CASCADE NATURAL GAS CORPORATION®
A Subsidiary of MDU Resources Group, Inc.

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July 1, 2014

Steven V. King
Executive Director and Secretary
Washington Utilities & Transportation Commission
P.O. Box 47250
Olympia, WA 98504-7250

RE: Conservation Report for CY13

Dear Mr. King:

As an informational filing following the expiration of the Decoupling Mechanism and Annual Reporting requirement associated with **Docket UG-060256 Order 06**, Cascade Natural Gas Corporation hereby submits an Annual Conservation Achievement Report for Calendar Year 2013. This report includes documentation of the Company's CY13 therm savings achievements and program expenditures.

Any questions regarding this document should be directed to Monica Cowlishaw, Supervisor Conservation, at (360)-788-2357 or monica.cowlishaw@cngc.com.

Sincerely,

Michael Parvinen
Director, Regulatory Affairs

Attachments

Cascade Natural Gas Corporation
Annual Conservation Achievement Report
Calendar Year 2013

Background

On October 1, 2007 the Washington Utilities and Transportation Commission (WUTC) approved an addendum to Cascade Natural Gas's Conservation Alliance Plan (CAP) and associated Decoupling Pilot, which was developed in compliance with the Commission's Order 06 in Docket UG-060256. As part of this addendum, the Company agreed to submit "an annual report to the Commission on the achievement of the Calendar year therm savings target, along with its Commission Basis results of operations report". Since that time, the Company has submitted an annual report no later than March 31 of each year, to report prior years' conservation achievements and associated CAP deferrals. As of October 1, 2010, the Pilot Decoupling Mechanism and accompanying Conservation Plan, approved by the WUTC on October 1, 2007, are no longer in effect. Per its commitment in the 2010 Annual Conservation Report, the Company has voluntary continued this reporting with the WUTC, submitting its conservation achievements by July 1st of the following program year. In the event the reporting format or timing needs to be adjusted, the Company will notify Commission Staff prior to filing.

All other planning associated with the Company's Conservation Programs can be found within the Demand Side Management (DSM) section of our Integrated Resource Plan (IRP), the traditional vehicle for such planning. The IRP includes a full assessment of the Company's DSM/Conservation potential, a description/summary of targets and measures to achieve these potentials, as well as all additional details described in the Company's 2012 IRP Action Plan.

Please Note: Program achievements for 2013 have been assessed based on a long term discount rate of 4.17%. This is the standard number that has been consistently used by Cascade for the purposes of program reporting. A lower, bond-rate discount will be applied to measures in the residential sector valued under the Total Resource Cost test, per the Policy Statement found in Docket UG-121207. Additionally, this year's report includes discrete non-energy benefits in an attempt to approach the value of energy efficiency measures in a more nuanced manner for our residential programs, as opposed to a simple 10% across-the-board adder. These benefits have the greatest impact on the TRC. For the purposes of program valuation and the continuation of robust, multi-faceted energy conservation programs, Cascade will be utilizing the Utility Cost/Program Administrator Cost test as is allowed under UG-121207.

Summary of 2013 Program Achievements

Residential and Commercial

In Calendar Year 2013, Cascade Natural Gas Corporation has achieved a deemed therm savings of **174,836** in its **residential** program. This is 94% of the Company's projected savings and a decrease of approximately 3,300 therms from the previous year when the 2012 "true-up" is incorporated. Cascade achieved a deemed therm savings of **288,079** in its **commercial** program. This is 90% of the Company's projected savings and a decrease of approximately 71,000 therms below the level from the prior year. The decrease in the commercial-industrial was due to natural fluctuations in the number of large active conservation projects initiated by our Commercial & Industrial customers this cycle.

Programmatic achievements in the C&I sector are extremely dependent upon a small but critical number of deep therm-savings projects. The CNGC conservation team has become increasingly

successful in identifying these opportunities and encouraging customers to pursue aggressive conservation projects in partnership with the Cascade Conservation Incentive Program (CIP), local energy services companies, and other programs. However, it is ultimately the decision of the customer as to whether or not they will move forward with a project. In addition, some projects may stretch beyond the program year in which they were started. In such cases, the Company ends up building a queue of projects with deep energy savings that will come to completion in future years.

It is anticipated 2014 will yield significantly higher savings in the C&I sector with several major projects now coming to fruition. This includes a substantial project from a repeat CIP customer who is pleased with the results of previous work recommended by Cascade. Their new project should yield approximately 229,000 therms alone. Two additional projects at a college, and a nursery should yield over 32,000, and 14,000 therms respectively. These savings will be achieved in addition to typical prescriptive projects throughout the course of the year. It is important to recognize the number and impact generated by custom conservation projects will continue to vary each year, but the Company remains committed to seeing all possible opportunities for deeper energy savings throughout our service area.

Table A: 2013 Program Achievements

Totals	**Residential**	**Energy Kits**	**Commercial**	**Total**
Therms Achieved	**174,836**	**4,911**	**288,079**	**467,826**
Measures Installed	671,915 *(including units of insulation)*	195	149	672,259
Customers Served	1812	195	118	2,125
Carbon Offset (CO2 avoided)	2,035,091 lbs	57,164 lbs	3,353,240 lbs	5,445,495 lbs

Table B: 2013 Residential/Commercial Programmatic Costs and Rebates

Total Costs	**Residential**	**Commercial**
Incentives Paid	$553,358.05	$467,772
Programmatic Costs	$494,493.97	$711,229.41
EM&V/Nexant Study	$103,140.93	

Costs of the Nexant study have been separated out from Programmatic Costs for the purposes of assessing program cost-effectiveness for CY 2013.

Low Income

The Company's Low Income Conservation Program held onto a large portion of its therm achievements and number of customers served despite the ramp-down and exhaustion of the ARRA funds as noted in our 2012 Conservation Achievement Report. In 2013 the program achieved **14,960** therms saved with a total of 38 homes served. These achievements are further evidence of the Low Income Agencies dedication to utilizing these leveraged funds to serve as many homes as possible. A challenge in 2014 will be to continue this momentum in light of the reduction of available federal funding, primarily USDOE WAP funds, and the reduction in potential rebate funds available under the Company program caused by the reflection of our declining avoided costs in program payments. Cascade is a strong supporter of the Low Income

Weatherization Assistance Program and will be examining alternative models to allow greater flexibility in program funding moving forward. Future changes will likely be based from the CNGC Conservation Achievement Tariff, a Company pilot currently operating in the State of Oregon. The CAT was designed in consultation with low income agencies and advocates to bridge the gap between what can be funded under traditional energy efficiency cost-effectiveness parameters and the total installed and administrative costs of weatherization work performed.

Table C: 2013 Low Income Programmatic Achievements

Totals	**Low Income**
Therms Achieved	14,960
Measures Installed	144
Customers Served	38
Carbon Offset (Co2 Avoided)	174,134 lbs

Table D: 2013 Low Income Programmatic Costs

Total Costs	**Low Income**
Incentives Paid	$140,718
Programmatic Costs	$35,819

Potential Assessment Update for Residential and Commercial Programs

In 2013/14 Cascade hired Nexant to perform a comprehensive reassessment of its conservation program potential in the state of Washington. The primary goal of the study was to develop a comprehensive assessment of technical and achievable potential for natural gas energy efficiency within Cascade's Washington service territory for customers on Rate Schedules 503, 504, 505, 511, 570 & 577. The Nexant study performed in 2013/14 also integrated a detailed evaluation and measure savings review of Cascade's conservation portfolio. The study did not address program potential directly, but Nexant did provide the Company with a comprehensive potential calculation tool—the TEAPOT (Technical, Economic, Achievable Potential) model through which portfolios and targets can be developed by the Company and narrowed down to programmatically viable portfolios. Portfolios are then screened against the Company's cost-effectiveness calculation and program planning tools.

Key objectives of this study included:

- Providing credible and transparent estimations of the technical and achievable energy efficiency potential by year over the next 21 years (2014-2034) within Cascade's Washington service territory;
- Assessing and validating therm savings associated with the key measures that qualified for, and received, a conservation incentive in the 2012 program year, and applying findings to determine realistic therm savings potential in Cascade's Washington service area;
- Providing a user friendly, executable dynamic model to support the potential assessment and allow for testing of sensitivity of all model inputs and assumptions;
- Developing a final report including summary data tables and graphs reporting incremental and cumulative potential by year from 2014 through 2034.

A thorough review of Cascade's past evaluated therm savings associated with its DSM programs provided critical feedback to Cascade's DSM team and helped provide important baseline savings and participation data that will inform our conservation efforts moving forward. Based on the findings of the EM&V review, Cascade has made minor adjustments to its therm savings to residential sector water heaters and furnaces. Nexant found higher efficiency equipment was being installed in residential homes than the minimum threshold mandated by the Company in order to qualify for a conservation incentive. In other words, while Cascade was providing incentives for .64 water heaters, and .90 furnaces, customers were actually purchasing equipment of a slightly higher efficiency level. This, and conservative estimations on the part of the Company, caused the need for an upward adjustment to claimed savings. Minor differences were also noticed between Cascade's claimed therm savings and EM&V findings for furnace and boiler measures for the commercial and industrial program but the confidence levels for these findings were too low to warrant adjustments at this time.

Residential program measure adjustments will apply to the 2012 program year retroactively in the form of a true-up (see "2012 True-Up" below). The adjustments have also been applied to key furnace and water heater measures in the residential portfolio in CY 2013. Cascade also plans on submitting revised program offerings to the WUTC to continue to grow its conservation portfolio and to move towards more aggressive equipment standards.

We will continue to adapt our programs in order to balance cost-effectiveness and participation outcomes and will confer with our Conservation Advisory Group as appropriate.

Participation Summary

A full breakdown of therm savings, total resource costs, and utility costs by all measures and programs for the 2013 program year can be found in Appendix A.

Updates to CY12 Program Achievements

Table E: 2012 Residential/Commercial Therm Savings True-up

Due to the EM&V study conducted by Nexant, Cascade has made the following adjustments to its claimed therm savings in the residential sector for Calendar Year 2012. Please note, we have also added in an additional five rebates that were completed after our achievement report was submitted in 2013, but were installed in 2012. These additional measures consist of two 90% AFUE furnace installs in existing homes, one 90% furnace install in a new home, an ENERGY STAR® home incentive and an additional 510 sq.ft. of floor insulation.

Totals	**Residential**	**Energy Kits**	**Commercial**	**Total**
Therms Achieved	**177,903**	**1,427**	**359,003**	**536,419**
Measures Installed	624,510 *(including units of insulation)*	51	127	624,123
Customers Served	1395	51	117	1563
Carbon Offset (CO2 avoided)	2,070,791 lbs	16,610 lbs	4,178,795 lbs	6,266,196 lbs

Appendix B provides the updated therm savings, total resource costs and utility costs by measure for the residential program calendar year 2012 and full portfolio summary.

