

APPENDIX 4.1

DSM IMPLEMENTATION AND OPERATIONS

APPENDIX 4.1 – DSM IMPLEMENTATION & OPERATIONS

AVISTA DSM COMMITMENT

Avista recognizes our obligation to meet the resource needs of customers in the most cost-effective manner. The delivery of conservation programs is anticipated to represent an increasing portion of the optimal resource portfolio. The IRP process is an opportunity to comprehensively review the conservation program portfolio and make necessary revisions to daily DSM operations and longer-term implementation plans in order to meet those commitments in the years to follow.

This document summarizes a broad evaluation of applicable conservation measures and identifies those worthy of testing against all other supply-side resources to assist us in making decisions about which measures would be suitable to carry forward into program development and implementation.

Through our TAC process we solicited comments from key stakeholders regarding the selection, characterization and testing of conservation measures within the IRP process. After much discussion and some revision, the general consensus of those stakeholders was that this approach was sufficient to represent conservation opportunities within the IRP.

There are concerns about our Southern Division due to the economic condition and high levels of unemployment that could constrain participation. We remain open to alternative approaches to overcoming those market barriers to include enhanced outreach efforts, revised incentives, and innovative marketing of conservation programs and cooperative arrangements with other agents in the market, with particular attention to other natural gas utilities, the Energy Trust of Oregon and regional market transformation efforts with an interest in natural gas efficiency.

Additionally, we are committed to maintaining a collaborative relationship with all stakeholders who may contribute to the improvement of DSM efforts as programs are further developed and launched. We continue to improve the management of these programs through development of additional metrics, improved reporting and benchmarking for determining the regulatory prudence of these programs.

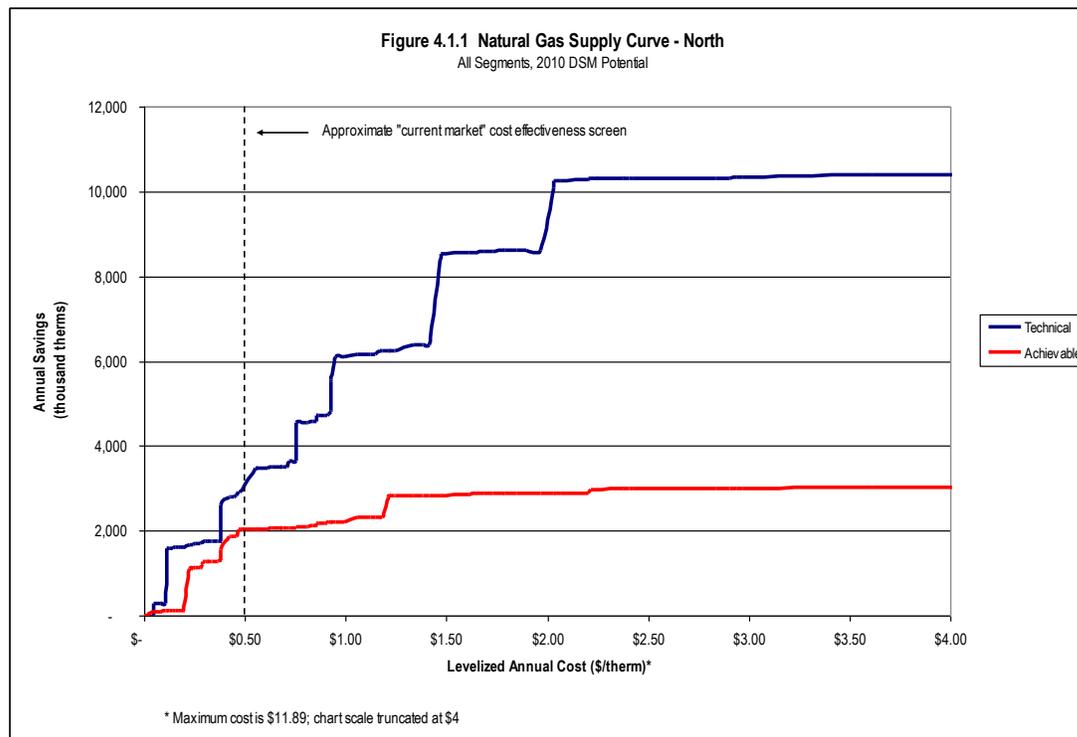
Avista recognizes that acquiring all cost-effective conservation potential is not limited by the therm acquisition goals established in this IRP. The implementation of the results of this planning will be sufficiently flexible to realize opportunities even if they are well in excess of expectations. Human and financial resources will be made available to the extent necessary to achieve the cost-effective potential without regard to those goals.

