TRC target outlined above, the following targets have been set by sector:

Gross TRC (in millions)

	2007			2008	
	Gross TRC Target 2007	Gross TRC Actual 2007	2007 Actual using 2008 avoided Costs and Expected Evaluation Results	2008 Target ¹	2008 Target allocated based on 2007 actuals results
Residential	\$ 25	\$ 38	\$ 24		\$ 25
Low Income	\$ 6	\$ 6	\$ 2		\$ 3
Commercial	\$ 69	\$ 66	\$ 53		\$ 55
Distribution Contract	\$ 94	\$ 127	\$ 158		\$ 165
Total	\$ 194	\$ 237	\$ 237	\$ 248	\$ 248

1. 2008 Gross Target Calculation = $((194 + 237)/2) + 15\% = \248 million.

2. 2008 Budgeted costs of \$9.3M result in Net TRC Target of \$239 million.

2. New Measures

In 2008, Union would like to expand its DSM portfolio with new measures. These new measures include air curtains and destratification fans. These two measures were not included in the Generic Hearing EB-2006-0021 or the 2007 – 2009 DSM Plan. As a result they are being outlined in this document for use in 2008 and 2009. Research has been undertaken on air curtains and destratification fans over the past year and the input assumptions recommended for use by Union are outlined in Appendix I.

Air Curtains/Air Barriers

In Q3 of 2008, Union Gas Limited would like to introduce a commercial program for air barriers (air curtains) in both the New Building Construction and Building retrofit markets. The goal of this program is to capture space heating energy savings by promoting the air barrier technology, which is an invisible, penetrable barrier that separates conditioned indoor air from unconditioned outdoor air. The product will be an excellent addition to the Commercial portfolio as it is a relatively new technology with low market share.

Union Gas will partner with air curtain manufacturers and installers to deliver the air curtain program. In addition, Union Gas Channel Account Managers and Strategic Account Managers will work directly with end use customers to educate them on this technology. An incentive will be offered to Union Gas Retail, Warehouse and Foodservice customers to encourage the adoption of this technology.

Destratification Fans

Destratification Fans program address the potential for reduced heating load by pushing down the higher temperature air near the ceiling to mix with the lower temperature air near the floor. Destratifying the air within a building can reduce the heat loss through the ceiling/roof, and through air leakage and ventilation losses by reducing the average air temperature and can result in significant heating savings.

This proposed new measure would be applied in Q3 in both the New Building Construction and Building Retrofit market and would be targeted at a primary customer base which would include Big Box Retail and Warehouse. Union Gas will partner with destratification fan manufacturers and installers to deliver the program. In addition, Union Gas Channel Account Managers and Strategic Account Managers will work directly with end use customers to educate them on this technology. An incentive will be offered to encourage the adoption of this technology.

The substantiation documents for both Air Curtains and Destratification Fans are in Appendix I.

Appendix A – Input Assumptions (SSM) and (LRAM)

Appendix A

Measure	SSM								LRAM			
	Input Assumptions Per Unit of Measure								Input Assumptions Per Unit of Measure			
	Natural Gas Savings (m ³)	Electricity Savings (KWh)	Water Savings (Litres)	Incremental Cost (\$)	Equipment Life (Years)	Adjustment Factor	Free Rider Rate	Source*	Natural Gas Savings (m ³)	Adjustment Factor	Free Rider Rate	Source*
New Home Construction												
Energy Star for New Homes	818	1000	-	\$3,020	25	-	5%	1	818		5%	
Home Retrofit												
ESK Faucet Aerators - Home Depot	14	-	6,520	\$2	10	60.0%	10%	2	14	60.0%	10%	
ESK Pipe Insulation - 2 m - Home Depot	17	-	-	\$1	15	76.2%	4%	2	17	76.2%	4%	
ESK Showerhead - Low Flow - Home Depot	91	-	19,354	\$5	10	73.2%	17.5%	2	91	73.2%	18%	
ESK Faucet Aerators - RAM Delivered	14	-	6,520	\$2	10	51.5%	10%	2	14	51.5%	10%	
ESK Pipe Insulation - 2 m - RAM Delivered	17	-	-	\$1	15	69.3%	4%	2	17	69.3%	4%	
ESK Showerhead - Low Flow - RAM Delivered	91	-	19,354	\$5	10	68.9%	18%	2	91	68.9%	18%	
Low Income - Faucet Aerators(per aerator)	14	-	6,520	\$3	10	-	1%	1	14		1%	
Low Income - ESK Pipe Insulation - 2 m	17	-	-	\$4	15	-	1%	1	17		1%	
Low Income - ESK Showerhead - Low Flow	115	-	30,966	\$15	10	-	5%	1	115		5%	
Low Income - Thermostat - Programmable	212	100	-	\$90	18	-	1%	1	212		1%	
Furnace - High Efficiency - HVAC	385	-	-	\$650	18	-	48%	1	385		48%	
Furnace - High Efficiency - Direct to Consumers	385	-	-	\$650	18	-	48%	1	385		48%	
Thermostat - Programmable	212	100	-	\$65	18	-	11%	1	212		11%	
New Building Construction												
Condensing Boiler - up to 1499 MBtu/h	quasi	-	-	quasi	25	-	5%	3	1,100		0%	
ERV - up to 10000 cfm	quasi	-	-	quasi	15	-	5%	3	3,061		5%	
HRV Heat recovery ventilator	quasi	-	-	quasi	15	-	5%	3	1,092		0%	
Infrared Heating	quasi	-	-	quasi	20	-	33%	3	750		17.5%	
Rooftop Unit	1275	-	-	\$1,250	20	-	5%	1	1,275		5%	
DCKV - Fast Casual (<5000 CFM)	3,658	7,319	-	\$5,000	20	-	5%	3	3,658		5%	
DCKV - Full Menu (5000 - 9999 CFM)	9,535	23,180	-	\$10,000	20	-	5%	3	9,535		5%	
DCKV - Dinner House (10000 - 15000 CFM)	17,455	40,929	-	\$15,000	20	-	5%	3	17,455		5%	
Custom Projects	Actual	Actual	Actual	Actual	Actual	-	30%	1	Actual		30%	
SSM												
Measure	Input Assumptions Per Unit of Measure								LRAM			
	Natural Gas Savings (m ³)	Electricity Savings (KWh)	Water Savings (Litres)	Incremental Cost (\$)	Equipment Life (Years)	Adjustment Factor	Free Rider Rate	Source*	Natural Gas Savings (m ³)	Adjustment Factor	Free Rider Rate	Source*
Existing Buildings Program												
Condensing Boiler - up to 1499 MBtu/h	quasi	-	-	quasi	25	-	5%	3	1,100		0%	
ERV - up to 10000 cfm	quasi	-	-	quasi	15	-	5%	3	3,061		5%	
HRV Heat recovery ventilator	quasi	-	-	quasi	15	-	5%	3	1,092		0%	
Infrared Heating	quasi	-	-	quasi	20	-	33%	3	750		17.5%	
Rooftop Unit	1275	-	-	\$1,250	20	-	5%	1	1,275		5%	
High Efficiency Furnace	459	-	-	\$650	18	-	18%	1	459		18%	
Enhanced Furnace (Up to 299 MBtu/h) - NG	459	-	-	\$650	18	-	30%	1	459		30%	
Enhanced Furnace (Up to 299 MBtu/h) - Elec.	-78	873	-	\$550	18	-	10%	1	78		10%	
Thermostat - Programmable	519	921	-	\$65	18	-	20%	1	519		20%	
DCKV - Fast Casual (<5000 CFM)	3,658	7,319	-	\$5,000	20	-	5%	3	3,658		5%	
DCKV - Full Menu (5000 - 9999 CFM)	9,535	23,180	-	\$10,000	20	-	5%	3	9,535		5%	
DCKV - Dinner House (10000 - 15000 CFM)	17,455	40,929	-	\$15,000	20	-	5%	3	17,455		5%	
Low Flow Showerhead	115	-	30,966	\$15	10	-	10%	1	115		10%	
Low Flow Aerator	14	-	6,520	\$3	10	-	10%	1	14		10%	
Low Flow Pre-Rinse Nozzle	2,434	-	432,800	\$100	5	-	5%	1	2,434		5%	
Custom Projects	Actual	Actual	Actual	Actual	Actual	-	30%	1	Actual		30%	
Distribution Contract Market												
Custom Projects	Actual	Actual	Actual	Actual	Actual	-	30%	1	Actual		30%	

* Source of assumptions:

1. Phase 2 of DSM Generic Hearing, 2. Input Assumptions: Phase 2 of DSM Generic Hearing, Adjustment factors: 2007 Beslin Verification Studies, 3. 2007-2009 Union Gas Approved DSM Plan