CASCADE NATURAL GAS CORPORATION
Program Participant Cost Effectiveness Estimate Summary

PROGRAM	MEASURES	TOTAL ANNUAL THERM SAVINGS	TOTAL INCREMENTAL COSTS	NON-ENERGY BENEFITS	WEIGHTED MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	TOTAL PROGRAM REBATE	PROGRAM UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO		PROGRAM TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
RESIDENTIAL (includes units of insulation)	671,915	174,836	$ 1,715,789.88	$ 689,322.30	26.12	2,608,890	$ 494,493.97	$ 553,358.05	0.212	$ 0.402	1.256		$ 0.393	$ 0.583	0.866
COMMERCIAL	149	288,079	$ 1,382,610.17	$ 138,261.02	16.94	3,339,161	$ 711,229.41	$ 467,772.00	0.140	$ 0.353	1.295		$ 0.373	$ 0.586	0.781
TOTAL	672,064	462,915	$ 3,098,400.05	$ 827,583.32	20.41	5,948,051	$ 1,205,723.38	$ 1,021,130.05	$ 0.172	$ 0.374	1.283		$ 0.382	$ 0.584	0.822

PROGRAM	MEASURES	TOTAL ANNUAL THERM SAVINGS	TOTAL INCREMENTAL COSTS	NON-ENERGY BENEFITS	WEIGHTED MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	TOTAL PROGRAM REBATE	PROGRAM UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO		PROGRAM TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
LOW INCOME	144	14,960	$ 223,537.00	$ 22,354.00	26.49	234,768	$ 35,819.00	$ 140,718.00	0.599	$ 0.752	0.638		$ 0.857	$ 1.010	0.475

Nominal interest rate (post tax cost of cap.)	7.63%
Inflation rate	3.32%
Long term real discount rate	4.17%

As noted in our CY12 report, the Company has devised a more intuitive and focused approach for measuring non-energy benefits, as opposed to previous methods where they were calculated as a blanket 10% for yearly achievements. This approach has been applied to CY13 for the residential program. The company is currently performing a non-energy benefits analysis on the commercial/industrial side and will use this same method in future years, however for this year it still utilizes the 10% Non-Energy Benefits for the Commercial CIP.

Program Year:
2013

CASCADE NATURAL GAS CORPORATION
RESIDENTIAL Program Participant Cost Effectiveness