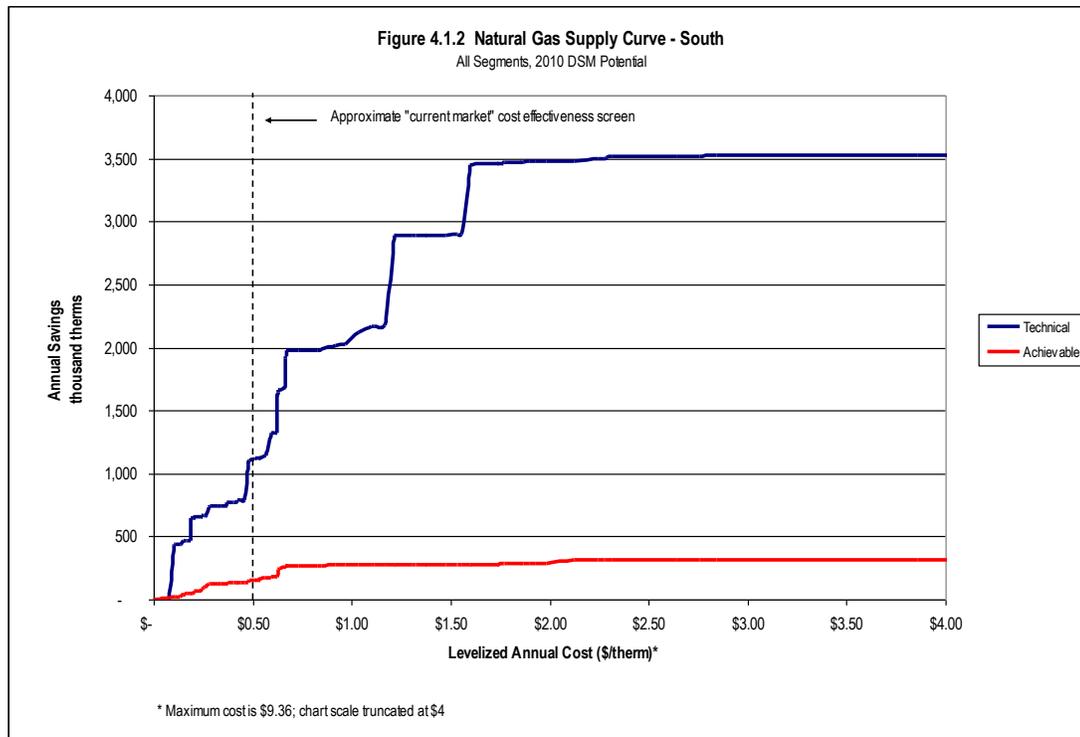
TECHNICAL AND ACHIEVABLE POTENTIAL

In 2005, Avista contracted with RLW Analytics, a conservation consultant, to independently identify and analyze the potential energy savings for our Oregon service territories. The methodology from this study was extrapolated to Washington and Idaho and served as the initial basis for determining

conservation technical potential for all of Avista’s natural gas service territories. The energy savings data for weather-sensitive measures were adjusted to incorporate local HDD data appropriate to each geographic area. Avista DSM engineers, program implementers and analysts also reviewed the RLW estimates of incremental measure costs, measure lives, energy savings, and other inputs and assumptions making adjustments when knowledge of local factors differed from the more generalized assumptions used in the study. Since 2005, we have made adjustments and updates to incorporate new information regarding measure cost and energy savings, and augmented the study with additional measures not previously evaluated.

Figures 4.1.1 and 4.1.2 depict supply curves for technical and achievable potential for our North and South divisions.





Avista’s achievable potential as a percentage of technical potential appears to be lower than other regional utilities. However, our actual per customer savings acquired compare favorably with other regional utilities. Unlike other regional utilities that have selected an overall percentage of their technical potential to estimate achievable potential, Avista analyzes each measure’s likely installation rate to establish measure by measure achievable potential. Engineers and program implementers begin their evaluation with the number of customers in a division broken down by the percentage that is single family, multifamily or manufactured homes. The applications are evaluated based on how many have or could have access to an application in their home or facility and, finally, how many applications would be replaced with a higher efficiency option over the standard option over the twenty year horizon. This methodology used to develop achievable potential tracks with our actual results and is comparable with other regional utilities.