Appendix B – 2007 Results Breakdown

RESIDENTIAL TRC BREAKDOWN BY PROGRAM	Actual 2007 Results		2007 Plan		Variance Actual vs Plan	
	Participants	TRC (\$)	Participants	TRC (\$)	Participants	TRC (\$)
<u>NEW HOME CONSTRUCTION</u>						
Energy Star for New Homes	396	215,394	200	108,785	196	106,609
<u>HOME RETROFIT</u>						
ESK Faucet Aerators - 3rd Party	33,784	1,857,284	30,000	1,649,257	3,784	208,026
ESK Pipe Insulation - 2 m - 3rd Party	16,892	477,980	15,000	424,444	1,892	53,537
ESK Showerhead - Low Flow - 3rd Party	16,892	4,026,721	15,000	3,575,705	1,892	451,016
ESK Faucet Aerators - RAMs Delivered	102,054	4,812,825	30,000	2,152,372	72,054	2,660,453
ESK Pipe Insulation - 2 m - RAMs Delivered	51,027	1,312,612	15,000	546,032	36,027	766,580
ESK Showerhead - Low Flow - RAMs Delivered	51,027	11,452,129	15,000	4,729,458	36,027	6,722,671
Furnace - High Efficiency - HVAC	14,814	3,034,412	10,000	2,061,841	4,814	992,570
Furnace - High Efficiency - Direct to Consumers	10	2,062	4,000	824,737	-3,990	-822,675
Energy Star Clothes Washers	0	0	200	36,351	-200	-36,351
Thermostat - Programmable - HVAC	14,018	7,549,167	5,000	2,692,669	9,018	4,856,498
Thermostat - Programmable - Direct to Consumers	8,744	4,708,940	15,000	8,078,007	-6,256	-3,369,068
TOTAL HOME RETROFIT	309,262	39,254,131	154,200	26,770,873	155,062	12,483,258
<u>LOW INCOME</u>						
Low Income - ESK Bath Aerators	6,519	650,583	6,000	598,788	519	51,795
Low Income - ESK Kitchen Aerators	6,363	635,014	6,000	598,788	363	36,227
Low Income - ESK Pipe Insulation - 2 m	6,442	227,464	6,000	211,857	442	15,607
Low Income - ESK Showerhead - Low Flow	7,338	3,960,604	6,000	3,238,434	1,338	722,171
Low Income - Thermostat - Programmable	1,590	913,126	4,000	2,297,173	-2,410	-1,384,047
TOTAL LOW INCOME	28,252	6,386,792	28,000	6,945,039	252	-558,247
TOTAL RESIDENTIAL TRC	337,910	45,856,316	182,400	33,824,697	155,510	12,031,619
O&M PROGRAM COSTS (includes \$365K Market Transformation)		-1,545,691		-2,051,000		
NET RESIDENTIAL TRC		44,310,625		31,773,697		12,536,928
<u>COMMERCIAL TRC BREAKDOWN BY PROGRAM</u>						
<u>NEW BUILDING CONSTRUCTION</u>						
Condensing Boiler - quasi-prescriptive	27	299,694	80	1,263,496	-53	-963,802
ERV - quasi-prescriptive	263	709,827	60	819,468	203	-109,641
HRV - quasi-prescriptive	29	150,351	75	343,329	-46	-192,978
Infrared Heating - quasi-prescriptive	100	267,517	500	1,061,389	-400	-793,872
Rooftop Unit	35	78,981	75	169,245	-40	-90,264
DCKV_Fast Casual (<5000 CFM)	0	0	4	47,874	-4	-47,874
DCKV_Full Menu (5000 - 9999 CFM)	1	37,911	2	75,821	-1	-37,911
DCKV_Dinner House (10,000 - 15,000 CFM)	0	0	1	71,134	-1	-71,134
Thermostat - Programmable	261	461,442	0	0	261	461,442
Custom Appl - Rate ClassCore Comm 10; M2/R01	50	879,871	0	0	50	879,871
TOTAL NEW BUILDING CONSTRUCTION	766	2,885,593	797	3,851,756	-31	-966,163
<u>BUILDING RETROFIT</u>						
Condensing Boiler - quasi-prescriptive	325	4,992,731	100	1,579,369	225	3,413,362
ERV - quasi-prescriptive	174	1,509,454	55	751,179	119	758,275
HRV-quasi-prescriptive	67	162,437	30	137,332	37	25,105
Infrared Heating - quasi-prescriptive	458	1,226,555	1,100	2,335,056	-642	-1,108,501
Rooftop Unit	207	465,979	60	135,396	147	330,583
High Efficiency Furnace	546	269,116	130	64,098	416	205,018
Enhanced Furnace	16	6,694	25	9,521	-9	-2,827
Thermostat - Programmable	569	1,003,793	200	353,595	369	650,198
DCKV_Fast Casual (<5000 CFM)	2	23,937	14	167,560	-12	-143,623
DCKV_Full Menu (5000 - 10,000 CFM)	23	871,942	7	265,374	16	606,568
DCKV_Dinner House (10,001 - 15,000 CFM)	2	142,268	2	142,268	0	0
Low Flow Showerhead	40,499	20,709,294	42,500	21,731,594	-2,001	-1,022,300
Low Flow Aerator	75,282	6,829,990	30,000	2,721,762	45,282	4,108,228
Low Flow Pre-Rinse Nozzle	906	6,293,076	2,100	14,586,600	-1,194	-8,293,524
Custom Appl - Rate ClassCore Comm 10; M2/R01	465	17,536,530	0	19,700,000	465	-2,163,470
TOTAL BUILDING RETROFIT	119,541	62,043,796	76,323	64,680,704	43,218	-2,636,908
TOTAL COMMERCIAL TRC	120,307	64,929,390	77,120	68,532,461	43,187	-3,603,071
O&M PROGRAM COSTS		-480,236		-303,000		
NET COMMERCIAL TRC		64,449,154		68,229,461		-3,780,307

	Actual 2007 Results		2007 Plan		Variance Actual vs Plan	
DISTRIBUTION CONTRACT TRC BREAKDOWN						
<u>DISTRIBUTION CONTRACT</u>						
Feasibility Studies	101	-		-		-
Boiler Audits	23	-		-		-
Custom Appl - Industrial - Sales & Mktg	176	126,953,169	330	94,000,000	-154	32,953,169
TOTAL DISTRIBUTION CONTRACT TRC	300	126,953,169	330	94,000,000	-30	32,953,169
O&M PROGRAM COSTS		-292,685		-290,000		-2,685
NET DISTRIBUTION CONTRACT TRC		126,660,484		93,710,000		32,950,484
PORTFOLIO TOTAL NET TRC		235,420,263		193,713,158		41,707,105
SALARIES		-3,483,821		-3,162,000		-321,821
RESEARCH AND EVALUATION		-919,120		-1,385,000		465,880
OVERHEAD		-1,700,000		-1,700,000		0
ADMINISTRATION		-141,961		-60,000		-81,961
OVERALL NET TRC FOR 2007		229,175,361		187,406,158		41,769,204

Appendix C – 2007 DSM Spending by Program

Program	Incentives	Program Costs	Total Costs
Residential			
*New Home Construction	\$ 39,600	\$ 24,317	\$ 63,917
*Home Retrofit	\$ 1,298,738	\$ 797,507	\$ 2,096,245
Low Income	\$ 802,143	\$ 359,340	\$ 1,161,483
Total Residential	\$ 2,140,481	\$ 1,181,164	\$ 3,321,645
Market Transformation			
DWHR	\$ 405,645	\$ 364,527	\$ 770,172
Total Market Transformation	\$ 405,645	\$ 364,527	\$ 770,172
Commercial			
*New Building Construction	\$ 255,312	\$ 44,180	\$ 299,492
*Building Retrofit	\$ 2,519,947	\$ 436,056	\$ 2,956,003
Total Commercial	\$ 2,775,259	\$ 480,236	\$ 3,255,495
Distribution Contract			
Distribution Contract	\$ 2,246,597	\$ 292,685	\$ 2,539,282
Total Distribution Contract	\$ 2,246,597	\$ 292,685	\$ 2,539,282
Total Direct Costs	\$ 7,567,982	\$ 2,318,612	\$ 9,886,594
Indirect Cost			
Salaries		\$	3,483,821
Research and Evaluation		\$	919,120
Overhead		\$	1,700,000
Admin		\$	141,961
Total Indirect Costs		\$	6,244,902
Total 2007 DSM Spending		\$	16,131,496
* Program costs allocated between new and retrofit markets based on percentage of incentives paid in each program			