MEASURE	ZONE	EFFICIENCY RATING	PARTICIPANTS	MEASURES INSTALLED	ANNUAL THERM SAVINGS	TOTAL ANNUAL THERM SAVINGS	MEASURE INCREMENTAL COST	SOCIETAL NEBS	PARTICIPANT NEBS	TOTAL INCREMENTAL COST	TOTAL NET INCREMENTAL COST WITH NEBS	MEASURE LIFE	TRC DISCOUNTED THERM SAVINGS	UCT DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	PROGRAM REBATE	TOTAL REBATES COST	UTILITY COST	UC W/DELIVERY & ADMIN	LOADED UTILITY BENEFIT TO COST RATIO	TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	LOADED SOCIETAL BENEFIT TO COST RATIO
Energy * Certified Home (BOP 1)(Dis	1	90% AFUE Rating	0	0	102	0	$ 1,000.00	$ 248.89	$ 436.19	$ -	$ -	30	0	0	$ -	$ 350.00	$ -	$ -	$ -	-	$ -	$ -	-
Energy * Certified Home (BOP 1) (Di	2	90% AFUE Rating	0	0	95	0	$ 1,000.00	$ 231.81	$ 430.55	$ -	$ -	30	0	0	$ -	$ 350.00	$ -	$ -	$ -	-	$ -	$ -	-
Energy * Certified Home (BOP 1) (Di	3	90% AFUE Rating	18	18	126	2,268	$ 1,000.00	$ 307.45	$ 455.50	$ 18,000.00	$ 4,266.84	30	38,421	38,421	$ 6,414.65	$ 350.00	$ 6,300.00	$ 0.164	$ 0.331	1.446	$ 0.111	$ 0.278	1.465
Energy * Certified Home (BOP 1) **Pos**	1	92% AFUE Rating	0	0	125	0	$ 1,600.00	$ 305.01	$ 514.69	$ -	$ -	30	0	0	$ -	$ 550.00	$ -	$ -	$ -	-	$ -	$ -	-
Energy * Certified Home (BOP 1) **Pos**	2	92% AFUE Rating	0	0	115	0	$ 1,600.00	$ 280.61	$ 506.65	$ -	$ -	30	0	0	$ -	$ 550.00	$ -	$ -	$ -	-	$ -	$ -	-
Energy * Certified Home (BOP 1) **Pos**	3	92% AFUE Rating	29	29	152	4,408	$ 1,600.00	$ 370.90	$ 536.42	$ 46,400.00	$ 20,087.78	30	74,674	74,674	$ 12,467.28	$ 550.00	$ 15,950.00	$ 0.214	$ 0.381	1.258	$ 0.269	$ 0.436	0.934
Energy * Plus Certified Home	1	Federal Tax Credit Eligible	0	0	235	0	$ 3,700.00	$ 573.43	$ 813.21	$ -	$ -	30	0	0	$ -	$ 750.00	$ -	$ -	$ -	-	$ -	$ -	-
Energy * Plus Certified Home	2	Federal Tax Credit Eligible	0	0	221	0	$ 3,700.00	$ 539.27	$ 801.94	$ -	$ -	30	0	0	$ -	$ 750.00	$ -	$ -	$ -	-	$ -	$ -	-
Energy * Plus Certified Home	3	Federal Tax Credit Eligible	3	3	296	888	$ 3,700.00	$ 722.27	$ 862.29	$ 11,100.00	$ 6,346.30	30	15,043	15,043	$ 2,511.56	$ 750.00	$ 2,250.00	$ 0.150	$ 0.317	1.512	$ 0.422	$ 0.589	0.692
95% AFUE Gas Furn Upgrade E* (Pre	1	95% AFUE Rating	3	3	124	372	$ 1,000.00	$ 302.57	$ 199.78	$ 3,000.00	$ 1,492.94	30	6,302	6,302	$ 1,052.14	$ 150.00	$ 450.00	$ 0.071	$ 0.238	2.008	$ 0.237	$ 0.404	1.008
95% AFUE Gas Furn Upgrade E* (Pre	2	95% AFUE Rating	1	1	118	118	$ 1,000.00	$ 287.93	$ 194.95	$ 1,000.00	$ 517.11	30	1,999	1,999	$ 333.74	$ 150.00	$ 150.00	$ 0.075	$ 0.242	1.978	$ 0.259	$ 0.426	0.957
95% AFUE Gas Furn Upgrade E* (Pre	3	95% AFUE Rating	20	20	142	2,840	$ 1,000.00	$ 346.50	$ 214.26	$ 20,000.00	$ 8,784.79	30	48,111	48,111	$ 8,032.46	$ 150.00	$ 3,000.00	$ 0.062	$ 0.229	2.087	$ 0.183	$ 0.350	1.165
95% AFUE Gas Furn Upgrade E* **Pos**	1	95% AFUE Rating	0	0	124	0	$ 900.00	$ 302.57	$ 443.89	$ -	$ -	30	0	0	$ -	$ 200.00	$ -	$ -	$ -	-	$ -	$ -	-
95% AFUE Gas Furn Upgrade E* **Pos**	2	95% AFUE Rating	0	0	118	0	$ 900.00	$ 287.93	$ 439.06	$ -	$ -	30	0	0	$ -	$ 200.00	$ -	$ -	$ -	-	$ -	$ -	-
95% AFUE Gas Furn Upgrade E* **Pos**	3	95% AFUE Rating	29	29	142	4,118	$ 900.00	$ 346.50	$ 458.37	$ 26,100.00	$ 2,758.77	30	69,762	69,762	$ 11,647.06	$ 200.00	$ 5,800.00	$ 0.083	$ 0.250	1.913	$ 0.040	$ 0.207	1.972
90% Furnace & PTCS Duct Sealing	1	90% AFUE Rating	3	3	122	366	$ 1,250.00	$ 247.42	$ 202.58	$ 3,750.00	$ 2,400.00	20	4,900	4,900	$ 1,035.17	$ 400.00	$ 1,200.00	$ 0.245	$ 0.456	1.010	$ 0.490	$ 0.701	0.584
90% Furnace & PTCS Duct Sealing	2	90% AFUE Rating	8	8	112	896	$ 1,250.00	$ 227.14	$ 196.22	$ 10,000.00	$ 6,613.11	20	11,996	11,996	$ 2,534.18	$ 400.00	$ 3,200.00	$ 0.267	$ 0.478	0.963	$ 0.551	$ 0.763	0.537
90% Furnace & PTCS Duct Sealing	3	90% AFUE Rating	6	6	143	858	$ 1,250.00	$ 290.01	$ 215.94	$ 7,500.00	$ 4,464.34	20	11,487	11,487	$ 2,426.71	$ 400.00	$ 2,400.00	$ 0.209	$ 0.420	1.096	$ 0.389	$ 0.600	0.682
PTCS Duct Sealing (discontinue May	1	PTCS Certified Duct Sealing	1	1	88	88	$ 800.00	$ 178.46	$ 135.96	$ 800.00	$ 485.57	20	1,178	1,178	$ 248.89	$ 150.00	$ 150.00	$ 0.127	$ 0.339	1.360	$ 0.412	$ 0.623	0.657
PTCS Duct Sealing (discontinue May	2	PTCS Certified Duct Sealing	3	3	77	231	$ 800.00	$ 156.16	$ 128.97	$ 2,400.00	$ 1,544.63	20	3,093	3,093	$ 653.34	$ 150.00	$ 450.00	$ 0.146	$ 0.357	1.291	$ 0.499	$ 0.711	0.576
PTCS Duct Sealing (discontinue May	3	PTCS Certified Duct Sealing	4	4	113	452	$ 800.00	$ 229.17	$ 151.86	$ 3,200.00	$ 1,675.90	20	6,051	6,051	$ 1,278.41	$ 150.00	$ 600.00	$ 0.099	$ 0.310	1.484	$ 0.277	$ 0.488	0.839
90% AFUE New Gas Furnace (New)	1	90% AFUE Rating	20	20	65	1,300	$ 500.00	$ 125.02	$ 88.55	$ 10,000.00	$ 5,728.57	18	16,232	16,232	$ 3,676.83	$ 150.00	$ 3,000.00	$ 0.185	$ 0.411	1.120	$ 0.353	$ 0.579	0.707
90% AFUE New Gas Furnace (New)	2	90% AFUE Rating	7	7	61	427	$ 500.00	$ 117.33	$ 86.18	$ 3,500.00	$ 2,075.46	18	5,332	5,332	$ 1,207.70	$ 150.00	$ 1,050.00	$ 0.197	$ 0.423	1.088	$ 0.389	$ 0.616	0.665
90% AFUE New Gas Furnace (New)	3	90% AFUE Rating	22	22	81	1,782	$ 500.00	$ 155.79	$ 98.04	$ 11,000.00	$ 5,415.62	18	22,250	22,250	$ 5,040.08	$ 150.00	$ 3,300.00	$ 0.148	$ 0.375	1.229	$ 0.243	$ 0.470	0.871
90% AFUE New Gas Furnace (Existin	1	90% AFUE Rating	141	142	81	11,502	$ 800.00	$ 155.79	$ 128.04	$ 113,600.00	$ 73,295.37	18	143,616	143,616	$ 32,531.45	$ 150.00	$ 21,300.00	$ 0.148	$ 0.375	1.229	$ 0.510	$ 0.737	0.556
90% AFUE New Gas Furnace (Existin	2	90% AFUE Rating	47	47	75	3,525	$ 800.00	$ 144.25	$ 124.48	$ 37,600.00	$ 24,969.38	18	44,014	44,014	$ 9,969.86	$ 150.00	$ 7,050.00	$ 0.160	$ 0.387	1.191	$ 0.567	$ 0.794	0.516
90% AFUE New Gas Furnace (Existin	3	90% AFUE Rating	59	59	99	5,841	$ 800.00	$ 190.42	$ 138.72	$ 47,200.00	$ 27,781.20	18	72,932	72,932	$ 16,520.28	$ 150.00	$ 8,850.00	$ 0.121	$ 0.348	1.324	$ 0.381	$ 0.607	0.674
95% AFUE New Gas Furnace (New &	1	95% AFUE Rating	327	327	100	32,700	$ 1,200.00	$ 192.34	$ 366.60	$ 392,400.00	$ 209,626.26	18	408,297	408,297	$ 92,486.39	$ 250.00	$ 81,750.00	$ 0.200	$ 0.427	1.079	$ 0.513	$ 0.740	0.553
95% AFUE New Gas Furnace (New &	2	95% AFUE Rating	94	95	95	9,025	$ 1,200.00	$ 182.72	$ 363.64	$ 114,000.00	$ 62,095.93	18	112,688	112,688	$ 25,525.68	$ 250.00	$ 23,750.00	$ 0.211	$ 0.437	1.053	$ 0.551	$ 0.778	0.526
95% AFUE New Gas Furnace (New &	3	95% AFUE Rating	149	149	122	18,178	$ 1,200.00	$ 234.65	$ 379.65	$ 178,800.00	$ 87,268.73	18	226,973	226,973	$ 51,413.38	$ 250.00	$ 37,250.00	$ 0.164	$ 0.391	1.179	$ 0.384	$ 0.611	0.670
80% AFUE Hearth (Pre May 10, 2013	1	80% AFUE Rating	1	1	80	80	$ 400.00	$ 162.24	$ 90.87	$ 400.00	$ 146.88	20	1,071	1,071	$ 226.27	$ 70.00	$ 70.00	$ 0.065	$ 0.277	1.665	$ 0.137	$ 0.348	1.175
80% AFUE Hearth (Pre May 10, 2013	2	80% AFUE Rating	1	1	80	80	$ 400.00	$ 162.24	$ 90.87	$ 400.00	$ 146.88	20	1,071	1,071	$ 226.27	$ 70.00	$ 70.00	$ 0.065	$ 0.277	1.665	$ 0.137	$ 0.348	1.175
80% AFUE Hearth (Pre May 10, 2013	3	80% AFUE Rating	0	0	80	0	$ 400.00	$ 162.24	$ 90.87	$ -	$ -	20	0	0	$ -	$ 70.00	$ -	$ -	$ -	-	$ -	$ -	-
80% AFUE Hearth **(Post May 10, 201**	1	80% AFUE Rating	3	3	80	240	$ 600.00	$ 162.24	$ 311.69	$ 1,800.00	$ 378.19	20	3,213	3,213	$ 678.80	$ 300.00	$ 900.00	$ 0.280	$ 0.491	0.937	$ 0.118	$ 0.329	1.244
80% AFUE Hearth **(Post May 10, 201**	2	80% AFUE Rating	1	1	80	80	$ 600.00	$ 162.24	$ 311.69	$ 600.00	$ 126.06	20	1,071	1,071	$ 226.27	$ 300.00	$ 300.00	$ 0.280	$ 0.491	0.937	$ 0.118	$ 0.329	1.244
80% AFUE Hearth **(Post May 10, 201**	3	80% AFUE Rating	4	4	80	320	$ 600.00	$ 162.24	$ 311.69	$ 2,400.00	$ 504.26	20	4,284	4,284	$ 905.07	$ 300.00	$ 1,200.00	$ 0.280	$ 0.491	0.937	$ 0.118	$ 0.329	1.244
70% FE Hearth	1	70 % FE Rating	43	43	56	2,408	$ 425.00	$ 113.57	$ 278.93	$ 18,275.00	$ 1,397.46	20	32,238	32,238	$ 6,810.62	$ 200.00	$ 8,600.00	$ 0.267	$ 0.478	0.963	$ 0.043	$ 0.255	1.608
70% FE Hearth	2	70 % FE Rating	9	9	56	504	$ 425.00	$ 113.57	$ 278.93	$ 3,825.00	$ 292.49	20	6,748	6,748	$ 1,425.48	$ 200.00	$ 1,800.00	$ 0.267	$ 0.478	0.963	$ 0.043	$ 0.255	1.608