For perspective, we indicate a cost effectiveness screen of \$0.50 per therm based on an approximate current market commodity cost of \$5 per Dth. Around this level, Avista’s achievable potential tracks much closer with the technical potential and is similar to other regional utilities.

We have tried to identify differences that create the large gap between our achievable potential and RLW’s technical potential. We did not identify every difference but we did make changes to technical potential that we could support and document. Some examples were:

- The pre-rinse sprayer program was a one-time, non-recurring, non-residential program where Avista pursued installations of sprayers in all existing applications. Since these sprayers are now code, the savings will not recur. Therefore, we removed savings associated with pre-rinse sprayers from the RLW technical potential.

- The same technical potential was listed for all water heater applications, so it appears that RLW failed to consider the mutually exclusivity of the various types of water heaters. A single-family residential customer typically only has one water heater application in their home. However, RLW included that same customer in the technical potential for tanked, tankless, and passive solar water heaters. We think this same issue may exist for other measures but we could not verify this so adjustment was made only to the water heaters technical potential.
- In the past, Oregon Staff has generally disapproved of faucet aerators and low-flow showerheads as viable measures with demonstrable savings, so we removed the savings associated with these two measures.
- RLW included nearly 3,000 units of thermal vent dampers in a multi-family application. Based on our market knowledge, we felt this number of the entire population was overestimated and was more realistic at 1,000 units. This resulted in a decrease in technical potential of 54,000 therms.

While this is not a complete list of potential differences with RLW's estimate of technical potential, this concern should be resolved with a new external study of technical potential which we intend to pursue prior to completion of the 2011 IRP.

The following sections discuss Avista's DSM programs and how the IRP results are incorporated into DSM operations.

SOUTHERN DIVISION DSM PORTFOLIO

Avista's residential measures are available to approximately 84,000 customers (Avista Rate Schedule 410) with an annual consumption of 50.5 million therms. The commercial measures are available to nearly 11,200 mostly small-to-medium-sized customers (Avista Rate Schedules 420 and 424) with an annual consumption of approximately 32.3 million therms. The largest segment of qualified non-residential customers use natural gas for space, water heating and cooking with an average consumption of nearly 2,900 therms each.

The measures offer a mix of both currently cost effective and market transformation measures which are expected to be cost-effective over time. The combined residential and non-residential therm goal for 2010 is 326,314 and 324,314 for 2011. Details on individual measures such as measure life, levelized TRC, unit goal, and therm goal can be found in Appendix 4.2.

RESIDENTIAL SEGMENT

Avista's residential program consists of site specific and prescriptive measures and includes a mix of currently cost effective measures and market transformation measures which are expected to be cost-effective. The 2010 residential therm goal is 215,580 and 206,333 in 2011.

Avista's residential site specific program is primarily focused on cost effective shell measures. Changes made to the program in early 2007 include: higher incentive levels, removal of all non cost

effective measures and requiring window upgrades to be included with at least one other major measure. We will consider additional enhancements as they are identified to increase program participation.

We also offer prescriptive incentives such as tankless water heaters, high-efficiency direct vent space heaters, external chimney dampers, programmable thermostats, high efficiency forced air furnaces and high efficiency tank water heaters.

In the majority of cases, tank water heaters are replaced on “burn out” with the high efficiency models costing, on average, \$120 more than standard efficiency models. Product availability has gotten better, but continues to be an issue going forward. We believe that to affect the incremental cost and maintain availability, that high efficiency tank water heaters should be retained as a “market transformation” program in 2010 and 2011.

We also believe building a strong trade ally network is the best way to promote the acceptance of higher efficiency equipment. Our trade allies currently include HVAC dealers, plumbers, retailers, manufacturers, distributors along with builders and developers. Avista has also established relationships with groups such as the home builders association and landlord associations throughout its service territory.

NON-RESIDENTIAL SEGMENT

Prior to 2007, our non-residential measures were site-specific offerings only. In early 2007, Avista added several cost effective prescriptive measures such as high-efficiency space heating equipment, Energy Star gas fryers, Energy Star three pan gas steam cookers and high-efficiency gas rack ovens.