Appendix D – 2007 LRAM Results by Measure

Programs	Free Rider	Adjustment Factor	Participants	Natural Gas Savings per Unit (m ³)	Net Natural Gas Savings (m ³)
NEW HOME CONSTRUCTION					
Energy Star for New Homes	5%		396	818	307,732
Total New Building Construction			396		307,732
Programs	Free Rider	Adjustment Factor	Participants	Natural Gas Savings per Unit (m ³)	Net Natural Gas Savings (m ³)
HOME RETROFIT					
Furnace - High Efficiency - HVAC	48%		14814	385	2,965,763
Furnace - High Efficiency - Direct to Consumers	48%		10	385	2,002
Thermostat - Programmable - HVAC	11%		14,018	212	2,644,916
Thermostat - Programmable - Direct to Consumers	11%		8,744	212	1,649,818
ESK - Home Depot					
ESK - Faucet Aerators	10%	60%	33,784	14	255,407
ESK - Pipe Insulation - 2 m	4%	76%	16,892	17	210,149
ESK - Showerhead - Low Flow	18%	73%	16,892	91	927,664
ESK - Residential Account Manager					
ESK - Faucet Aerators	10%	51%	102,054	14	661,843
ESK - Pipe Insulation - 2 m	4%	69%	51,027	17	577,103
ESK - Showerhead - Low Flow	18%	69%	51,027	91	2,638,308
Total Home Retrofit			309,262		12,532,973
Programs	Free Rider	Adjustment Factor	Participants	Natural Gas Savings per Unit (m ³)	Net Natural Gas Savings (m ³)
LOW INCOME					
ESK - Bath Aerators	1%		6,519	14	90,353
ESK - Kitchen Aerators	1%		6,363	14	88,191
ESK - Pipe Insulation - 2 m	1%		6,442	17	108,419
ESK - Showerhead - Low Flow	5%		7,338	115	801,677
Thermostat - Programmable	1%		1,590	212	333,709
Total Low Income			28,252		1,422,349
Programs	Free Rider	Adjustment Factor	Participants	Natural Gas Savings per Unit (m ³)	Net Natural Gas Savings (m ³)
NEW BUILDING CONSTRUCTION					
Condensing Boiler (Quasi Prescriptive)	5%		27	9285	167,380
ERV (Quasi Prescriptive)	5%		263	8,515	382,122
HRV (Quasi Prescriptive)	5%		29	3,300	110,413
Infrared Heating (Quasi Prescriptive)	33%		100	1,022	86,860
Rooftop Unit	5%		35	1,275	42,394
Thermostat - Programmable	20%		261	519	108,367
DCKV - Fast Casual (<5000 CFM)	5%		0	3,658	0
DCKV - Full Menu (5000 - 9999 CFM)	5%		1	9,535	9,058
DCKV - Dinner House (10000 - 15000 CFM)	5%		0	17,455	0
Custom Projects	30%		50	0	388,938
Total New Building Construction			766		1,295,532

Programs	Free Rider	Adjustment Factor	Participants	Natural Gas Savings per Unit (m ³)	Net Natural Gas Savings (m ³)
<u>Building Retrofit</u>					
Condensing Boiler (Quasi Prescriptive)	5%		325	9285	2,789,968
ERV (Quasi Prescriptive)	5%		174	8,515	953,912
HRV (Quasi Prescriptive)	5%		67	3,300	129,589
Infrared Heating (Quasi Prescriptive)	33%		458	1,022	411,176
Rooftop Unit	5%		207	1,275	250,729
High Efficiency Furnace	18%		546	459	206,757
Enhanced Furnace (Up to 299 Mbtu/h) - NG	30%		16	459	5,141
Enhanced Furnace (Up to 299 Mbtu/h) - Elec.	10%		0	-78	0
Thermostat - Programmable	20%		569	519	236,249
DCKV - Fast Casual (<5000 CFM)	5%		2	3,658	6,950
DCKV - Full Menu (5000 - 9999 CFM)	5%		23	9,535	208,340
DCKV - Dinner House (10000 - 15000 CFM)	5%		2	17,455	33,165
Low Flow Showerhead	10.0%		40,499	115	4,191,647
Low Flow Aerator	10%		75,282	14	948,553
Low Flow Pre-Rinse Nozzle	5%		906	3,059	2,632,881
Custom Projects	30%		465	0	7,081,974
Total Building Retrofit			119,541		20,087,029
Programs	Free Rider	Adjustment Factor	Participants	Natural Gas Savings per Unit (m³)	Net Natural Gas Savings (m³)
<u>DISTRIBUTION CONTRACT</u>					
Feasibility Studies					
Boiler Audits					
Custom Projects	30%		176	-	57,330,659
Total Distribution Contract			176	-	57,330,659
2007 DSM Program Total			458,393		92,976,274

Appendix E – 2007 TRC Results by Measure

Measure	Net m ³ Per Participant	Net TRC Benefits Per Participant	Total Participants	Total Net TRC	Program Costs	Net Program TRC
	(a)	(b)	(c)	(d) = (b)*(c)	(e)	(f) = (d) - (e)
New Home Construction						
Energy Star for New Homes	777	\$544	396	\$215,394		
Total New Home Construction			396	\$215,394	\$24,317	\$191,077
Home Retrofit						
ESK Faucet Aerators - 3rd Party	8	\$55	33,784	\$1,857,284		
ESK Pipe Insulation - 2 m - 3rd Party	12	\$28	16,892	\$477,980		
ESK Showerhead - Low Flow - 3rd Party	55	\$238	16,892	\$4,026,721		
ESK Faucet Aerators - RAMs Delivered	6	\$47	102,054	\$4,812,825		
ESK Pipe Insulation - 2 m - RAMs Delivered	11	\$26	51,027	\$1,312,612		
ESK Showerhead - Low Flow - RAMs Delivered	52	\$224	51,027	\$11,452,129		
Furnace - High Efficiency - HVAC	200	\$206	14,814	\$3,054,412		
Furnace - High Efficiency - Direct to Consumers	200	\$206	10	\$2,062		
Thermostat - Programmable - HVAC	189	\$539	14,018	\$7,549,167		
Thermostat - Programmable - Direct to Consumers	189	\$539	8,744	\$4,708,940		
Total Home Retrofit			309,262	\$39,254,131	\$797,507	\$38,456,624
Low Income						
ESK Bath Aerators	14	\$100	6,519	\$650,583		
ESK Kitchen Aerators	14	\$100	6,363	\$635,014		
ESK Pipe Insulation - 2 m	17	\$35	6,442	\$227,464		
ESK Showerhead - Low Flow	109	\$540	7,338	\$3,960,604		
Thermostat - Programmable	210	\$574	1,590	\$913,126		
Total Low Income			28,252	\$6,386,792	\$359,340	\$6,027,452
New Building Construction						
Condensing Boiler (Quasi Prescriptive)	8821	\$15,794	27	\$299,694		
ERV (Quasi Prescriptive)	8089	\$13,658	263	\$709,827		
HRV (Quasi Prescriptive)	3135	\$4,578	29	\$150,351		
Infrared Heating (Quasi Prescriptive)	685	\$2,123	100	\$267,517		
Rooftop Unit	1211	\$2,257	35	\$78,981		
DCKV Fast Casual (<5000 CFM)	3475	\$11,969	-	\$0		
DCKV Full Menu (5000 - 9999 CFM)	9058	\$37,911	1	\$37,911		
DCKV Dinner House (10,000 - 15,000 CFM)	16582	\$71,134	-	\$0		
Thermostat - Programmable	415	\$1,768	261	\$461,442		
Custom Appl - Rate ClassCore Comm 10; M2/R01			50	\$879,871		
Total New Building Construction			766	\$2,885,593	\$44,180	\$2,841,413
Measure	Net m ³ Per Participant	Net Benefits Per Participant	Total Participants	Total Gross TRC	Market Support Costs	Net Program TRC
	(a)	(b)	(c)	(d) = (b)*(c)	(e)	(f) = (d) - (e)
Building Retrofit						
Condensing Boiler -quasi-prescriptive			322	\$4,992,731		
ERV - quasi-prescriptive			174	\$1,509,454		
HRV - quasi-prescriptive			67	\$162,437		
Infrared Heating - quasi-prescriptive			297	\$1,226,555		
Rooftop Unit	1211	\$2,257	200	\$465,979		
High Efficiency Furnace	379	\$493	544	\$269,117		
Enhanced Furnace (up to 299 Mbtu/h) - NG	321	\$418	16	\$6,694		
Enhanced Furnace (up to 299 Mbtu/h) - Electric	-70	\$51	-	\$0		
Thermostat - Programmable	415	\$1,768	528	\$1,003,793		
DCKV Fast Casual (<5000 CFM)	3475	\$11,969	2	\$23,937		
DCKV Full Menu (5000 - 10,000 CFM)	9058	\$37,911	23	\$871,942		
DCKV Dinner House (10,001 - 15,000 CFM)	16582	\$71,134	2	\$142,268		
Low Flow Showerhead	104	\$511	40,111	\$20,709,294		
Low Flow Aerator	13	\$91	74,638	\$6,829,990		
Low Flow Pre-Rinse Nozzle	2906	\$6,946	906	\$6,293,076		
Custom Appl - Rate ClassCore Comm 10; M2/R01			446	\$17,536,530		
Total Building Retrofit			118,276	\$62,043,796	\$436,056	\$61,607,740
Measure	Net m ³ Per Participant	Net Benefits Per Participant	Total Participants	Total Gross TRC	Market Support Costs	Net Program TRC
	(a)	(b)	(c)	(d) = (b)*(c)	(e)	(f) = (d) - (e)
Distribution Contract						
Feasibility Studies						
Boiler Audits						
Custom Projects				\$126,953,169		
Total Distribution Contract				\$126,953,169	\$292,687	\$126,660,482
Market Transformation					\$364,527	
Total Program Results			456,952	237,738,875	2,318,614	\$235,420,261
Indirect Costs						\$6,244,902
Total 2007 Net TRC						\$229,175,359