70% FE Hearth	3	70 % FE Rating	8	8	56	448	$ 425.00	$ 113.57	$ 278.93	$ 3,400.00	$ 259.99	20	5,998	5,998	$ 1,267.09	$ 200.00	$ 1,600.00	$ 0.267	$ 0.478	0.963	$ 0.043	$ 0.255	1.608
Ceiling Insulation (Pre May 10, 2013)	1	Equal to or Greater than R-38	27	28969	0.057	1,651	$ 0.57	$ 0.16	$ 0.11	$ 16,512.33	$ 16,504.99	45	33,299	33,299	$ 4,670.23	$ 0.25	$ 7,242.25	$ 0.217	$ 0.358	1.344	$ 0.496	$ 0.636	0.630
Ceiling Insulation (Pre May 10, 2013)	2	Equal to or Greater than R-38	12	12859	0.055	707	$ 0.56	$ 0.15	$ 0.11	$ 7,201.04	$ 7,197.88	45	14,262	14,262	$ 2,000.32	$ 0.25	$ 3,214.75	$ 0.225	$ 0.366	1.315	$ 0.505	$ 0.645	0.621
Ceiling Insulation (Pre May 10, 2013)	3	Equal to or Greater than R-38	35	45513	0.065	2,958	$ 0.57	$ 0.18	$ 0.12	$ 25,942.41	$ 25,931.83	45	59,659	59,659	$ 8,367.18	$ 0.25	$ 11,378.25	$ 0.191	$ 0.331	1.453	$ 0.435	$ 0.575	0.697
Ceiling Insulation **(Post May 10, 2013**	1	Equal to or Greater than R-38	70	81570	0.057	4,649	$ 0.67	$ 0.16	$ 302.62	$ 54,651.90	$ 33,457.59	45	93,763	93,763	$ 13,150.29	$ 0.30	$ 24,471.00	$ 0.261	$ 0.401	1.199	$ 0.357	$ 0.497	0.806
Ceiling Insulation **(Post May 10, 2013**	2	Equal to or Greater than R-38	29	35994	0.055	1,980	$ 0.67	$ 0.15	$ 302.61	$ 24,115.98	$ 15,335.70	45	39,923	39,923	$ 5,599.16	$ 0.30	$ 10,798.20	$ 0.270	$ 0.411	1.171	$ 0.384	$ 0.524	0.764
Ceiling Insulation **(Post May 10, 2013**	3	Equal to or Greater than R-38	57	78358	0.065	5,093	$ 0.67	$ 0.18	$ 302.62	52499.86	$ 35,239.91	45	102712.2009	102712.2009	14405.44796	$ 0.30	$ 23,507.40	$ 0.229	$ 0.369	1.303	$ 0.343	$ 0.483	0.829
Floor Insulation	1	al to or Greater than R-30 or to fill ca	153	175485	0.057	10,003	$ 0.57	$ 0.16	$ 0.11	$ 100,026.45	$ 99,984.83	45	201,716	201,716	$ 28,290.78	$ 0.45	$ 78,968.25	$ 0.391	$ 0.532	0.904	$ 0.496	$ 0.636	0.630
Floor Insulation	2	al to or Greater than R-30 or to fill ca	39	42102	0.055	2,316	$ 0.56	$ 0.15	$ 0.11	$ 23,577.12	$ 23,566.84	45	46,697	46,697	$ 6,549.31	$ 0.45	$ 18,945.90	$ 0.406	$ 0.546	0.881	$ 0.505	$ 0.645	0.621
Floor Insulation	3	al to or Greater than R-30 or to fill ca	54	59849	0.065	3,890	$ 0.57	$ 0.18	$ 0.12	$ 34,113.93	$ 34,097.61	45	78,450	78,450	$ 11,002.73	$ 0.45	$ 26,932.05	$ 0.343	$ 0.484	0.995	$ 0.435	$ 0.575	0.697
Wall Insulation	1	ual to or Greater than R-11 to fill cav	50	53711	0.067	3,599	$ 0.66	$ 0.19	$ 0.13	$ 35,449.26	$ 35,433.32	45	72,571	72,571	$ 10,178.13	$ 0.40	$ 21,484.40	$ 0.296	$ 0.436	1.102	$ 0.488	$ 0.629	0.638
Wall Insulation	2	ual to or Greater than R-11 to fill cav	12	8846	0.065	575	$ 0.67	$ 0.18	$ 0.13	$ 5,926.82	$ 5,923.07	45	11,595	11,595	$ 1,626.26	$ 0.40	$ 3,538.40	$ 0.305	$ 0.445	1.080	$ 0.511	$ 0.651	0.616
Wall Insulation	3	ual to or Greater than R-11 to fill cav	46	47233	0.076	3,590	$ 0.66	$ 0.21	$ 0.14	$ 31,173.78	$ 31,157.56	45	72,391	72,391	$ 10,152.88	$ 0.40	$ 18,893.20	$ 0.261	$ 0.401	1.199	$ 0.430	$ 0.571	0.702
High Efficiency Combination Radiant	1	90% Eff Condensing Tankless Combo w/ WH	2	2	297	594	$ 2,500.00	$ 724.71	$ 488.99	$ 5,000.00	$ 2,572.59	30	10,063	10,063	$ 1,680.03	$ 800.00	$ 1,600.00	$ 0.159	$ 0.326	1.468	$ 0.256	$ 0.423	0.964
High Efficiency Combination Radiant	2	90% Eff Condensing Tankless Combo w/ WH	3	3	288	864	$ 2,500.00	$ 702.75	$ 481.75	$ 7,500.00	$ 3,946.50	30	14,637	14,637	$ 2,443.68	$ 800.00	$ 2,400.00	$ 0.164	$ 0.331	1.446	$ 0.270	$ 0.437	0.933
High Efficiency Combination Radiant	3	90% Eff Condensing Tankless Combo w/ WH	0	0	327	0	$ 2,500.00	$ 797.92	$ 513.13	$ -	$ -	30	0	0	$ -	$ 800.00	$ -	$ -	$ -	-	$ -	$ -	-
High Efficiency Combination Radiant	1	90% Eff Condensing Tankless Combo w/ WH	5	5	297	1,485	$ 2,500.00	$ 724.71	$ 743.10	$ 12,500.00	$ 5,160.93	30	25,157	25,157	$ 4,200.07	$ 1,000.00	$ 5,000.00	$ 0.199	$ 0.366	1.309	$ 0.205	$ 0.372	1.095
High Efficiency Combination Radiant	2	90% Eff Condensing Tankless Combo w/ WH	30	30	288	8,640	$ 2,500.00	$ 702.75	$ 735.86	$ 75,000.00	$ 31,841.70	30	146,367	146,367	$ 24,436.77	$ 1,000.00	$ 30,000.00	$ 0.205	$ 0.372	1.287	$ 0.218	$ 0.385	1.059
High Efficiency Combination Radiant	3	90% Eff Condensing Tankless Combo w/ WH	0	0	327	0	$ 2,500.00	$ 797.92	$ 767.24	$ -	$ -	30	0	0	$ -	$ 1,000.00	$ -	$ -	$ -	-	$ -	$ -	-
.64 Water Heater	1	0.64 Energy Factor or Greater	8	9	26	234	$ 185.00	$ 40.38	$ 29.98	$ 1,665.00	$ 1,031.80	12	2,175	2,175	$ 661.83	$ 40.00	$ 360.00	$ 0.166	$ 0.470	0.952	$ 0.474	$ 0.779	0.522
.64 Water Heater	2	0.64 Energy Factor or Greater	6	6	26	156	$ 185.00	$ 40.38	$ 29.98	$ 1,110.00	$ 687.87	12	1,450	1,450	$ 441.22	$ 40.00	$ 240.00	$ 0.166	$ 0.470	0.952	$ 0.474	$ 0.779	0.522
.64 Water Heater	3	0.64 Energy Factor or Greater	4	4	26	104	$ 185.00	$ 40.38	$ 29.98	$ 740.00	$ 458.58	12	966	966	$ 294.15	$ 40.00	$ 160.00	$ 0.166	$ 0.470	0.952	$ 0.474	$ 0.779	0.522
.91 Tankless Hot Water Heater (Pre M	1	0.91 Energy Factor or Greater	24	24	99	2,376	$ 1,000.00	$ 200.77	$ 162.96	$ 24,000.00	$ 15,270.48	20	31,810	31,810	$ 6,720.11	$ 200.00	$ 4,800.00	$ 0.151	$ 0.362	1.272	$ 0.480	$ 0.691	0.592
.91 Tankless Hot Water Heater (Pre M	2	0.91 Energy Factor or Greater	10	10	99	990	$ 1,000.00	$ 200.77	$ 162.96	$ 10,000.00	$ 6,362.70	20	13,254	13,254	$ 2,800.05	$ 200.00	$ 2,000.00	$ 0.151	$ 0.362	1.272	$ 0.480	$ 0.691	0.592
.91 Tankless Hot Water Heater (Pre M	3	0.91 Energy Factor or Greater	5	5	99	495	$ 1,000.00	$ 200.77	$ 162.96	$ 5,000.00	$ 3,181.35	20	6,627	6,627	$ 1,400.02	$ 200.00	$ 1,000.00	$ 0.151	$ 0.362	1.272	$ 0.480	$ 0.691	0.592
.91 Tankless Hot Water Heater **(Post M**	1	0.91 Energy Factor or Greater	57	57	99	5,643	$ 1,000.00	$ 200.77	$ 363.78	$ 57,000.00	$ 24,820.63	20	75,549	75,549	$ 15,960.27	$ 150.00	$ 8,550.00	$ 0.113	$ 0.324	1.420	$ 0.329	$ 0.540	0.758
.91 Tankless Hot Water Heater **(Post M**	2	0.91 Energy Factor or Greater	7	7	99	693	$ 1,000.00	$ 200.77	$ 363.78	$ 7,000.00	$ 3,048.15	20	9,278	9,278	$ 1,960.03	$ 150.00	$ 1,050.00	$ 0.113	$ 0.324	1.420	$ 0.329	$ 0.540	0.758
.91 Tankless Hot Water Heater **(Post M**	3	0.91 Energy Factor or Greater	3	3	99	297	$ 1,000.00	$ 200.77	$ 363.78	$ 3,000.00	$ 1,306.35	20	3,976	3,976	$ 840.01	$ 150.00	$ 450.00	$ 0.113	$ 0.324	1.420	$ 0.329	$ 0.540	0.758
Energy Saver Kit (Direct Distribution)	1	Low Flow Showerhead plus Aerators	0	0	17	0	$ 7.80	$ 15.86	$ 69.17	$ -	$ -	10	0	0	$ -	$ 7.80	$ -	$ -	$ -	-	$ -	$ -	-
Energy Saver Kit (Direct Distribution)	2	Low Flow Showerhead plus Aerators	0	0	17	0	$ 7.80	$ 15.86	$ 69.17	$ -	$ -	10	0	0	$ -	$ 7.80	$ -	$ -	$ -	-	$ -	$ -	-
Energy Saver Kit (Direct Distribution)	3	Low Flow Showerhead plus Aerators	0	0	17	0	$ 7.80	$ 15.86	$ 69.17	$ -	$ -	10	0	0	$ -	$ 7.80	$ -	$ -	$ -	-	$ -	$ -	-
Energy Saver Kit (Kit 1)	1	Low Flow Showerhead plus Aerators	23	23	17	391	$ 10.00	$ 15.86	$ 69.17	$ 230.00	$ -	10	3,145	3,145	$ 1,105.88	$ 10.00	$ 230.00	$ 0.073	$ 0.425	1.043	$ -	$ 0.352	1.146
Energy Saver Kit (Kit 1)	2	Low Flow Showerhead plus Aerators	5	5	17	85	$ 10.00	$ 15.86	$ 69.17	$ 50.00	$ -	10	684	684	$ 240.41	$ 10.00	$ 50.00	$ 0.073	$ 0.425	1.043	$ -	$ 0.352	1.146
Energy Saver Kit (Kit 1)	3	Low Flow Showerhead plus Aerators	53	53	17	901	$ 10.00	$ 15.86	$ 69.17	$ 530.00	$ -	10	7,246	7,246	$ 2,548.33	$ 10.00	$ 530.00	$ 0.073	$ 0.425	1.043	$ -	$ 0.352	1.146
Energy Saver Kit (Kit 2)	1	Low Flow Showerhead plus Aerators	52	52	31	1,612	$ 16.00	$ 28.92	$ 69.17	$ 832.00	$ -	10	12,965	12,965	$ 4,559.27	$ 16.00	$ 832.00	$ 0.064	$ 0.416	1.066	$ -	$ 0.352	1.146
Energy Saver Kit (Kit 2)	2	Low Flow Showerhead plus Aerators	17	17	31	527	$ 16.00	$ 28.92	$ 69.17	$ 272.00	$ -	10	4,238	4,238	$ 1,490.53	$ 16.00	$ 272.00	$ 0.064	$ 0.416	1.066	$ -	$ 0.352	1.146
Energy Saver Kit (Kit 2)	3	Low Flow Showerhead plus Aerators	45	45	31	1,395	$ 16.00	$ 28.92	$ 69.17	$ 720.00	$ -	10	11,220	11,220	$ 3,945.52	$ 16.00	$ 720.00	$ 0.064	$ 0.416	1.066	$ -	$ 0.352	1.146
TOTAL PROGRAM			**2007**	**671,915**		**174,836**				**$ 1,715,789.88**	**$ 1,026,467.58**	**26.12**	**2,608,890**	**2,608,890**	**$ 494,494**		**$ 553,358.05**	**$ 0.212**	**$ 0.402**	**1.257**	**$ 0.393**	**$ 0.583**	**0.866**