The non-residential therm acquisition goal for 2010 is 110,734 and 118,650 for 2011. Avista also expects to add new prescriptive measures in 2009. Measures being considered include cost effective shell measures and additional commercial kitchen measures. Measures with low acquirable potential, technologies new to the marketplace or where natural gas is used for process, will continue to be evaluated on a site specific basis.

We believe that by adding additional prescriptive measures, the program will be accessible by a greater number of customers, will be easier to manage at less cost and will result in higher participation levels in the small to medium sized customer segments. Measures not included in the prescriptive program will continue to be evaluated on a site specific basis.

Avista plans to increase efforts to identify cost effective, site specific opportunities with our larger non-residential customers. Resources will be reallocated to support this initiative.

In addition, we will continue to look for opportunities to work cooperatively with the ETO where site specific efficiency projects are identified. We will also work closely with local land-use planners and energy consultants on new non-residential projects to influence energy efficiency decisions during the design phase.

MEASURE DEVELOPMENT

Avista will continue to look at the “best fit” for program implementation. Implementation options could include a combined effort between Avista’s Northern and Southern divisions, additional staffing, Energy Trust of Oregon (ETO), trade partners, and if developed, regional transformation efforts through a natural gas Northwest Energy Efficiency Alliance (NEEA).

NORTHERN DIVISION DSM PORTFOLIO

Conservation measures have been offered to Washington and Idaho customers without interruption since 2001 and periodically prior to that time.

A non-binding external oversight group, the External Energy Efficiency (“Triple-E”) Board, has been established to provide guidance for the implementation of DSM measures. This board is provided with monthly and quarterly updates, convenes twice a year and receives a comprehensive annual evaluation of acquisition and cost-effectiveness.

Avista’s Rate Schedule 190 provides the regulatory guidelines for the implementation of DSM measures. This tariff prescribes a set of tiered, direct financial incentives, as illustrated in Table 4.1.1, based on the customer simple payback of the measure.

Simple Pay-back Period	Incentive Level (\$/first year therm)
1 to 2 years	\$2.00
2 to 4 years	\$2.50
4 to 6 years	\$3.00
Over 6 years	\$3.50

Exceptions to these tiered incentives allow us flexibility to respond to unexpected or unique opportunities. This flexibility includes an additional set of tiered incentives, permitting higher incentives for the development of new technologies and market transformation efforts.

The original 2001 Schedule 190 tariff established an annual goal of 240,000 first-year therms. Almost immediately upon launch of the renewed gas-efficiency program, commodity-driven escalations in retail rates during the 2001 Western energy crisis drove acquisition well beyond these levels. Initial concerns that this higher level of acquisition may be unsustainable proved to be unfounded. A reassessment of the market in the 2007 Gas IRP process resulted in the establishment of a 1,425,070 annual therm goal for 2008 and 1,581,828 for 2009. The 2008 goal has proven to be achievable. Whether or not the 2009 goal is achievable remains to be seen as customers react within a struggling economy.

Beginning in 2015, carbon mitigation and other cost adders we model lead to significantly increased avoided cost in later years. The corresponding increased measure selection by our model results in preliminary 2010 and 2011 savings goals which will be a challenge. Current declining retail rates

for our customers make it difficult to influence them to react to forecasted price increases. Alternate scenarios modeled without the adders result in goals more inline with historical IRP goals.

It is possible that detailed implementation planning will result in the recommendation for revisions to the incentive levels, caps and applicable markets, and technologies as part of an overall strategy to meet the commitments made for increased long-term resource acquisition identified within this IRP.

Our conservation offerings within our North Division are accompanied by a mix of electric measures. In 2008 the natural gas share of the total BTU savings from the overall portfolio was 88 percent. This share shifts over time depending on resource opportunities, retail rates, technical advancements and customer interest. DSM implementation efforts within the North Division are further subdivided into three different portfolios; (1) the non-residential portfolio, (2) the residential portfolio and (3) the low-income residential portfolio. The approaches to the implementation of these three portfolios differ significantly in recognition of the differences in these market segments.

NON-RESIDENTIAL SEGMENT

While the non-residential portfolio has access to prescriptive measures, it is mainly characterized by its non-prescriptive approach to this market which provides incentives for any cost-effective project. Financial incentives are offered for projects based on the tiered incentive structure described above. This approach ensures that the unique operating characteristics of commercial and industrial customers are recognized. Prescriptive programs are limited to measures and applications with standard energy savings and cost characteristics or where a standardized approach can be developed. To simplify programs for our customers and trade allies and maximize program participation, we have been shifting towards more prescriptive non-residential programs.