Appendix F – Substantiation Documents for Quasi-Measures

1 CONDENSING BOILERS

Commercial New Building Construction and Building Retrofit

Efficient Technology & Equipment Description
Condensing Boiler (88% estimated seasonal efficiency)
Base Technology & Equipment Description
Non-condensing Boiler (76% estimated seasonal efficiency)

Resource Savings Assumptions

Natural Gas	0.0119 m³ / Btu/hr
The natural gas savings are based on the reduction in space heating gas consumption from using a condensing boiler relative to a non-condensing boiler. The principle assumption in the calculation of the savings is that the condensing boiler is properly oversized by 20%. The heating load for the entire heating season can be determined from the installed capacity and boiler seasonal efficiency using degree day analysis. A generic rate of savings of 0.0119 m ³ / Btu/hr of capacity was determined from this analysis. The single savings number is weighted average of Union Gas South (70%) and Union Gas North (30%) savings estimates.	
Electricity	n/a kWh
Water	n/a L

Other Input Assumptions

Equipment Life	25 years
Condensing boilers have an estimated service life of 25 years. ⁶	
Incremental Cost	\$15.40 / 10³ Btu/hr
A generic incremental cost of \$14,000 per million Btu / hr (adjusted for the US/CDN exchange by a factor of 1.10) was used based on information recently published in the ASHRAE Journal. ⁷	
Free Ridership	5 %
Free-ridership rate as per 2005 ADR Settlement – EB-2005-0211. ⁸	

⁶ ASHRAE Applications Handbook – 2003, Chapter 36 – Owning and Operating Costs, Table 3.

⁷ "Boiler System Efficiency", Thomas H. Durkin, ASHRAE Journal - July 2006

⁸ EB-2005-0211, Union Gas Settlement Agreement, April 7, 2005

2 INFRARED HEATERS

Commercial New Building Construction and Building Retrofit

Efficient Technology & Equipment Description
Infrared Heater
Base Technology & Equipment Description
Unit Heater

Resource Savings Assumptions

Natural Gas					0.0102 m ³ / Btu/hr			
The infrared heater gas savings were based on the analysis procedures previously created by Agviro Inc. for Union. The analysis was supplemented by adding a 20% oversizing factor on the equipment in the analysis. A generic rate of savings of 0.0102 m3 / Btu/hr of capacity was determined from this analysis. The single savings number is weighted average of Union Gas South (70%) and Union Gas North (30%) savings estimates.								
Electricity					n/a kWh			
Electricity savings are determined from the difference in electricity consumption of the infrared heater and a comparable unit heater.								
		Blower Motor		Infrared		Operating Hours (hrs)		Electrical Savings (kWh)
Capacity		hp	kW	hp	kW	Unit Heater	Infrared	
less than	50000	0.167	0.124	0.042	0.031	2509	2133	312
less than	165000	0.333	0.249	0.042	0.031	2509	2133	624
greater than	165000	0.500	0.373	0.042	0.031	2509	2133	936
*Electricity savings based on Solaronics models that use a 1/24 hp motor.								
Water					n/a L			

Other Input Assumptions

Equipment Life	20 years
Infrared Heaters have an estimated service life of 20 years. ⁹	
Incremental Cost	\$15.40 / 10 ³ Btu/hr
An incremental cost of \$350 was used based on past input assumptions filed by Union. ¹⁰	
Free Ridership	33 %
Free-ridership rate as per 2005 ADR Settlement – EB-2005-0211. ¹¹	

⁹ "Prescriptive Incentives for Select Natural Gas Technologies", Prepared for Enbridge Consumers Gas and Union Gas Ltd., Prepared by: Jacques Whitford Environment Limited, Agviro Inc., and Engineering Interface Ltd., September 27, 2000.

¹⁰ EB-2005-0211, Union Gas Settlement Agreement, April 7, 2005

¹¹ "Demand Side Management Research to Establish Free Ridership Rates for Infra-Red Tube Heaters among End Users and Channel Partners", marketPower Research, February 14, 2005.

3. HEAT RECOVERY VENTILATOR (HRV)

Commercial New Building Construction and Building Retrofit

Efficient Technology & Equipment Description
Ventilation with HRV
Base Technology & Equipment Description
Ventilation without HRV

Resource Savings Assumptions

Natural Gas	Varies with m³ / CFM inputs																				
The ERV and HRV gas savings are determined from engineering calculations utilizing inputs such as air flow, indoor/outdoor temperatures, indoor/outdoor and relative humidity. The operating hours of the equipment are based on typical values for the following commercial market sub-segments: Multi-Family, Hotel, Restaurant, Retail, Office, School, Health Care, Nursing Home, and Warehouse.																					
<table> <tr> <th>Building Occupancy</th><th>Typical Hrs of Operation per week</th></tr> <tr> <td>Multi-Family</td><td>168</td></tr> <tr> <td>Hotel</td><td>168</td></tr> <tr> <td>Restaurant</td><td>108</td></tr> <tr> <td>Retail</td><td>108</td></tr> <tr> <td>Office</td><td>60</td></tr> <tr> <td>School</td><td>84</td></tr> <tr> <td>Health Care</td><td>168</td></tr> <tr> <td>Nursing Home</td><td>168</td></tr> <tr> <td>Warehouse</td><td>168</td></tr> </table>	Building Occupancy	Typical Hrs of Operation per week	Multi-Family	168	Hotel	168	Restaurant	108	Retail	108	Office	60	School	84	Health Care	168	Nursing Home	168	Warehouse	168	
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Office	60																				
School	84																				
Health Care	168																				
Nursing Home	168																				
Warehouse	168																				
Electricity	n/a kWh																				
Water	n/a L																				

Other Input Assumptions

Equipment Life	15 years
HRVs have an estimated service life of 15 years. ¹²	
Incremental Cost	\$3.40 / CFM
The incremental costs are based on relative scaling of incremental costs \$1700 / 500 CFM. ¹²	
Free Ridership	5 %
Previous free-ridership rate as per 2005 ADR Settlement – EB-2005-0211 was 0%. Union will use a value of 5% until a more definitive value can be determined from evaluation.	

¹² "Prescriptive Incentives for Select Natural Gas Technologies", Prepared for Enbridge Consumers Gas and Union Gas Ltd., Prepared by: Jacques Whitford Environment Limited, Agviro Inc., and Engineering Interface Ltd., September 27, 2000.

4 ENERGY RECOVERY VENTILATOR (ERV)

Commercial New Building Construction and Building Retrofit

Efficient Technology & Equipment Description
Ventilation with ERV
Base Technology & Equipment Description
Ventilation without ERV

Resource Savings Assumptions

Natural Gas	Varies with m³ / CFM inputs																				
The ERV and HRV gas savings are determined from engineering calculations utilizing inputs such as air flow, indoor/outdoor temperatures, indoor/outdoor and relative humidity. The operating hours of the equipment are based on typical values for the following commercial market sub-segments: Multi-Family, Hotel, Restaurant, Retail, Office, School, Health Care, Nursing Home, and Warehouse.																					
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Health Care	168																				
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Warehouse	168																				
Electricity	n/a kWh																				
Water	n/a L																				