Program Year:
2013

CASCADE NATURAL GAS CORPORATION
COMMERCIAL Program Participant Cost Effectiveness

MEASURE	DESCRIPTION	EFFICIENCY TYPE FOR QUALIFICATION	ANNUAL THERM SAVINGS/UNIT	UNITS	UNITS INSTALLED	TOTAL ANNUAL THERM SAVINGS	MEASURE INSTALLED COST	TOTAL INSTALLED COST	NON-ENERGY BENEFITS (10% of cost)	MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	PROGRAM REBATE	UNITS	TOTAL REBATES COST	UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO	TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
HVAC Unit Heater	High-Efficiency Non-Condensing with Electronic Ignition	Minimum 86% AFUE	0.610	kBtu/hr	0.00	0.00	$ 6.72	$ -	$ -	18	0	$ -	$ 1.50	kBtu/hr	$ -	$ -	$ -	-	$ -	$ -	-
HVAC Unit Heater	High Efficiency Condensing	Minimum 92% AFUE	1.100	kBtu/hr	0.00	0.00	$ 6.72	$ -	$ -	18	0	$ -	$ 3.00	kBtu/hr	$ -	$ -	$ -	-	$ -	$ -	-
Warm Air Furnace	High Efficiency Condensing Furnace	Minimum 91% AFUE	1.100	kBtu/hr	1,711.66	1882.83	$ 6.72	$ 11,502	$ 1,150	18	23,509	$ 5,106.08	$ 3.00	kBtu/hr	$ 5,135	$ 0.218	$ 0.436	1.057	$ 0.440	$ 0.658	0.700
Radiant Heating	Direct Fired Radiant Heating	None	4.328	kBtu/hr	1,400.00	6059.20	$ 21.00	$ 29,400	$ 2,940	18	75,656	$ 16,432.10	$ 6.50	kBtu/hr	$ 9,100	$ 0.120	$ 0.337	1.365	$ 0.350	$ 0.567	0.812
Insulation-Attic	Attic Insulation (Tier 1 - Z1 &Z3)	Minimum R-30	0.399	sq. ft.	64,735.00	25829.27	$ 1.35	$ 87,392	$ 8,739	30	437,564	$ 70,047.03	$ 0.50	sq. ft.	$ 32,368	$ 0.074	$ 0.234	2.045	$ 0.180	$ 0.340	1.408
Insulation-Attic	Attic Insulation (Tier 1- Z2)	Minimum R-30	0.220	sq. ft.	5,780.00	1271.60	$ 1.35	$ 7,803	$ 780	30	21,542	$ 3,448.48	$ 0.50	sq. ft.	$ 2,890	$ 0.134	$ 0.294	1.626	$ 0.326	$ 0.486	0.985
Insulation-Attic	Attic Insulation (Tier 2 - Z1 &Z3)	Minimum R-45	0.407	sq. ft.	13,876.00	5647.53	$ 1.63	$ 22,618	$ 2,262	30	95,673	$ 15,315.68	$ 0.65	sq. ft.	$ 9,019	$ 0.094	$ 0.254	1.881	$ 0.213	$ 0.373	1.283
Insulation-Attic	Attic Insulation (Tier 2 - Z2)	Minimum R-45	0.230	sq. ft.	0.00	0.00	$ 1.63	$ -	$ -	30	0	$ -	$ 0.65	sq. ft.	$ -	$ -	$ -	-	$ -	$ -	-
Insulation-Roof	Roof Insulation (Tier 1 - Z1 & Z3)	Minimum R-21	0.450	sq. ft.	0.00	0.00	$ 1.83	$ -	$ -	30	0	$ -	$ 0.60	sq. ft.	$ -	$ -	$ -	-	$ -	$ -	-
Insulation-Roof	Roof Insulation (Tier 1 Z2)	Minimum R-30	0.250	sq. ft.	0.00	0.00	$ 1.83	$ -	$ -	30	0	$ -	$ 0.60	sq. ft.	$ -	$ -	$ -	-	$ -	$ -	-
Insulation-Roof	Roof Insulation (Tier 2 - Z1 & Z3)	Minimum R-21	0.460	sq. ft.	0.00	0.00	$ 2.15	$ -	$ -	30	0	$ -	$ 0.80	sq. ft.	$ -	$ -	$ -	-	$ -	$ -	-
Insulation-Roof	Roof Insulation (Tier 2- Z2)	Minimum R-30	0.253	sq. ft.	0.00	0.00	$ 2.15	$ -	$ -	30	0	$ -	$ 0.80	sq. ft.	$ -	$ -	$ -	-	$ -	$ -	-
Insulation-Wall	Wall Insulation (Tier 1- Z1 & Z3)	Minimum R-11	0.220	sq. ft.	0.00	0.00	$ 1.50	$ -	$ -	30	0	$ -	$ 0.30	sq. ft.	$ -	$ -	$ -	-	$ -	$ -	-
Insulation-Wall	Wall Insulation (Tier 1- Z2)	Minimum R-19	0.120	sq. ft.	0.00	0.00	$ 1.50	$ -	$ -	30	0	$ -	$ 0.30	sq. ft.	$ -	$ -	$ -	-	$ -	$ -	-
Insulation-Wall	Wall Insulation (Tier 2- Z1 & Z3)	Minimum R-11	0.243	sq. ft.	27,992.00	6802.06	$ 1.70	$ 47,586	$ 4,759	30	115,231	$ 18,446.67	$ 0.40	sq. ft.	$ 11,197	$ 0.097	$ 0.257	1.860	$ 0.372	$ 0.532	0.900
Insulation-Wall	Wall Insulation (Tier 2- Z2)	Minimum R-19	0.135	sq. ft.	4,280.00	577.80	$ 1.70	$ 7,276	$ 728	30	9,788	$ 1,566.95	$ 0.40	sq. ft.	$ 1,712	$ 0.175	$ 0.335	1.429	$ 0.669	$ 0.829	0.577
Domestic Hot Water Tanks	Condensing Tank	Minimum 91% AFUE or 91% Thermal Efficiency	5,322.80	kBtu/hr	0.790	4205.01	$ 6.06	$ 32,256	$ 3,226	15	46,202	$ 11,403.68	$ 2.50	kBtu/hr	$ 13,307	$ 0.288	$ 0.535	0.859	$ 0.628	$ 0.875	0.525
Domestic Tankless with electronic ignition (Old Tariff)	With Electric Ignition	Minimum 73.8% AFUE	21.700	gpm	0.00	0.00	$ 117.00	$ -	$ -	18	0	$ -	$ 40.00	gpm	$ -	$ -	$ -	-	$ -	$ -	-
Boiler (Old Tariff)	High Efficiency Condensing Boiler with Electronic Ignition	Minimum 90% AFUE and 500 kBtu input	1.500	kBtu/hr	0.00	0.00	$ 7.72	$ -	$ -	20	0	$ -	$ 4.00	kBtu/hr	$ -	$ -	$ -	-	$ -	$ -	-
Boiler Vent Damper	Boiler Vent Damper	Minimum 1,000 kBtu input	270.000	kBtu/hr	0.00	0.00	$ 1.50	$ -	$ -	12	0	$ -	$ 1.00	kBtu/hr	$ -	$ -	$ -	-	$ -	$ -	-
Gas Fryer	Energy Star	None	548.000	each	46.00	25208.00	$ 1,400.00	$ 64,400	$ 6,440	8	168,534	$ 68,362.21	$ 600.00	each	$ 27,600	$ 0.164	$ 0.569	0.756	$ 0.344	$ 0.750	0.575
Gas Convection Oven (Old Tariff)	Full Sized Oven	Full-sized oven 6 ft 3 or > interior	564.000	each	0.00	0.00	$ 2,000.00	$ -	$ -	12	0	$ -	$ 600.00	each	$ -	$ -	$ -	-	$ -	$ -	-
Clothes Washer	Commercial Gas Washer	1.8 MEF	90.000	each	37.00	3330.00	$ 200.00	$ 7,400	$ 740	10	26,782	$ 9,030.71	$ 180.00	each	$ 6,660	$ 0.249	$ 0.586	0.757	$ 0.249	$ 0.586	0.757
Steam Trap	Steam Traps Line Size <2"	Minimum 300 kBtuh system size, steam pressures operatin	136.900	each	0.00	0.00	$ 315.00	$ -	$ -	7	0	$ -	$ 80.00	each	$ -	$ -	$ -	-	$ -	$ -	-
(New) Boiler	High Efficiency Condensing Boiler	Min 90% Thermal Eff & 300 kBtu input	1.500	kBtu/hr	29,488.00	44232.00	$ 8.89	$ 262,148	$ 26,215	20	592,179	$ 119,953.87	$ 4.00	kBtu/hr	$ 117,952	$ 0.199	$ 0.402	1.146	$ 0.398	$ 0.601	0.766
(New) Domestic Hot Water Tankless Water Heater	Energy Star	.82 EF	35.000	gpm	47.62	1666.70	$ 137.50	$ 6,567	$ 657	18	20,811	$ 4,519.97	$ 60.00	gpm	$ 2,857	$ 0.137	$ 0.354	1.299	$ 0.284	$ 0.501	0.919
(New) Gas Convection Oven	Energy Star	≥44% Cooking Eff/ ≤13,000 Btu/hr Idle Rate	261.000	each	14.00	3654.00	$ 900.00	$ 12,600	$ 1,260	12	33,957	$ 9,909.37	$ 400.00	each	$ 5,600	$ 0.165	$ 0.457	0.979	$ 0.334	$ 0.626	0.715
(New) Connectionless 6 Pan Gas Steamer	Energy Star or CEE/FSTC Qualified	≥38% Cooking Eff / <2,083 Btu/hr/pan Idle Rate	912.000	each	0.00	0.00	$ 3,200.00	$ -	$ -	12	0	$ -	$ 1,200.00	each	$ -	$ -	$ -	-	$ -	$ -	-
(New) Door Type Dishwasher Low Temp Gas	Energy Star	≤ 6 kw Idle Rate/ ≤1.18 gallon/rack	448.000	each	1.00	448.00	$ 1,800.00	$ 1,800	$ 180	12	4,163	$ 1,214.94	$ 600.00	each	$ 600	$ 0.144	$ 0.436	1.026	$ 0.389	$ 0.681	0.657
(New) Double Rack Oven	Double Rack Oven	FSTC Qualified/≥50% Cooking Eff/ ≤3.500 Btu/hr/Idle Ra	1806.000	each	0.00	0.00	$ 6,200.00	$ -	$ -	12	0	$ -	$ 2,000.00	each	$ -	$ -	$ -	-	$ -	$ -	-
(New) Gas Griddle	Energy Star	≥38% Cooking Eff/ ≤2650 Btu/hr sq ft Idle Rate	158.000	each	2.00	316.00	$ 1,048.00	$ 2,096	$ 210	12	2,937	$ 856.97	$ 200.00	each	$ 400	$ 0.136	$ 0.428	1.045	$ 0.642	$ 0.934	0.479
Custom Projects																					
Yakima School District No. 7	Controls	DDC Controls	10104.000	/unit	1	10,104	$ 67,087.00	$ 67,087.00	$ 6,708.70	15	111,016	$ 22,893.62	$ 12,736.00	/project	$ 12,736.00	$ 0.115	$ 0.321	1.432	$ 0.544	$ 0.750	0.613
Best Western Plus Walla Walla Suites Inn	Commercial Custom Other	Custom Other	2188.000	/unit	1	2,188	$ 11,997.00	$ 11,997.00	$ 1,199.70	8	14,628	$ 4,957.57	$ 1,572.00	/project	$ 1,572.00	$ 0.107	$ 0.446	0.965	$ 0.738	$ 1.077	0.400
Burlington-Edison Public Schools	Commercial Custom Other	Custom Other	5275.000	/unit	1	5,275	$ 40,427.00	$ 40,427.00	$ 4,042.70	15	57,958	$ 11,952.08	$ 6,649.00	/project	$ 6,649.00	$ 0.115	$ 0.321	1.432	$ 0.628	$ 0.834	0.551