In 2008, the company acquired 1,036,424 therms from this portfolio (55 percent of the total acquisition of all three segments). Fifty-four percent of the total non-interactive energy (electric and natural gas) acquisition is attributable to therm saving within this segment.

Large projects, those resulting in incentives of \$100,000 or larger, are disclosed to the Triple-E board to provide them with the information necessary to provide oversight of DSM programs.

RESIDENTIAL SEGMENT

Due to the large volume and relatively small size of individual projects, the residential portfolio is exclusively composed of prescriptive programs. In 2008 this portfolio was responsible for the acquisition of 749,199 first-year therms (40% of the total acquisition of all three segments). Of the non-interactive total energy (electric and natural gas) savings in 2008 from this portfolio, 39 percent are attributable to therm savings of this segment.

Incentives available for residential programs are calculated based on the application of the measure in a typical residential home or, in some cases, based on deemed savings. Calculations are made in accordance with Avista Rate Schedule 190 tiered incentives with appropriate modifications for potential differences in application, multiple measure programs and rounding for purposes of

offering a customer and trade ally-friendly program. The prescriptive residential programs currently available are natural gas furnaces/boilers, high efficiency water heaters, tankless water heaters, ceiling/attic insulation, floor/wall insulation, windows, and rooftop dampers.

Notably, several multifamily housing measures are incorporated within the residential segment due to the non-residential electric and natural gas rate schedules that many of these customers are billed. Many of the multifamily measures evaluated as part of this IRP analysis (e.g. pool and spa water heating efficiencies in multifamily housing) will be forwarded to the residential segment implementation team for further evaluation.

Avista is continuing an outreach effort targeted at residential customers within our service territory through involvement at area community events. The outreach effort is geared toward improving conservation by providing continuing educational messages regarding behavioral effects on energy use as well as encouraging customers to participate in programs that improve the efficiency of key natural gas appliances or shell measures.

In addition, we continue our multi-channel, multi-year educational outreach effort, known as Every Little Bit. Included in this effort is an website, www.everylittlebit.com, which provides a one-stop shop for energy efficiency information and tips, available rebates, latest information on renewable energy, as well as an interactive audit tool where customers can audit their home's energy efficiency and gain insight on improvements that can be made.

LOW-INCOME RESIDENTIAL SEGMENT

Avista's northern division low income programs are implemented in cooperation with six community action partnership (CAP) agencies. These CAP agencies are awarded an annual funding contract specifying the maximum funding amounts and the conditions for program implementation. Contracts can be revised on 30 days' notice, a provision that allows Avista flexibility to reallocate funds among the CAP agencies during the year to maximize their value to the customer base.

The CAP agencies and 2008/2009 funding levels are summarized in Table 4.1.2.

Community Action Partner	2008 Budget	2009 Budget
Lewiston CAP	\$480,937	\$660,000
North Columbia CAC (Moses Lake)	97,316	125,000
Rural Resources CA (Colville)	81,990	105,000
SNAP (Spokane)	722,919	950,000
Whitman County CAC (Pullman)	95,758	125,000
WGAP (White Salmon)	3,080	7,000
	<u>\$1,482,000</u>	<u>\$1,972,000</u>

The distribution of funding for the low income segment has been approached with the intent to provide the maximum flexibility possible. This permits the agencies to respond to unexpected urgent needs and energy-efficiency opportunities that may not have been anticipated when the annual contracts were signed.

As part of this flexibility, the CAP agencies are permitted to expend their contractual funding on either electric or natural gas-efficiency measures. The funding available includes an allowable 15 percent remuneration to the agency for administrative and outreach costs. Up to 15 percent of the funds can be expended for health and human safety measures with an emphasis on the safe use of energy, and maintenance and repairs necessary to ensure the longevity of installed efficiency measures and continued habitability of the home.

The low income residential segment delivered 102,438 first-year therms to the overall natural gas DSM program in 2008. This therm acquisition represented 5 percent of the total BTUs acquired by the combined electric and natural gas programs.

PROGRAM FUNDING

Avista's approach to conservation cost-recovery is through a public purpose surcharge on our customer's energy bill (the tariff rider). We currently manage separate tariff riders for Washington and Idaho natural gas investments. Based upon the demand for funds and incoming tariff rider contributions, this balance can be positive (shareholders owe customers) or negative (customers owe shareholders) at any particular point in time.