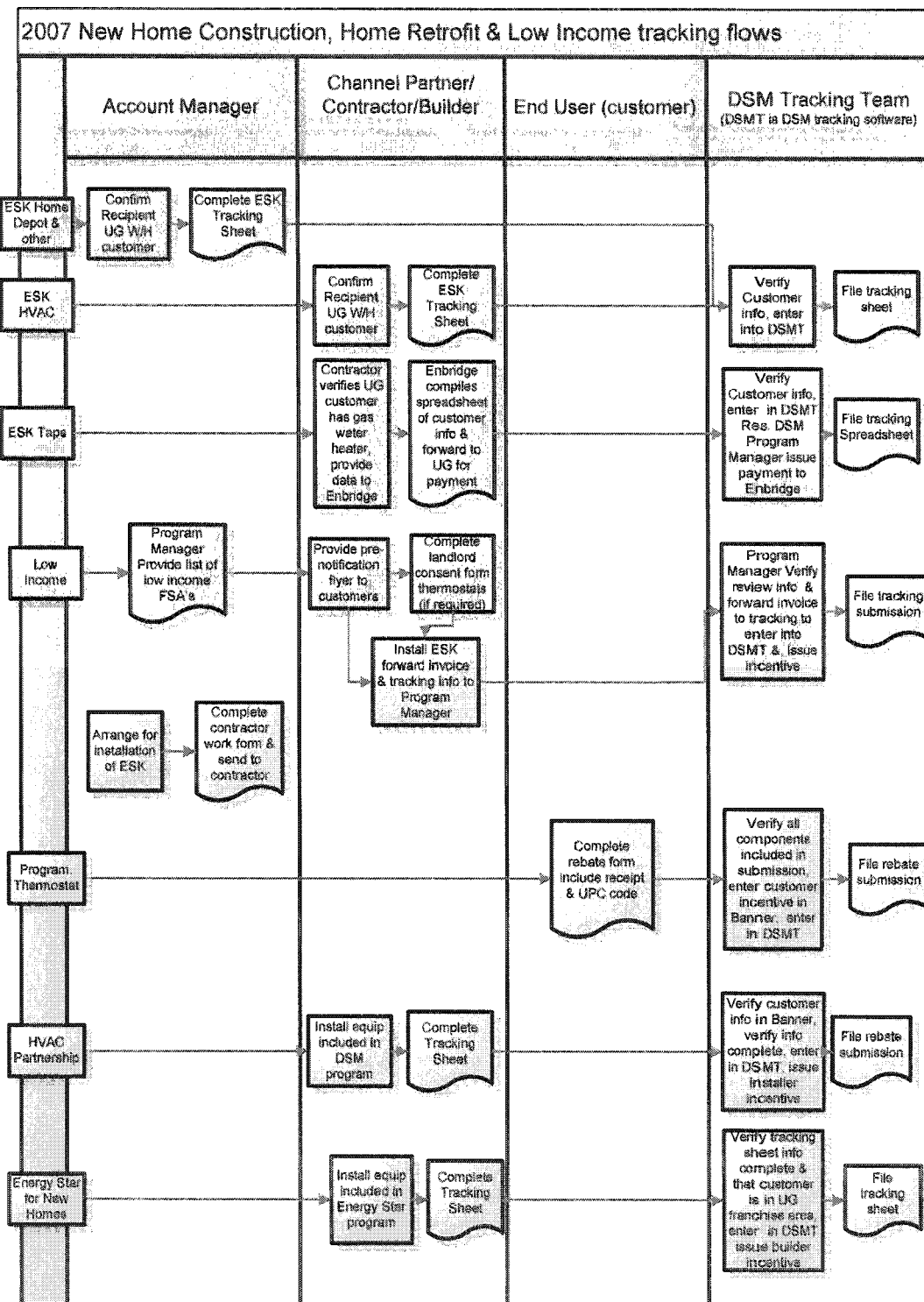
Other Input Assumptions

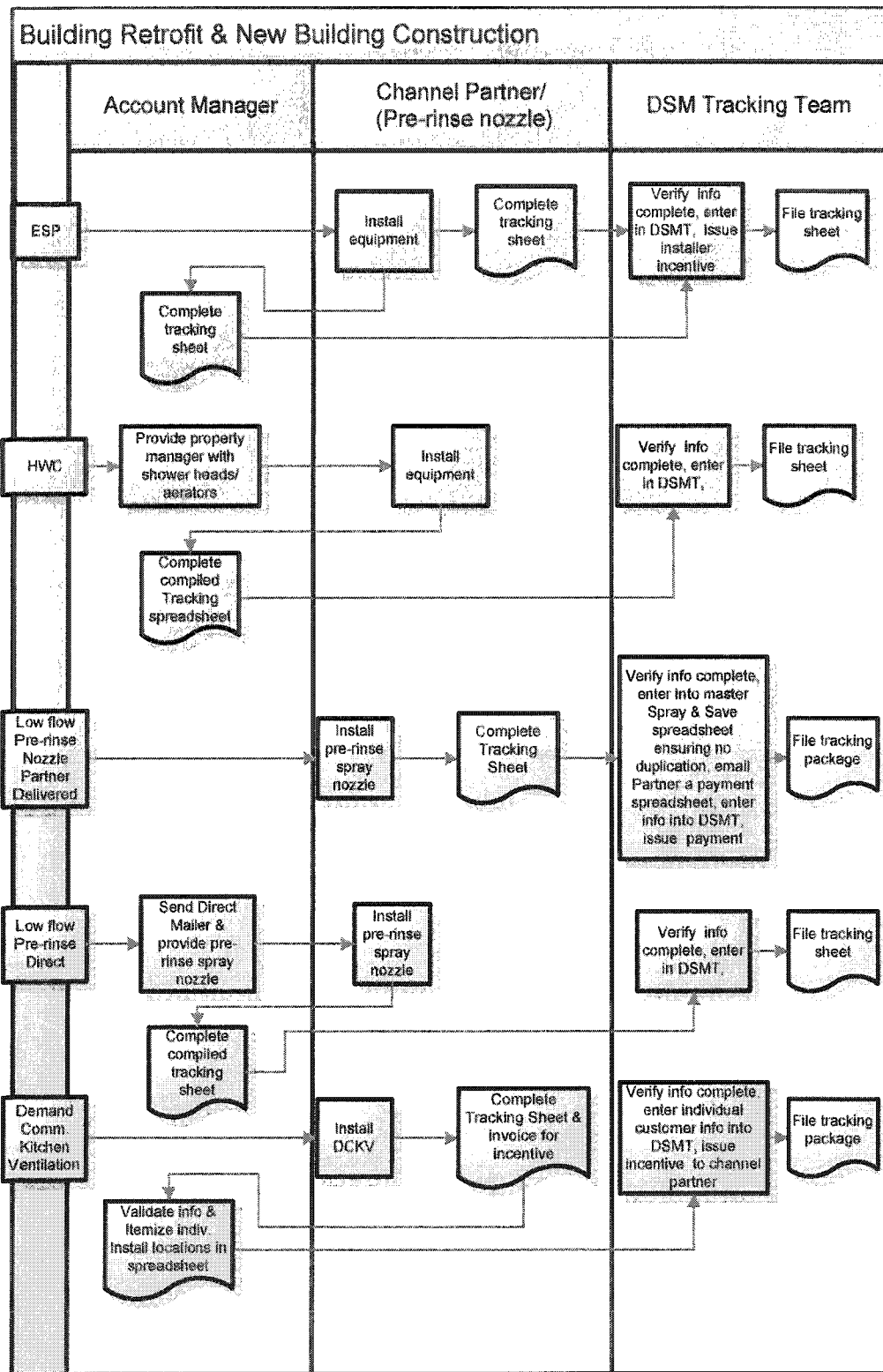
Equipment Life	15 years
ERVs have an estimated service life of 15 years. ¹³	
Incremental Cost	\$2.50 / CFM
The incremental costs are based on relative scaling of incremental costs \$2500 / 1000 CFM. ¹³	
Free Ridership	5 %
Free-ridership rate as per 2005 ADR Settlement – EB-2005-0211. ¹⁴	

¹³ "Prescriptive Incentives for Select Natural Gas Technologies", Prepared for Enbridge Consumers Gas and Union Gas Ltd., Prepared by: Jacques Whitford Environment Limited, Agviro Inc., and Engineering Interface Ltd., September 27, 2000.

¹⁴ EB-2005-0211, Union Gas Settlement Agreement, April 7, 2005

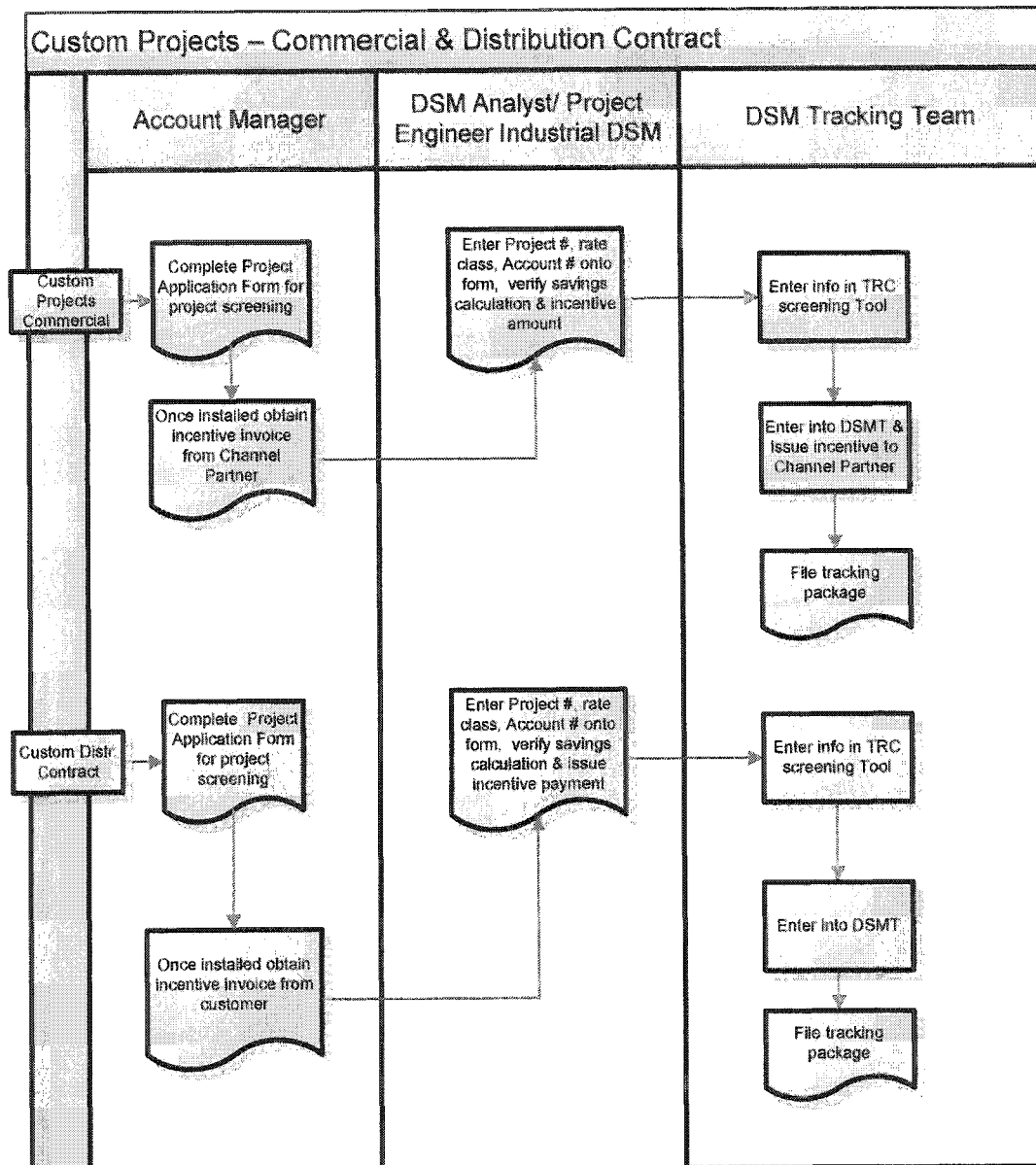
Appendix G – Program Tracking Flow Charts