East Valley School District No. 90	Controls	DDC Controls	13380.000	/unit	1	13,380	$ 90,031.00	$ 90,031.00	$ 9,003.10	15	147,011	$ 30,316.38	$ 25,188.00	/project	$ 25,188.00	$ 0.171	$ 0.378	1.217	$ 0.551	$ 0.757	0.607
East Valley School District No. 90	Commercial Custom Other	Custom Other	2390.000	/unit	1	2,390	$ 2,189.00	$ 2,189.00	$ 218.90	12	22,211	$ 5,415.26	$ 1,095.00	/project	$ 1,095.00	$ 0.049	$ 0.293	1.526	$ 0.089	$ 0.333	1.345
Elma School District NO 68	Commercial Custom Other	Custom Other	539.000	/unit	1	539	$ 2,940.00	$ 2,940.00	$ 294.00	12	5,009	$ 1,221.27	$ 889.00	/project	$ 889.00	$ 0.177	$ 0.421	1.061	$ 0.528	$ 0.772	0.579
Elma School District NO 68	Controls	DDC Controls	3178.000	/unit	1	3,178	$ 22,817.00	$ 22,817.00	$ 2,281.70	15	34,918	$ 7,200.71	$ 5,983.00	/project	$ 5,983.00	$ 0.171	$ 0.378	1.217	$ 0.588	$ 0.794	0.579
Elma School District NO 68	Controls	DDC Controls	7457.000	/unit	1	7,457	$ 23,100.00	$ 23,100.00	$ 2,310.00	15	81,933	$ 16,896.05	$ 11,550.00	/project	$ 11,550.00	$ 0.141	$ 0.347	1.324	$ 0.254	$ 0.460	0.999
Yakima Public Schools	Controls	DDC Controls	14855.000	/unit	1	14,855	$ 61,879.00	$ 61,879.00	$ 6,187.90	15	163,218	$ 33,658.43	$ 18,717.00	/project	$ 18,717.00	$ 0.115	$ 0.321	1.432	$ 0.341	$ 0.547	0.840
Kelso School District No. 458	Commercial Custom Other	Custom Other	2007.000	/unit	1	2,007	$ 11,640.00	$ 11,640.00	$ 1,164.00	15	22,052	$ 4,547.46	$ 3,778.00	/project	$ 3,778.00	$ 0.171	$ 0.378	1.217	$ 0.475	$ 0.681	0.675
Yakima Public Schools	Controls	DDC Controls	15595.000	/unit	1	15,595	$ 77,588.00	$ 77,588.00	$ 7,758.80	15	171,348	$ 35,335.12	$ 19,650.00	/project	$ 19,650.00	$ 0.115	$ 0.321	1.432	$ 0.408	$ 0.614	0.749
Marcus Whitman Hotel	Commercial Custom Other	Custom Other	4980.000	/unit	1	4,980	$ 15,995.00	$ 15,995.00	$ 1,599.50	8	33,295	$ 11,283.67	$ 3,579.00	/project	$ 3,579.00	$ 0.107	$ 0.446	0.965	$ 0.432	$ 0.771	0.558
Yakima Public Schools	Controls	DDC Controls	4494.000	/unit	1	4,494	$ 21,750.00	$ 21,750.00	$ 2,175.00	15	49,377	$ 10,182.50	$ 5,662.00	/project	$ 5,662.00	$ 0.115	$ 0.321	1.432	$ 0.396	$ 0.603	0.763
Yakima Public Schools	Controls	DDC Controls	4985.000	/unit	1	4,985	$ 24,906.00	$ 24,906.00	$ 2,490.60	15	54,772	$ 11,295.00	$ 6,281.00	/project	$ 6,281.00	$ 0.115	$ 0.321	1.432	$ 0.409	$ 0.615	0.747
Sedro-Woolley School District #101	Controls	DDC Controls	3305.000	/unit	1	3,305	$ 16,000.00	$ 16,000.00	$ 1,600.00	15	36,313	$ 7,488.46	$ 6,222.00	/project	$ 6,222.00	$ 0.171	$ 0.378	1.217	$ 0.397	$ 0.603	0.763
Skagit Publishing, LLC	Commercial Custom Other	Custom Other	2697.000	/unit	1	2,697	$ 17,687.00	$ 17,687.00	$ 1,768.70	15	29,633	$ 6,110.86	$ 3,399.57	/project	$ 3,399.57	$ 0.115	$ 0.321	1.432	$ 0.537	$ 0.743	0.618
Walla Walla Community College	Commercial Custom Other	Custom Other	927.000	/unit	1	927	$ 5,497.00	$ 5,497.00	$ 549.70	8	6,198	$ 2,100.39	$ 667.00	/project	$ 667.00	$ 0.108	$ 0.447	0.965	$ 0.798	$ 1.137	0.379
Walla Walla County	Controls	DDC Controls	9040.000	/unit	1	9,040	$ 17,470.00	$ 17,470.00	$ 1,747.00	15	99,326	$ 20,482.81	$ 8,735.00	/project	$ 8,735.00	$ 0.088	$ 0.294	1.562	$ 0.158	$ 0.365	1.261
Walla Walla County	Commercial Custom Other	Custom Other	1914.000	/unit	1	1,914	$ 8,347.00	$ 8,347.00	$ 834.70	8	12,796	$ 4,336.74	$ 1,375.00	/project	$ 1,375.00	$ 0.107	$ 0.446	0.965	$ 0.587	$ 0.926	0.465
Walla Walla YMCA	Commercial Custom Other	Custom Other	2032.000	/unit	1	2,032	$ 7,998.00	$ 7,998.00	$ 799.80	8	13,585	$ 4,604.10	$ 1,460.00	/project	$ 1,460.00	$ 0.107	$ 0.446	0.965	$ 0.530	$ 0.869	0.496
Washington Odd Fellows	Commercial Custom Other	Custom Other	7012.000	/unit	1	7,012	$ 28,788.00	$ 28,788.00	$ 2,878.80	8	46,880	$ 15,887.77	$ 5,040.00	/project	$ 5,040.00	$ 0.108	$ 0.446	0.965	$ 0.553	$ 0.892	0.483
Woodland School District	Controls	DDC Controls	6474.000	/unit	1	6,474	$ 24,002.00	$ 24,002.00	$ 2,400.20	15	71,132	$ 14,668.78	$ 12,001.00	/project	$ 12,001.00	$ 0.169	$ 0.375	1.226	$ 0.304	$ 0.510	0.901
Woodland School District	Controls	DDC Controls	7282.000	/unit	1	7,282	$ 27,000.00	$ 27,000.00	$ 2,700.00	15	80,010	$ 16,499.54	$ 13,500.00	/project	$ 13,500.00	$ 0.169	$ 0.375	1.226	$ 0.304	$ 0.510	0.901
County of Yakima 200 School District	Controls	DDC Controls	1377.000	/unit	1	1,377	$ 2,400.00	$ 2,400.00	$ 240.00	15	15,130	$ 3,120.00	$ 1,200.00	/project	$ 1,200.00	$ 0.079	$ 0.286	1.610	$ 0.143	$ 0.349	1.317
County of Yakima 200 School District	Controls	DDC Controls	995.000	/unit	1	995	$ 1,600.00	$ 1,600.00	$ 160.00	15	10,932	$ 2,254.47	$ 800.00	/project	$ 800.00	$ 0.073	$ 0.279	1.645	$ 0.132	$ 0.338	1.360
County of Yakima 200 School District	Controls	DDC Controls	1152.000	/unit	1	1,152	$ 2,400.00	$ 2,400.00	$ 240.00	15	12,657	$ 2,610.20	$ 1,200.00	/project	$ 1,200.00	$ 0.095	$ 0.301	1.527	$ 0.171	$ 0.377	1.220
County of Yakima 200 School District	Insulation	Custom Insulation	3556.000	/unit	1	3,556	$ 22,700.00	$ 22,700.00	$ 2,270.00	20	47,608	$ 8,057.18	$ 8,190.00	/project	$ 8,190.00	$ 0.172	$ 0.341	1.350	$ 0.429	$ 0.598	0.770
County of Yakima 200 School District	Insulation	Custom Insulation	1840.000	/unit	1	1,840	$ 15,875.00	$ 15,875.00	$ 1,587.50	20	24,634	$ 4,169.07	$ 4,238.00	/project	$ 4,238.00	$ 0.172	$ 0.341	1.349	$ 0.580	$ 0.749	0.615
County of Yakima 200 School District	Insulation	Custom Insulation	1178.000	/unit	1	1,178	$ 8,325.00	$ 8,325.00	$ 832.50	20	15,771	$ 2,669.11	$ 2,714.00	/project	$ 2,714.00	$ 0.172	$ 0.341	1.349	$ 0.475	$ 0.644	0.715
County of Yakima 200 School District	Insulation	Custom Insulation	3091.000	/unit	1	3,091	$ 22,550.00	$ 22,550.00	$ 2,255.00	20	41,382	$ 7,003.58	$ 7,120.00	/project	$ 7,120.00	$ 0.172	$ 0.341	1.349	$ 0.490	$ 0.660	0.698
County of Yakima 200 School District	Insulation	Custom Insulation	1622.000	/unit	1	1,622	$ 11,650.00	$ 11,650.00	$ 1,165.00	20	21,715	$ 3,675.12	$ 3,736.00	/project	$ 3,736.00	$ 0.172	$ 0.341	1.349	$ 0.483	$ 0.652	0.706
Bellingham Technical College	Controls	DDC Controls	2242.000	/unit	1	2,242	$ 15,650.00	$ 15,650.00	$ 1,565.00	15	24,634	$ 5,079.92	$ 4,221.00	/project	$ 4,221.00	$ 0.171	$ 0.378	1.217	$ 0.572	$ 0.778	0.591
Bellingham Technical College	Controls	DDC Controls	3880.000	/unit	1	3,880	$ 20,580.00	$ 20,580.00	$ 2,058.00	15	42,631	$ 8,791.30	$ 7,304.00	/project	$ 7,304.00	$ 0.171	$ 0.378	1.217	$ 0.434	$ 0.641	0.717
Yakima Valley Community College	Commercial Custom Other	Custom Other	702.000	/unit	1	702	$ 5,900.00	$ 5,900.00	$ 590.00	15	7,713	$ 1,590.59	$ 885.00	/project	$ 885.00	$ 0.115	$ 0.321	1.432	$ 0.688	$ 0.895	0.514
Yakima Valley Community College	Commercial Custom Other	Custom Other	3204.000	/unit	1	3,204	$ 23,000.00	$ 23,000.00	$ 2,300.00	15	35,204	$ 7,259.62	$ 4,039.00	/project	$ 4,039.00	$ 0.115	$ 0.321	1.432	$ 0.588	$ 0.794	0.579
TOTAL PROGRAM						**288,079**		**$ 1,382,610.17**	**$ 138,261**	**16.94**	**3,339,161**	**$ 711,229.41**			**$ 467,772**	**$ 0.140**	**$ 0.353**	**1.295**	**$ 0.373**	**$ 0.586**	**0.781**