The aggregate natural gas tariff rider balance for the northern division is a negative (customer owes shareholders) \$4,047,415 as of July 30, 2009. Recent demand for conservation services has exceeded tariff rider revenue. Therefore, we recently requested increases to Schedule 191, the most recent of which went into effect in Idaho August 1, 2009. The most recent projection forecasts a positive (shareholders owe customers) \$74 thousand balance in the Washington natural gas DSM tariff rider and just below \$21 thousand positive in the Idaho natural gas tariff balance by year end 2010.

Funding for the natural gas efficiency programs is derived through a surcharge on retail rates authorized under Schedule 191. The recent increases to the Washington and Idaho natural gas surcharges were necessary to eliminate a persistent imbalance of tariff rider contributions and natural gas program expenditures. This imbalance tends to grow during the periods of increasing commodity costs and we continue to see higher than budgeted demand in program incentives. For example, in 2008 natural gas tariff rider contributions were over \$4.3 million while we paid customers nearly \$5.1 million in natural gas incentives, making incentives 117% of tariff rider contributions collected. Prior to consideration of infrastructure and other implementation costs, this puts Avista in a situation of a negative balance.

Only those customers contributing to the program funding through Avista Rate Schedule 191 are eligible to receive financial incentives. This limits availability to core natural gas customers. Periodically we claim the acquisition of natural gas savings from transport customers if those efficiencies result from involvement in a project that is tightly interwoven with an electric-efficiency project that was being evaluated and funded under the company's electric DSM program.

COOPERATIVE REGIONAL PROGRAMS

Avista has and remains interested in testing the viability of a regional market transformation approach to the acquisition of natural gas-efficiency potential. This model has proven to be successful within Northwest electric markets as evidenced by the success of the Northwest Energy Efficiency Alliance (NEEA). Though recent efforts at partnering with NEEA and establishing limited ad hoc regional efforts on the natural gas side have been unsuccessful, we will continue to seek alliances with other Northwest utilities to advance this concept.

CONCLUSION

We have explicitly recognized within this IRP our obligation to achieve all natural gas-efficiency resources available through utility intervention of cost-effective programs. Given the rapid changes within the natural gas market, many new efficiency opportunities may arise in the market. The Company will continue to consider and evaluate any developing technologies for inclusion in our programs between IRPs. Considerable uncertainty remains regarding the customer response to these programs, since this is a time of economic uncertainty at a time when retail gas prices are declining. Historically, we have seen less participation as prices decline. However, this uncertainty does not preclude us from pursuing the planned aggressive ramp-up of natural gas-efficiency programs. Additionally, we have, and will continue to actively seek, opportunities for new or enhanced resource acquisition through the development of cooperative regional programs.

One of the results of the IRP process is a 20-year forecast of avoided costs for each of the seven geographic areas. The detailed nature of these avoided costs makes it possible to continue to evaluate measures and applications as technology and markets change without the need to await the next IRP process. This is of value in determining program cost effectiveness based upon updated inputs, revised program plans and the ability to determine the value of targeting specific markets. Avoided cost determination is discussed in detail in Chapter 7 – Integrated Resource Portfolio.

The completion of the IRP analysis is the midpoint, not the ending point, of a larger reassessment of the DSM resource portfolio. The IRP analysis presented has generally indicated a set of cost effective measures and acquirable resource potential for a future DSM portfolio. These results remain in need of further evaluation to facilitate the development of program plans and to incorporate them into an updated DSM implementation plan for use in daily DSM operations.