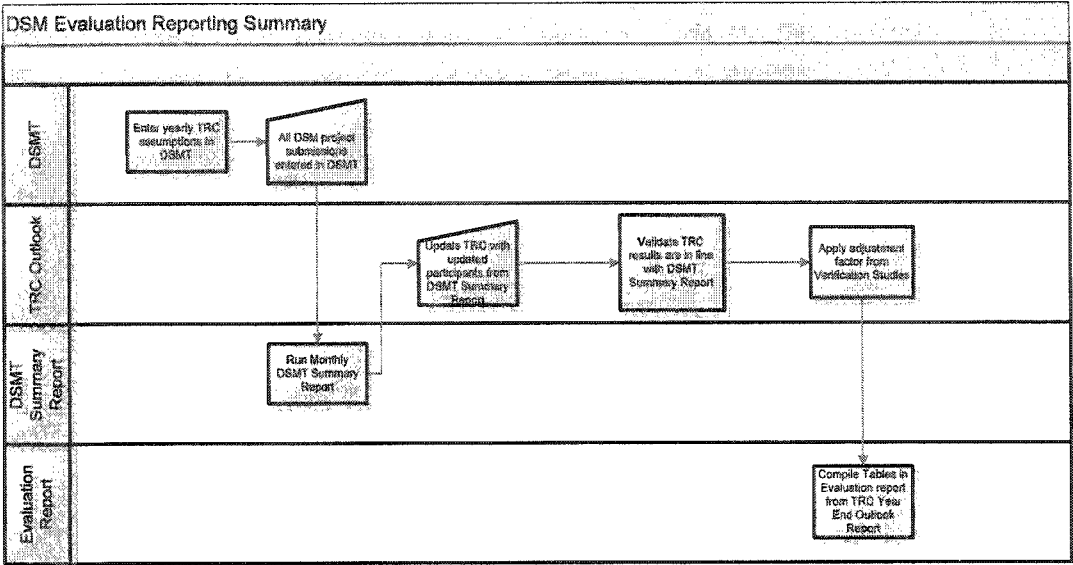


ESP – Energy Savings Program – ERV, HRV, rooftop units, condensing boiler, infrared heaters, H/E Furnaces, programmable thermostats

HWC – Commercial Hot Water Conservation Tracking Sheet, targeted at Multi-family & Social Housing



Feasibility studies & Boiler Audits are included in Custom Project Process



Appendix H – 2008 Market Transformation Scorecard

2008 Scorecard

Element	Indicator (weighting)	50%	100%	150%
ULTIMATE OUTCOMES	Builder's Enrolled (20)	20	25	30
	Units Installed New Build (30)	750	1000	1500
MARKET EFFECTS (Research)	Customer Awareness Survey (10) Baseline – 15%	17%	21%	25%
	Builder Knowledge Survey (10) Baseline – 58%	62%	70%	78%
	Builder Promotion Survey (5) Baseline – 23%	29%	33%	37%
PROGRAM PERFORMANCE (Training/Awareness Building)	Builder Training Workshop (5)	3	5	7
	Trade Show / Builder Industry Show (5)	1	3	5
RETROFIT PILOT	Units Installed Retrofit (10)	100	200	300
	Co-branded promotion material (marcom elements) (2.5)	3	5	7
	Retrofit Partner Training Workshop (2.5)	1	3	5

Appendix I - Substantiation Documents New 2008 Measures

AIR CURTAINS/AIR DOORS

Efficient Technology & Equipment Description
Air Curtains/Air Doors/Air Barriers
Base Technology & Equipment Description

8.3.1. Resource Savings Assumptions

Natural Gas	Varies	m³
Analysis based on Agviros work, which is based largely on ASHRAE (2004, S17.9), (2006, R13.4) and (2005, F27.10, eq 29), see Reference Documentation – Air Curtain Savings, May 18, 2007, Agviro.		
Example 2500 m ³ /yr savings for the following scenario Toronto, ON, mounted over a single 3' x 7' tall personal door, door open 3.6 hours/day (20% of the time), 80% efficient heating system (estimated), 20 degC indoor set point (estimated), 70% curtain effectiveness (ASHRAE, 2004 S17.9), ½ hp motor (estimated), no Air Conditioning		
Electricity	Varies	kWh
Analysis based on Agviros work, which is based largely on ASHRAE (2004, S17.9), (2006, R13.4) and (2005, F27.10, eq 29), see Reference Documentation – Air Curtain Savings, May 18, 2007, Agviro.		
Example 346 kWh/yr consumed for the following scenario Toronto, ON, mounted over a single 3' x 7' tall personal door, door open 3.6 hours/day (20% of the time, estimated), 80% efficient heating system (estimated), 20 degC indoor set point (estimated), 70% curtain effectiveness (ASHRAE, 2004 S17.9), ½ hp motor (estimated), no air conditioning		
Water	n/a	L

8.3.2. Other Input Assumptions

Equipment Life	20	years
Conversation with John Larson, assumes bearings are greased, Miniveil Systems, Inc., Nov. 8, 2007		
Incremental Cost (Cust. / Contr. Install)	Varies	\$
Example \$3600 for a personal door from Miniveil Air Systems (conversation with John Larson 9-25-07)		
Free Ridership	5	%

DESTRATIFICATION FANS

Efficient Technology & Equipment Description
Destratification Fans
Base Technology & Equipment Description

8.3.3. Resource Savings Assumptions

Natural Gas	Varies m³
Based on the report, "Energy Savings Associated with De-stratification Fans in Buildings with High Ceilings", by Caneta Research Inc., October 2007, which was based largely on destratification savings methodology from "Saving Heating Costs in Warehouses." Richard Aynsley. ASHRAE Journal. Pg. 46. December 2005 and DOE2.1E modeling software	
<p>Example</p> <p>13,654 m³/yr based on</p> <p>50,000 ft² floor area (estimate) to be destratified, 30 ft ceiling (estimate), 20 ft heater height (estimate), Based on a mix of 70% London and 30% North Bay's climate, destratification of 0.65 degF/sqft. (average between 0.5 and 0.75 ("Technology Evaluation of Thermal Destratifiers and other Ventilation Technologies." Joel C. Hughes. Naval Facilities Engineering Service Center. and "Re-circulating Warm Air - Energy Tips from the Experts" ComEd An Exelon Company. 2002)</p>	
Electricity	Varies kWh
Based on fan sizing requirements and power consumption from Big Ass Fans, and "Energy Savings Associated with De-stratification Fans in Buildings with High Ceilings", by Caneta Research Inc., October 2007	
<p>Example</p> <p>1,577 kWh/yr consumed based on</p> <p>Based on a 50,000 ft² floor area (estimate), using (3) 24 ft diameter fans, running 24/7, 365 days/year</p>	
Water	n/a L

8.3.4. Other Input Assumptions

Equipment Life	15 years
The estimated equipment life for destratification fans is 15 years [SEED Program Guidelines. J-20. December. 2004]. This value is also supported by ASHRAE [ASHRAE Handbook, HVAC Applications SI Edition. Chapter 36 -Table 4. Pg. 36.3. 2007], which lists the service life for propeller fans as 15 years.	
Incremental Cost (Cust. / Contr. Install)	Varies \$
<p>For Example</p> <p>\$21,264 based on</p> <p>(3) 24 ft diameter fans, based on and installation costs from Targeted Market Study. HVLS fans on Wisconsin Dairy Farms. State of Wisconsin Department of Administration Division of Energy. June 12, 2006., RSMeans. Mechanical Cost Data - 29th Annual Edition. 2006, and communications with Manufacturers.</p>	
Free Ridership	10 %

Appendix J-L inclusive - Place holder for Results of Evaluation Research

Insert Summit Blue's Final reports for Residential Free rider, Custom Free Rider & Residential Deemed Savings

Appendix M - Place holder for Sampling Methodology for Engineering Review of
Custom Projects

Glossary

Adjustment Factor

An adjustment factor is the percentage of participants who install a measure and keep it installed. Adjustment factors are established through the interviewing of a random sample (statistically significant) of program participants conducted by a third party in order to validate measure installation. The adjustment factor is applied to an initiative's gross savings results

Avoided Costs

Avoided costs are a measurement of the reduction in the delivered costs of supplying resources (natural gas, electricity and water) to customers as a consequence of a program which reduces resource use by customers.