Nominal interest rate (post tax cost of cap.) 7.63%
Inflation rate 3.32%

Long term real discount rate 4.17%

CASCADE NATURAL GAS CORPORATION
LOW INCOME Program Participant Cost Effectiveness Estimates
TOTAL IN FIRST YEAR by MEASURE

MEASURE	PARTICIPANTS	TOTAL ANNUAL THERM SAVINGS	MEASURE INSTALLED COST	NON-ENERGY BENEFITS (10% of cost)	MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	PROGRAM REBATE	UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO		TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
Attic/Ceiling Insulation	31	2,324	43,234	$ 4,323	30	39,363	$ 5,549.67	$ 24,585	$ 0.625	$ 0.766	0.63		$ 0.989	$ 1.129	0.424
Floor Insulation	34	4,166	70,841	$ 7,084	30	70,569	$ 9,979.73	$ 43,324	$ 0.614	$ 0.755	0.63		$ 0.903	$ 1.045	0.458
Wall Insulation	20	3,216	44,879	$ 4,488	30	54,484	$ 7,660.01	$ 30,725	$ 0.564	$ 0.705	0.68		$ 0.741	$ 0.882	0.543
Duct Insulation	25	3,123	36,616	$ 3,662	20	41,811	$ 7,458.42	$ 25,020	$ 0.598	$ 0.777	0.59		$ 0.788	$ 0.967	0.477
Air Infiltration Reduction	34	2,132	27,968	$ 2,797	20	28,541	$ 5,171.02	$ 17,064	$ 0.598	$ 0.779	0.59		$ 0.882	$ 1.063	0.433
TOTAL PROGRAM	**144**	**14,960**	**223,537**	**$ 22,354**	**26.49**	**234,768**	**$ 35,819**	**$ 140,718**	**$ 0.599**	**$ 0.752**	**0.638**		**$ 0.857**	**$ 1.010**	**0.475**

Nominal interest rate (post tax cost of cap.)	7.63%
Inflation rate	3.32%
Long term real discount rate	4.17%

CASCADE NATURAL GAS CORPORATION
Program Participant Cost Effectiveness Estimate Summary

2012

PROGRAM	MEASURE/ PARTICIPANTS	TOTAL ANNUAL THERM SAVINGS	TOTAL INSTALLED COSTS	NON-ENERGY BENEFITS (10% of cost)	WEIGHTED MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	TOTAL PROGRAM REBATE	PROGRAM UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO		PROGRAM TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
RESIDENTIAL (includes units of insulation)	624,510	177,903	$ 1,403,190.00	$ 140,319.00	26.45	2,691,075	$ 637,329.00	$ 459,001.55	0.171	$ 0.407	1.777		$ 0.4693	$ 0.7061	1.025
COMMERCIAL	127	359,003	$ 1,789,229.75	$ 178,922.98	16.91	4,190,879	$ 747,483.39	$ 637,809.00	0.152	$ 0.331	2.107		$ 0.384	$ 0.563	1.238
TOTAL	**624,637**	**536,906**	**$ 3,192,419.75**	**$ 319,241.98**	**20.07**	**6,881,954**	**$ 1,384,812.39**	**$ 1,096,810.55**	**$ 0.159**	**$ 0.361**	**1.993**		**$ 0.417**	**$ 0.619**	**1.161**

PROGRAM	MEASURE/ PARTICIPANTS	TOTAL ANNUAL THERM SAVINGS	TOTAL INSTALLED COSTS	NON-ENERGY BENEFITS (10% of cost)	WEIGHTED MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	TOTAL PROGRAM REBATE	PROGRAM UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO		PROGRAM TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
LOW INCOME	**227**	**21,824**	**$ 358,852.00**	**$ 35,885.20**	**26.60**	**343,337**	**$ 15,000.00**	**$ 233,162.00**	**0.679**	**$ 0.723**	**0.963**		**$ 0.941**	**$ 0.984**	**0.707**

Nominal interest rate (post tax cost of cap.)	7.63%
Inflation rate	3.32%
Long term real discount rate	4.17%

Please note that non energy benefits were calculated as a blanket 10% for CY12 achievements. However, the Company has since devised a more intuitive and focused approach for measuring non-energy value which will be applied to all measures qualified for rebate in CY 2013. - Also as part of the 2012 True-up for the 2013 conservation achievements report the deemed therm savings for the 90% AFUE furance and the .64 EF water heater have been increased per our Nexant Potential Study recommendations.

Program Year:
2012

CASCADE NATURAL GAS CORPORATION
RESIDENTIAL Program Participant Cost Effectiveness