APPENDIX 4.2

CONSERVATION MEASURES DETAIL

Appendix 4.2 - WA/ID DSM Program Details

Measure #	Measure	Market segment	Program bundle	Incremental		First yr		Winter or Annual	Measure life	Levelized		New Acquirable Potential (units)	Technical Potential	Annual therm acquirable potential	Annual total (for whole pgm) cost less NEB credit	Achievable	
				TRC cost / unit	Non-Energy Benefits	therm svgs / unit				TRC cost / therm	cost/therm w/o NEBs					Entered into SENDOUT®	SENDOUT® Code
1	Air sealing weatherstripping	Residential	Shell	\$ 200	\$ -	76	W	15	\$ 0.29	\$ 0.29	561		38,202	\$ 112,200.00	38,202	Res MTW	
2	Air sealing weatherstripping	Residential	Shell	\$ 150	\$ -	30	W	10	\$ 0.71	\$ 0.71	66		2,004	\$ 9,900.00	2,004	ResYel1	
3	Air sealing weatherstripping	Residential	Shell	\$ -	\$ -	0	W	25	\$ -	\$ -	33	2,443	1		1	ResMTW	
4	Attic insulation	Residential	Shell	\$ 1	\$ -	0	W	45	\$ 2.84	\$ 2.84	44	1,244	1	\$ 61.60	1	ResRed1	
5	Attic insulation	Residential	Shell	\$ 666	\$ -	59	W	45	\$ 0.84	\$ 0.84	561	50,034	33,099	\$ 373,626.00	33,099	ResYel2	
6	Blow-in insulation for roof	Residential	Shell	\$ 1	\$ -	0	W	25	\$ 1.73	\$ 1.73	33		1		1	ResRed1	
7	Boiler tune-up	Residential	HVAC	\$ 100	\$ -	27	W	5	\$ 0.92	\$ 0.92	22	34,340	586	\$ 2,200.00	586	Res Yel3	
8	Combo boiler	Residential	DHW	\$ 3,850	\$ -	180	A	20	\$ 2.03	\$ 2.03	37	1,484,246	6,032		6,032	ResRed2	
9	Combo boiler (air)	Residential	DHW	\$ 3,850	\$ -	180	A	20	\$ 2.03	\$ 2.03	22	171,173	3,548		3,548	ResRed2	
10	Combo boiler (air)	Residential	DHW	\$ 2,700	\$ -	71	A	20	\$ 3.61	\$ 3.61	40	33,260	2,519		2,519	ResRed2	
11	Combo boiler (hydronic)	Residential	DHW	\$ 2,200	\$ -	71	A	20	\$ 2.94	\$ 2.94	8	33,260	504		504	ResRed2	
12	Condensing boiler	Residential	HVAC	\$ 570	\$ -	80	W	20	\$ 0.68	\$ 0.68	40	1,288	3,164	\$ 22,572.00	3,164	ResYel4	
13	Condensing boiler	Residential	HVAC	\$ 570	\$ -	80	W	20	\$ 0.68	\$ 0.68	8	4,689	633	\$ 4,514.40	633	ResYel5	
14	Condensing boiler	Residential	DHW	\$ 570	\$ -	80	W	20	\$ 0.68	\$ 0.68	40	925	3,164	\$ 22,572.00	3,164	ResYel6	
15	Condensing boiler	Residential	DHW	\$ 570	\$ -	80	W	20	\$ 0.68	\$ 0.68	8	2,735	633	\$ 4,514.40	633	ResYel7	
16	Direct vent gas unit heater	Residential	HVAC	\$ 1,560	\$ -	127	W	20	\$ 1.17	\$ 1.17	9	72,810	1,183	\$ 14,586.00	1,183	ResYel8	
17	Direct vent gas unit heater	Residential	HVAC	\$ 1,395	\$ -	109	W	20	\$ 1.21	\$ 1.21	52		5,112		5,112	ResRed1	
18	Distribution controls	Residential	DHW	\$ 150	\$ -	8	W	15	\$ 2.07	\$ 2.07	22		158		158	ResRed1	
19	Duct commissioning	Residential	HVAC	\$ 300	\$ -	60	W	20	\$ 0.48	\$ 0.48	17	21,080	904		904	ResMTW	
20	Duct insulation retrofit	Residential	HVAC	\$ 459	\$ -	93	W	20	\$ 0.47	\$ 0.47	1,987	70,946	165,939	\$ 911,975.63	165,939	ResMTW	
21	Duct insulation retrofit	Residential	HVAC	\$ 275	\$ -	47	W	20	\$ 0.56	\$ 0.56	11	5,481	459	\$ 3,025.00	459	ResMTW	