Base Case

A base case reflects a projection of the future without the effects of the utility's DSM program. "Base cases" are required for each and every DSM scenario, even those which are just a single technology or a single participant. The difference between the base case and the energy efficient case represents the saving attributable to the energy efficient measure.

Building Envelope

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

Channel Partner

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

Cost Effectiveness

Cost effectiveness refers to an analysis performed to determine whether the benefits of a project are greater than the costs. It is based on the net present value of savings over the equipment life of the measures.

Direct Costs

Direct costs are the utility program costs, including implementation and incentives that are directly related to an individual program.

Engineering Estimates

Engineering estimates refer to natural gas savings calculation estimates based on fundamental engineering principles and modeling assumptions.

Free Riders

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

Incentive

An incentive is a transfer payment from the utility to participants aimed at encouraging participation in a DSM program.

Incremental Cost

The incremental cost is the difference in price between the efficient technology or measure and the base case technology. In some early retirements and retrofits, the full cost of the efficient technology is the incremental cost.

Indirect Costs

Indirect costs are utility costs that relate to more than one specific program. They include research/evaluation, market support and overhead.

Lost Revenue Adjustment Mechanism (LRAM)

The LRAM is the Ontario Energy Board approved methodology which allows the utility to recover the lost distribution revenues associated with DSM activity. These lost revenues are calculated for each rate class impacted by DSM energy efficiency programs.

Net Present Value (NPV)

Net present value calculations rely on an discount rate to state, with a single number, what the value of a number of years of benefits are. The NPV then is the sum of the discounted yearly benefits arising from an investment over the life-time of that investment.

Ontario Energy Board (OEB)

A regulatory agency of the Ontario Government that is an independent, quasi-judicial tribunal created by the *Ontario Energy Board Act*. The Board has regulatory oversight of both natural gas and electricity matters in the province.

Participants

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

Participants (when natural gas savings are claimed) include gas saving measures or equipment (i.e. Boilers), packages of measure (i.e. ESKs), custom applications and services such as water heater tank de-liming. These participants are tracked through the Demand Side Management Tracking System (DSMT).

Participants (when no natural gas savings are claimed) include Feasibility and DAP study participants, energy audit participants, those who receive educational material such as the Wise Energy Guide as well as those who attend training sessions. These participants are tracked through the DSMT.

Program

A program is the utility's specifically designed approach to providing one or more demand-side options to customers.

Program Evaluation

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

Research Costs

Research costs are the utility's costs associated with the research and evaluation of DSM programs. They are not included in direct costs because they may affect more than one program.

Societal Cost Test (SCT)

The Societal Cost Test provides a measure of the benefits and costs that accrue to society as a result of the installation of a DSM measure. The Societal Cost Test has a provision whereby externality benefits, when quantified, can be included in the result. The SCT at \$0/tonne CO₂ is also known as the Total Resource Cost Test (TRC).

TAPS (Thermostats, Aerators, Pipe wrap & Showerheads)

A residential installation program that delivers aerators, pipe wrap and showerheads direct to customers.

Total Program Costs

The total program costs include all direct costs associated with a DSM program, including implementation and incentives.

Total Resource Cost Test

See Societal Cost Test (SCT)

Trade Allies

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

Utility Costs

Utility costs are all expenses (administrative, equipment, incentives marketing, monitoring and evaluation, and other) incurred by the utility in a given year for operation of a DSM program regardless of whether the costs are capitalized or expensed.

UNION GAS LIMITED

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

Reference: Exhibit A, Tab 1, Schedule 4

Question:

This Schedule, under the column titled "2007 Amount Based on Unaudited Results", shows an SSM of \$1,465,959 for Rate T1 in the South and \$711,134 for Industrial Rate 100 in the North.

- (a) Does the \$1,465,959 allocated to T1 all arise from distribution contract custom projects? If not, please provide a breakdown of the amount that arises from distribution contract custom projects and the amount that arises from non-custom projects. Also, please identify the non-custom projects that contribute to this amount, if any.*
 - (b) Does the \$711,134 allocated for Rate 100 all arise from distribution contract custom projects? If not, please provide a breakdown of the amount that arises from distribution contract custom projects and the amount that arises from non-custom projects. Also, please identify the non-custom projects that contribute to this amount, if any.*
 - (c) It is IGUA's understanding that the distribution contract custom projects are currently subject to verification studies by Summit Blue and by Diamond engineering. Have these studies been completed? If yes, please provide a copy of the verification studies. If not, when does Union expect these studies to be complete?*
 - (d) Other than the verification studies described in (c) above, have any other studies been completed, or are any underway, that relate to 2007 distribution contract custom projects? If so, please describe the study and either produce a copy of the final study or confirm when Union expects the study to be complete.*
 - (e) Please provide an explanation as to why the Board should approve clearance of an amount in the SSM Deferral Account for 2007 that is still subject to ongoing verification studies and an audit, as well as review by the Evaluation and Audit Committee and the DSM Consultative?*
-

Response:

- a) Yes, 100% of the \$1,465,959 allocated to Rate T1 customers arises from distribution contract custom projects.*
- b) Yes, 100% of the \$711,134 allocated to Rate 100 customers is from distribution contract custom projects.*

Question: April 10, 2008
Answer: April 18, 2008
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- c) The Distribution Contract custom projects are currently under verification by Diamond Engineering. The Commercial and Industrial custom projects are currently under verification by Jacques Whitford. Summit Blue is not involved in the verification reviews this year. All verification work will be complete by April 18, 2008.
- d) Summit Blue is evaluating Custom Free Rider rates for distribution contract projects. This is the only outstanding study. Union Gas expects this study to be completed in 2nd quarter 2008.
- e) Union Gas is required to file and dispose its deferral accounts annually. Over the past few years as is outlined in both the 2006 Year-End Deferral Account Balances and 2007 Deferral Account Balances the process to finalize DSM balances includes an audit of Union's DSM Evaluation Report review by the Evaluation and Audit Committee and communication to the DSM Consultative. To dispose of deferral account balances in a timely manner, Union requested disposal of the forecasted SSM, LRAM, DSMVA and the MT incentive related to unaudited 2007 DSM activities in March 2008. Recognizing this balance may still change following the audit, any amount disposed of would be subject to a future true-up. Any true up amount would be captured in the deferral account for future disposition. The variances between the account balances calculated out of audited and unaudited results have been decreasing, thus increasing Union's confidence in the accuracy of the unaudited numbers. This is consistent with the process approved by the Board in the 2006 deferral disposition proceeding (EB-2007-0598).

Question: April 10, 2008

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UNION GAS LIMITED

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

Reference: Ex. A, Tab 1, Page 1

Question:

- a) *Please explain when the Board approved the short term interest rates shown of 4.59% and 5.14% in the RP-2003-0063 proceeding.*
 - b) *Please confirm that the interest rates shown of 4.59% and 5.14% are the prescribed interest rates that are the result of the Board's EB-2006-0117 process.*
-

Response:

- a) The evidence made an incorrect reference to the RP-2003-0063 proceeding. The correct reference is proceeding EB -2006-0117.
- b) Confirmed.

UNION GAS LIMITED

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

Reference: Ex. A, Tab 1, Page 15

Question:

- a) Please explain how the capital tax component of the actual 2007 figure has been calculated. In particular, has Union used a capital tax rate of 0.225%?*
 - b) Has Union calculated the income tax figure for actual 2007 utilizing the proposed capital cost allowance (CCA) rates from the March, 2007 federal budget related to assets acquired on or after March, 19, 2007 for computer equipment, non-residential buildings and natural gas distribution lines? If not, why not?*
 - c) Please recalculate, if necessary, the 2007 actual capital costs using a capital tax rate of 0.225% and the CCA rates noted above applicable to assets acquired after March 19, 2007.*
-

Response:

- a) The capital tax component was calculated by multiplying the net capital (gross spending less depreciation) against a capital tax rate of 0.285%. The 0.285% represents the capital tax rate used to establish 2007 rates. The effects of the lower actual capital tax rate (0.225%) is captured and refunded to customers through the capital tax deferral disposition. Therefore, using the actual capital tax rate for purposes of calculating the GDAR deferral would incorrectly refund the credit to customers twice.
- b) Union has not calculated the income tax based on the proposed CCA rates from the March 2007 Federal budget. Similar to changes in the capital tax rates, the effects of implemented changes to CCA rates will be captured in a separate deferral account.
- c) It is not necessary to recalculate the 2007 actual capital costs given that the change in tax rates will be captured in separate deferral accounts.

UNION GAS LIMITED

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

Reference: Ex. A, Tab 1, Page 16

Question:

Line 5 refers to a "credit debit balance". Please confirm that this is actually a debit balance.

Response:

The \$0.187 million amount for 2006 DSM activity is a credit balance. The word "debit" should be deleted from Line 5.