MEASURE	ZONE	EFFICIENCY RATING	PARTICIPANTS	MEASURES INSTALLED	ANNUAL THERM SAVINGS	TOTAL ANNUAL THERM SAVINGS	MEASURE INSTALLED COST	TOTAL INSTALLED COST	NON-ENERGY BENEFITS (10% of cost)	MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	PROGRAM REBATE	TOTAL REBATES COST	UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO		TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
Energy * Certified Home (BOP 1)	1	90% AFUE Rating	26	26	95	2,470	$ 1,000.00	$ 26,000.00	$ 2,600.00	30	41,843	$ 10,091.59	$ 350.00	$ 9,100.00	$ 0.217	$ 0.459	1.501		$ 0.559	$ 0.800	0.860
Energy * Certified Home (BOP 1)	2	90% AFUE Rating	47	47	102	4,794	$ 1,000.00	$ 47,000.00	$ 4,700.00	30	81,213	$ 19,586.68	$ 350.00	$ 16,450.00	$ 0.203	$ 0.444	1.551		$ 0.521	$ 0.762	0.903
Energy * Certified Home (BOP 1)	3	90% AFUE Rating	76	76	126	9,576	$ 1,000.00	$ 76,000.00	$ 7,600.00	30	162,223	$ 38,609.53	$ 350.00	$ 26,600.00	$ 0.164	$ 0.402	1.712		$ 0.422	$ 0.660	1.043
Energy * Plus Certified Home	1	Federal Tax Credit Eligible	0	0	221	0	$ 3,700.00	$ -	$ -	30	0	$ -	$ 750.00	$ -	$ -	$ -	-		$ -	$ -	-
Energy * Plus Certified Home	2	Federal Tax Credit Eligible	1	1	235	235	$ 3,700.00	$ 3,700.00	$ 370.00	30	3,981	$ 960.13	$ 750.00	$ 750.00	$ 0.188	$ 0.430	1.602		$ 0.836	$ 1.078	0.639
Energy * Plus Certified Home	3	Federal Tax Credit Eligible	1	1	296	296	$ 3,700.00	$ 3,700.00	$ 370.00	30	5,014	$ 1,209.36	$ 750.00	$ 750.00	$ 0.150	$ 0.391	1.761		$ 0.664	$ 0.905	0.760
95% AFUE Gas Furn Upgrade E*	1	95% AFUE Rating	26	26	124	3,224	$ 1,000.00	$ 26,000.00	$ 2,600.00	30	54,617	$ 13,172.18	$ 150.00	$ 3,900.00	$ 0.071	$ 0.313	2.202		$ 0.428	$ 0.670	1.028
95% AFUE Gas Furn Upgrade E*	2	95% AFUE Rating	28	28	118	3,304	$ 1,000.00	$ 28,000.00	$ 2,800.00	30	55,972	$ 13,499.04	$ 150.00	$ 4,200.00	$ 0.075	$ 0.316	2.177		$ 0.450	$ 0.691	0.995
95% AFUE Gas Furn Upgrade E*	3	95% AFUE Rating	76	76	142	10,792	$ 1,000.00	$ 76,000.00	$ 7,600.00	30	182,823	$ 44,092.49	$ 150.00	$ 11,400.00	$ 0.062	$ 0.304	2.268		$ 0.374	$ 0.615	1.119
90% Furnace & PTCS Duct Sealing	1	90% AFUE Rating	6	6	173	1,038	$ 1,250.00	$ 7,500.00	$ 750.00	20	13,897	$ 4,240.92	$ 400.00	$ 2,400.00	$ 0.173	$ 0.478	1.440		$ 0.486	$ 0.791	0.870
90% Furnace & PTCS Duct Sealing	2	90% AFUE Rating	8	8	160	1,280	$ 1,250.00	$ 10,000.00	$ 1,000.00	20	17,137	$ 5,229.65	$ 400.00	$ 3,200.00	$ 0.187	$ 0.492	1.398		$ 0.525	$ 0.830	0.828
90% Furnace & PTCS Duct Sealing	3	90% AFUE Rating	14	14	210	2,940	$ 1,250.00	$ 17,500.00	$ 1,750.00	20	39,361	$ 12,011.85	$ 400.00	$ 5,600.00	$ 0.142	$ 0.447	1.537		$ 0.400	$ 0.705	0.975
PTCS Duct Sealing	1	PTCS Certified Duct Sealing	3	3	88	264	$ 800.00	$ 2,400.00	$ 240.00	20	3,534	$ 1,078.62	$ 150.00	$ 450.00	$ 0.127	$ 0.432	1.591		$ 0.611	$ 0.916	0.751
PTCS Duct Sealing	2	PTCS Certified Duct Sealing	5	5	77	385	$ 800.00	$ 4,000.00	$ 400.00	20	5,154	$ 1,572.98	$ 150.00	$ 750.00	$ 0.146	$ 0.451	1.526		$ 0.698	$ 1.004	0.685
PTCS Duct Sealing	3	PTCS Certified Duct Sealing	11	11	113	1,243	$ 800.00	$ 8,800.00	$ 880.00	20	16,641	$ 5,078.48	$ 150.00	$ 1,650.00	$ 0.099	$ 0.404	1.701		$ 0.476	$ 0.781	0.881
90% AFUE New Gas Furnace (New)	1	90% AFUE Rating	33	33	111	3,663	$ 500.00	$ 16,500.00	$ 1,650.00	18	45,737	$ 8,498.18	$ 150.00	$ 4,950.00	$ 0.108	$ 0.294	2.370		$ 0.325	$ 0.510	1.365
90% AFUE New Gas Furnace (New)	2	90% AFUE Rating	2	2	111	222	$ 500.00	$ 1,000.00	$ 100.00	18	2,772	$ 498.45	$ 150.00	$ 300.00	$ 0.108	$ 0.288	2.419		$ 0.325	$ 0.505	1.381
90% AFUE New Gas Furnace (New)	3	90% AFUE Rating	51	51	111	5,661	$ 500.00	$ 25,500.00	$ 2,550.00	18	70,684	$ 16,877.88	$ 150.00	$ 7,650.00	$ 0.108	$ 0.347	2.008		$ 0.325	$ 0.563	1.237
90% AFUE New Gas Furnace (Existing)	1	90% AFUE Rating	411	411	111	45,621	$ 800.00	$ 328,800.00	$ 32,880.00	18	569,631	$ 135,353.99	$ 150.00	$ 61,650.00	$ 0.108	$ 0.346	2.015		$ 0.519	$ 0.757	0.920
90% AFUE New Gas Furnace (Existing)	2	90% AFUE Rating	118	118	111	13,098	$ 800.00	$ 94,400.00	$ 9,440.00	18	163,544	$ 36,158.13	$ 150.00	$ 17,700.00	$ 0.108	$ 0.329	2.116		$ 0.519	$ 0.741	0.941
90% AFUE New Gas Furnace (Existing)	3	90% AFUE Rating	141	141	111	15,651	$ 800.00	$ 112,800.00	$ 11,280.00	18	195,421	$ 57,031.79	$ 150.00	$ 21,150.00	$ 0.108	$ 0.400	1.742		$ 0.519	$ 0.811	0.859
80% AFUE Hearth	1	80% AFUE Rating	0	0	80	0	$ 400.00	$ -	$ -	20	0	$ -	$ 70.00	$ -	$ -	$ -	-		$ -	$ -	-
80% AFUE Hearth	2	80% AFUE Rating	0	0	80	0	$ 400.00	$ -	$ -	20	0	$ -	$ 70.00	$ -	$ -	$ -	-		$ -	$ -	-
80% AFUE Hearth	3	80% AFUE Rating	0	0	80	0	$ 400.00	$ -	$ -	20	0	$ -	$ 70.00	$ -	$ -	$ -	-		$ -	$ -	-
80% AFUE Hearth Upgrade	1	80% AFUE Rating	0	0	80	0	$ 400.00	$ -	$ -	20	0	$ -	$ 70.00	$ -	$ -	$ -	-		$ -	$ -	-
80% AFUE Hearth Upgrade	2	80% AFUE Rating	0	0	80	0	$ 400.00	$ -	$ -	20	0	$ -	$ 70.00	$ -	$ -	$ -	-		$ -	$ -	-
80% AFUE Hearth Upgrade	3	80% AFUE Rating	0	0	80	0	$ 400.00	$ -	$ -	20	0	$ -	$ 70.00	$ -	$ -	$ -	-		$ -	$ -	-
.62 Water Heater	1	0.62 Energy Factor or Greater	12	12	13	156	$ 100.00	$ 1,200.00	$ 120.00	12	1,450	$ 637.36	$ 25.00	$ 300.00	$ 0.207	$ 0.647	1.098		$ 0.745	$ 1.185	0.600
.62 Water Heater	2	0.62 Energy Factor or Greater	4	4	13	52	$ 100.00	$ 400.00	$ 40.00	12	483	$ 212.45	$ 25.00	$ 100.00	$ 0.207	$ 0.647	1.098		$ 0.745	$ 1.185	0.600
.62 Water Heater	3	0.62 Energy Factor or Greater	5	5	13	65	$ 100.00	$ 500.00	$ 50.00	12	604	$ 265.57	$ 25.00	$ 125.00	$ 0.207	$ 0.647	1.098		$ 0.745	$ 1.185	0.600
Ceiling Insulation	1	Equal to or Greater than R-38	118642.4	118642.4	0.057	6,763	$ 0.57	$ 67,626.17	$ 6,762.62	45	136,377	$ 27,629.78	$ 0.25	$ 29,660.60	$ 0.217	$ 0.420	1.621		$ 0.446	$ 0.649	1.049
Ceiling Insulation	2	Equal to or Greater than R-38	52056	52056	0.055	2,863	$ 0.56	$ 29,151.36	$ 2,915.14	45	57,738	$ 11,697.58	$ 0.25	$ 13,014.00	$ 0.225	$ 0.428	1.591		$ 0.454	$ 0.657	1.036
Ceiling Insulation	3	Equal to or Greater than R-38	74855	74855	0.065	4,866	$ 0.57	$ 42,667.35	$ 4,266.74	45	98,120	$ 19,879.11	$ 0.25	$ 18,713.75	$ 0.191	$ 0.393	1.731		$ 0.391	$ 0.594	1.146
Floor Insulation	1	Equal to or Greater than R-30 or to fill cavity	213655.99	213655.99	0.057	12,178	$ 0.57	$ 121,783.91	$ 12,178.39	45	245,593	$ 49,756.82	$ 0.45	$ 96,145.20	$ 0.391	$ 0.594	1.146		$ 0.446	$ 0.649	1.049
Floor Insulation	2	Equal to or Greater than R-30 or to fill cavity	45744	45744	0.055	2,516	$ 0.56	$ 25,616.64	$ 2,561.66	45	50,737	$ 10,164.60	$ 0.45	$ 20,584.80	$ 0.406	$ 0.606	1.123		$ 0.454	$ 0.655	1.040
Floor Insulation	3	Equal to or Greater than R-30 or to fill cavity	36006	36006	0.065	2,340	$ 0.57	$ 20,523.42	$ 2,052.34	45	47,197	$ 9,562.05	$ 0.45	$ 16,202.70	$ 0.343	$ 0.546	1.247		$ 0.391	$ 0.594	1.146
Wall Insulation	1	Equal to or Greater than R-11 to fill cavity	54043.75	54043.75	0.067	3,621	$ 0.66	$ 35,668.88	$ 3,566.89	45	73,021	$ 14,793.91	$ 0.40	$ 21,617.50	$ 0.296	$ 0.499	1.365		$ 0.440	$ 0.642	1.060
Wall Insulation	2	Equal to or Greater than R-11 to fill cavity	10079	10079	0.065	655	$ 0.67	$ 6,752.93	$ 675.29	45	13,212	$ 2,676.66	$ 0.40	$ 4,031.60	$ 0.305	$ 0.508	1.341		$ 0.460	$ 0.663	1.027
Wall Insulation	3	Equal to or Greater than R-11 to fill cavity	18166	18166	0.076	1,381	$ 0.66	$ 11,989.56	$ 1,198.96	45	27,842	$ 5,640.73	$ 0.40	$ 7,266.40	$ 0.261	$ 0.464	1.469		$ 0.388	$ 0.590	1.154
High Efficiency Combination Radiant Heat	1	90% Eff Condensing Tankless Combo w/ WH	5	5	297	1,485	$ 2,500.00	$ 12,500.00	$ 1,250.00	30	25,157	$ 6,067.21	$ 800.00	$ 4,000.00	$ 0.159	$ 0.400	1.720		$ 0.447	$ 0.688	1.000
High Efficiency Combination Radiant Heat	2	90% Eff Condensing Tankless Combo w/ WH	15	15	288	4,320	$ 2,500.00	$ 37,500.00	$ 3,750.00	30	73,184	$ 17,650.07	$ 800.00	$ 12,000.00	$ 0.164	$ 0.405	1.699		$ 0.461	$ 0.702	0.980
High Efficiency Combination Radiant Heat	3	90% Eff Condensing Tankless Combo w/ WH	0	0	327	0	$ 2,500.00	$ -	$ -	30	0	$ -	$ 800.00	$ -	$ -	$ -	-		$ -	$ -	-
Energy Saver Kit (Direct Distribution)	1	Low Flow Showerhead plus Aerators			17		$ 7.80	$ -	$ -	10	0		$ 7.80	$ -	$ -	$ -	-		$ -	$ -	-
Energy Saver Kit (Direct Distribution)	2	Low Flow Showerhead plus Aerators			17		$ 7.80	$ -	$ -	10	0		$ 7.80	$ -	$ -	$ -	-		$ -	$ -	-
Energy Saver Kit (Direct Distribution)	3	Low Flow Showerhead plus Aerators			17		$ 7.80	$ -	$ -	10	0		$ 7.80	$ -	$ -	$ -	-		$ -	$ -	-
Energy Saver Kit (Kit 1)	1	Low Flow Showerhead plus Aerators	4	4	17	68	$ 10.00	$ 40.00	$ 4.00	10	547	$ 277.83	$ 10.00	$ 40.00	$ 0.073	$ 0.581	1.237		$ 0.066	$ 0.574	1.252
Energy Saver Kit (Kit 1)	2	Low Flow Showerhead plus Aerators	3	3	17	51	$ 10.00	$ 30.00	$ 3.00	10	410	$ 208.37	$ 10.00	$ 30.00	$ 0.073	$ 0.581	1.237		$ 0.066	$ 0.574	1.252
Energy Saver Kit (Kit 1)	3	Low Flow Showerhead plus Aerators	4	4	17	68	$ 10.00	$ 40.00	$ 4.00	10	547	$ 277.83	$ 10.00	$ 40.00	$ 0.073	$ 0.581	1.237		$ 0.066	$ 0.574	1.252
Energy Saver Kit (Kit 2)	1	Low Flow Showerhead plus Aerators	18	18	31	558	$ 16.00	$ 288.00	$ 28.80	10	4,488	$ 2,279.80	$ 16.00	$ 288.00	$ 0.064	$ 0.572	1.256		$ 0.058	$ 0.566	1.270
Energy Saver Kit (Kit 2)	2	Low Flow Showerhead plus Aerators	8	8	31	248	$ 16.00	$ 128.00	$ 12.80	10	1,995	$ 1,013.24	$ 16.00	$ 128.00	$ 0.064	$ 0.572	1.256		$ 0.058	$ 0.566	1.270
Energy Saver Kit (Kit 2)	3	Low Flow Showerhead plus Aerators	14	14	31	434	$ 16.00	$ 224.00	$ 22.40	10	3,491	$ 1,773.18	$ 16.00	$ 224.00	$ 0.064	$ 0.572	1.256		$ 0.058	$ 0.566	1.270
.64 Water Heater	1	0.64 Energy Factor or Greater	10	10	33	330	$ 185.00	$ 1,850.00	$ 185.00	12	3,067	$ 1,062.27	$ 40.00	$ 400.00	$ 0.130	$ 0.477	1.489		$ 0.543	$ 0.889	0.799
.64 Water Heater	2	0.64 Energy Factor or Greater	5	5	33	165	$ 185.00	$ 925.00	$ 92.50	12	1,533	$ 531.14	$ 40.00	$ 200.00	$ 0.130	$ 0.477	1.489		$ 0.543	$ 0.889	0.799
.64 Water Heater	3	0.64 Energy Factor or Greater	1	1	33	33	$ 185.00	$ 185.00	$ 18.50	12	307	$ 106.23	$ 40.00	$ 40.00	$ 0.130	$ 0.477	1.489		$ 0.543	$ 0.889	0.799
.91 Tankless Hot Water Heater	1	0.91 Energy Factor or Greater	41	41	99	4,059	$ 1,000.00	$ 41,000.00	$ 4,100.00	20	54,342	$ 16,583.71	$ 200.00	$ 8,200.00	$ 0.151	$ 0.456	1.508		$ 0.679	$ 0.984	0.699
.91 Tankless Hot Water Heater	2	0.91 Energy Factor or Greater	17	17	99	1,683	$ 1,000.00	$ 17,000.00	$ 1,700.00	20	22,532	$ 6,876.17	$ 200.00	$ 3,400.00	$ 0.151	$ 0.456	1.508		$ 0.679	$ 0.984	0.699
.91 Tankless Hot Water Heater	3	0.91 Energy Factor or Greater	12	12	99	1,188	$ 1,000.00	$ 12,000.00	$ 1,200.00	20	15,905	$ 4,853.77	$ 200.00	$ 2,400.00	$ 0.151	$ 0.456	1.508		$ 0.679	$ 0.984	0.699
TOTAL PROGRAM			**624,510**	**624,510**		**177,903**		**$ 1,403,190**	**$ 140,319**	**26.44**	**2,691,075**	**$ 637,329**		**$ 459,001.55**	**$ 0.171**	**$ 0.408**	**1.777**		**$ 0.469**	**$ 0.706**	**1.025**