UNION GAS LIMITED

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

Reference: Ex. A, Tab 1, Page 19

Question:

- a) *Please confirm that the Settlement Agreement in EB-2005-0520 dated May 15, 2006 states that "in the event that anticipated tax legislation changes are not implemented or if different legislated tax changes are implemented, the impact should be subject to deferral account treatment in 2007".*
 - b) *Please indicate where in the settlement agreement or in the Board's EB-2005-0520 decision, a reference is made to "enacted" tax legislation changes.*
 - c) *Assuming that the changes proposed in the March, 2007 federal budget applicable to the capital cost allowance rate increases for computer equipment, non-residential buildings and natural gas distribution pipelines are enacted sometime in 2008, is Union proposing to record an amount for 2007 for refund to customers at some point in the future? If not, why not?*
 - d) *Please confirm that the 2007 impact of the CCA changes is \$1,000,436 as filed by Union in EB-2007-0606 at Exhibit C3/CI6/C33.28. If this cannot be confirmed, please provide a similar table showing the calculation of the different amount.*
 - e) *Union is proposing to recover amounts in some deferral accounts prior to those accounts being finalized (LRAM, SSM) with any variance between the actual amount and the estimated amount being captured in the account in the future. Has Union considered a similar approach to the CCA rate change amount? In other words, Union could provide ratepayers with the \$1 million credit as part of this proceeding and record any variance between this amount and the actual amount assuming the CCA rate changes are not enacted for 2007 or some other rates are applicable to 2007. If not, why not?*
-

Response:

- a) Confirmed.
- b) The word "enacted" was not used in the EB-2005-0520 Decision and Settlement Agreement or Board Decision. In Union's view "enacted" and "implemented" have the same meaning.
- c) If the proposed CCA changes are enacted prior to disposition of the 2007 deferral account balances, Union will dispose of the CCA refund at the same time. If the CCA changes are enacted after the deferral account disposition Board Order, Union

Question: April 8, 2008

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will dispose of the CCA balance in 2009, with interest.

- d) Confirmed.
- e) The CCA balance will only be a credit to customers if the legislation is enacted. In Union's view, a deferral or account variance should not be disposed of if there is any uncertainty whether the balance exists or not. If Union disposed of the CCA balance and the proposed CCA legislation is not enacted, Union would have to recover the full amount from ratepayers in 2009.

The DSM balances, although unaudited, are known balances, and can be disposed, subject to a relatively small true-up.

UNION GAS LIMITED

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

Reference: Ex. A, Tab 1, Schedule 1, Page 1

Question:

Please confirm that the reference to line 28 in Note 3 should be to line 29.

Response:

Confirmed.

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Answer: April 18, 2008
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UNION GAS LIMITED

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

Reference: Ex. A, Tab 2, Page 1-5

Question:

Please confirm that all the proposed allocation factors used for the deferral and variance accounts are based on Board approved methodologies. If this cannot be confirmed, please provide the rationale for and description of any allocators that are not Board approved.

Response:

Confirmed.

Question: April 8, 2008
Answer: April 18, 2008
Docket: EB-2008-0034

UNION GAS LIMITED

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

Reference: Ex. A, Tab 2, Page 6-7

Question:

Given the current date, it is not likely that Union will be able to dispose of the 2007 deferral account balances over the April 1, 2008 to December 31, 2008 period for the general service M1, M2, Rate 01 and Rate 10 customers. Does Union propose to change the prospective period to July 1, 2008 to December 31, 2008? If so, does this present any problems for Union? If not, please provide a description of the revised disposition plan.

Response:

Please see response at Exhibit B1.10.

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UNION GAS LIMITED

Answer to Interrogatory from
City of Timmins

Reference: *Scope of the Application*

Question:

This application is for the disposition of the balances in the various gas supply related deferral accounts and the application states that the "balances were examined in each of Union's 4 QRAM applications in 2007" and goes on to say the "balances are subject to the Board's final approval."

- a) Would Union agree that the Board's examination of the balances in each of the QRAMs was mechanical and technical?*
 - b) Does Union agree that the Board's examination of the balances in this proceeding is qualitative and involves determination of the prudence of Union's activities that gave rise to the balances?*
 - c) If the answer to b) is yes, where is the evidence with regard to the prudence of Union's gas purchasing policies and actions which gave rise to these balances?*
-

Response:

- a) No.
- b) Yes.
- c) The evidence supporting gas supply-related deferral accounts is included in the quarterly QRAM filings.

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UNION GAS LIMITED

Answer to Interrogatory from
City of Timmins

The City of Timmins did not include a question 2.

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UNION GAS LIMITED

Answer to Interrogatory from
City of Timmins

Reference: UDC

Question:

We do not understand, in the evidence from P.3 and following, the evidence that speaks of UDC giving rise to “excess” supply. Our understanding of UDC- both “planned” and “unplanned”- is that it is excess contracted pipeline capacity that gives rise to demand charges from the transmission pipeline. The very term “unutilized” means that volumes that could have moved under contractual rights did not move.

- a) Is this a correct understanding?*
- b) When Union recites at page 5 of its evidence, and in the table below, that it “collected \$3.160 million in rates” does that mean that Union sold capacity and gas volumes?*
- c) If so what was the split between the two?*

Response:

- a) Yes. The term “unutilized” means Union did not flow gas on contracted pipeline capacity in order to balance supply and demand.
- b) No. The phrase “collected \$3.160 million in rates” referred to the amount of cost recovered from customers through the distribution rates in 2007 for UDC.
- c) N/A.

UNION GAS LIMITED

Answer to Interrogatory from
City of Timmins

Reference: *Weather related UDC*

Question:

Please remind us why Southern direct purchase customers are able to manage their supplies to meet their load balancing checkpoint targets and Northern direct purchase customers are not.

Response:

The operational capabilities of the system in the Northern and Eastern operations area are different than the operational capabilities in the Southern operations area. For this reason Union manages upstream transportation on behalf of the Northern and Eastern bundled-t customers.

Northern bundled-t customers can choose to manage their own transportation by opting for the North T service, which is similar to the Southern bundled-t customers in that the customer can manage their own supply and upstream transportation.

UNION GAS LIMITED

Answer to Interrogatory from
City of Timmins

Reference: *Ex. A Tab 1 Sch. 1*

Question:

Are the PGVA amounts for the South (\$98,140) and the North (\$14,760.) directly related to the volumes involved (i.e. are the unit #s the same when the amount involved is divided by the total volumes involved) or are there other factors at play and if so what are they?

Response:

The unit cost of gas is not the same in the South PGVA as the North PGVA. The South PGVA balance of (\$98,140) includes the deferred costs of the gas supply as well as upstream transportation. The North PGVA balance of (\$14,760) includes the deferred costs of the gas supply only. Transportation deferred costs are recorded in a separate account. The unit cost of gas is not the same in the South PGVA as the North PGVA.

UNION GAS LIMITED

Answer to Interrogatory from
City of Timmins

Reference: Ex. A Tab 2 p.3

Question:

At line 18 Union states: "Union proposes that the balance be allocated to customers in the Northern and Eastern Operations area (by virtue of their use of transportation systems in the Southern Operations area) (emphasis added). Our understanding was that Union's position, when it came to determination of gas costs and transportation costs, was that the Northern and Eastern regions could not and did not make use of the Southern transportation systems. Is our understanding incorrect or is there a contradiction here?"

Response:

The Northern and Eastern operations area use storage and transmission assets in the Southern operations area for load balancing.

UNION GAS LIMITED

Answer to Interrogatory from
City of Timmins

Reference: *Ex. A Tab 3*

Question:

- a) Please confirm that, in accordance with Union's approach in the past, any costs associated with the Trunkline and Panhandle contract, if its renewal is approved by the Board, will be assigned solely to Union's Southern region.*
- b) Are we correct in anticipating that, if the costs involved are lower than the transportation costs that are involved in determining the costs for transportation to the North in Union's system, that lower cost will be reflected in the South Purchase Gas Variation Account?*
- c) Is this costing approach based on Union's position that the gas and transportation it procures for its Southern system cannot be made available to the Northern/Eastern system?*

Response:

- a) On a planned basis, costs incurred relating to the Trunkline and Panhandle contracts are recovered solely from Southern customers, consistent with past practices.
- b) Transportation costs incurred in serving the Southern customers, whether they are greater or less than those incurred to serve the Northern and Eastern customers, are reflected in the South PGVA.
- c) This costing approach is used by Union because the Trunkline and Panhandle capacities are used, on a planned basis, to serve the Southern delivery area.

UNION GAS LIMITED

Answer to Interrogatory from
City of Timmins

Reference: Ex. A Tab 1 p.1

Question:

*Union confirms that it is **paying** 4.59% and 5.14% on the outstanding amounts in the various deferral accounts and this includes "inventory revaluations" (see Ex. A Tab 1 Sch.1 p1 line 4). At the same time we understand that in EB-2005-0520 and in the most recent settlement approved by Board's Jan. 17/08 Union is **earning** its overall rate of return of more than 8% on all items of rate base and that this includes the gas inventory. Please reconcile.*

Response:

The interest rates applicable to deferral and variance account balances are not related to the return on equity which Union earns on rate base.

Question: April 10, 2008

Answer: April 18, 2008

Docket: EB-2008-0034