22	Duct sealing	Residential	HVAC	\$ 500	\$ -	125	W	20	\$ 0.38	\$ 0.38	1,987	834,818	222,595	\$ 993,437.50	222,595	ResMTW	
23	Duct sealing	Residential	HVAC	\$ 300	\$ -	63	W	20	\$ 0.46	\$ 0.46	11	24,184	617	\$ 3,300.00	617	ResMTW	
24	Duct sealing	Residential	HVAC	\$ 200	\$ -	75	W	20	\$ 0.25	\$ 0.25	69	24,184	4,620		4,620	ResMTW	
25	Energy Star Clothes Washers	Residential	Appliances	\$ 70	\$ 63	17	A	13	\$ 0.05	\$ 0.49	3,109		47,354		47,354	ResMTA	
26	Energy Star Dishwasher	Residential	Appliances	\$ 50	\$ 37	5	A	13	\$ 0.31	\$ 1.20	3,740		16,755		16,755	ResMTA	
27	Energy Star Dishwasher	Residential	Appliances	\$ 50	\$ 37	5	A	13	\$ 0.31	\$ 1.20	110		493		493	ResMTA	
28	Energy Star Dishwasher	Residential	Appliances	\$ 50	\$ 37	5	A	13	\$ 0.31	\$ 1.20	103		462		462	ResMTA	
29	Energy Star Windows	Residential	Shell	\$ 392	\$ -	68	W	45	\$ 0.43	\$ 0.43	110	12,580	6,693	\$ 43,120.00	6,693	ResMTW	
30	Energy Star Windows	Residential	Shell	\$ 500	\$ -	89	W	45	\$ 0.42	\$ 0.42	3,740	202,443	296,738	\$ 1,870,000.00	296,738	ResMTW	
31	Exterior doors	Residential	Shell	\$ 100	\$ -	7	W	30	\$ 1.22	\$ 1.22	126		753		753	ResRed1	
32	Exterior doors	Residential	Shell	\$ 100	\$ -	7	W	30	\$ 1.22	\$ 1.22	10		59		59	ResRed1	
33	Exterior doors	Residential	Shell	\$ 500	\$ -	7	W	30	\$ 6.10	\$ 6.10	351		2,092		2,092	ResRed1	
34	Exterior doors	Residential	Shell	\$ 500	\$ -	7	W	30	\$ 6.10	\$ 6.10	18		109		109	ResRed1	
35	Faucet aerators (2)	Residential	DHW	\$ 12	\$ -	6	A	10	\$ 0.29	\$ 0.29	4,675		25,133		25,133	ResMTA	
36	Faucet aerators (2)	Residential	DHW	\$ 12	\$ -	6	A	10	\$ 0.29	\$ 0.29	550		2,957		2,957	ResMTA	
37	Faucet aerators (2)	Residential	DHW	\$ 12	\$ -	6	A	10	\$ 0.29	\$ 0.29	275		1,478		1,478	ResMTA	
38	Fireplace dampers	Residential	Shell	\$ 200	\$ -	76	W	15	\$ 0.29	\$ 0.29	733		49,937	\$ 146,666.67	49,937	ResMTW	
39	Floor insulation	Residential	Shell	\$ 1,200	\$ -	45	W	45	\$ 1.97	\$ 1.97	4	2,155	178	\$ 5,280.00	178	ResRed1	
40	Floor insulation	Residential	Shell	\$ 1,244	\$ -	128	W	45	\$ 0.72	\$ 0.72	9	122,075	1,200	\$ 11,631.40	1,200	ResYel9	
41	Furnace retrofit	Residential	HVAC	\$ 2,300	\$ -	180	W	20	\$ 1.21	\$ 1.21	2,945		475,444		475,444	ResRed1	
42	Furnace retrofit	Residential	HVAC	\$ 1,900	\$ -	76	W	20	\$ 2.38	\$ 2.38	11		748		748	ResRed1	
43	Furnace tune-up	Residential	HVAC	\$ 200	\$ -	10	W	3	\$ 7.63	\$ 7.63	69		616		616	ResRed1	
44	Gas Pool Heater	Residential	HVAC	\$ 3,364	\$ -	373	W	20	\$ 0.86	\$ 0.86	1	131,166	373	\$ 3,364.00	373	ResYel10	
45	Gas Pool Heater	Residential	HVAC	\$ 3,364	\$ -	373	W	20	\$ 0.86	\$ 0.86	70	756	26,146	\$ 235,900.50	26,146	ResYel11	
46	Gas Pool Heater	Residential	HVAC	\$ 3,364	\$ -	373	W	20	\$ 0.86	\$ 0.86	100		37,285	\$ 336,400.00	37,285	ResYel12	
47	Gas Pool Heater	Residential	HVAC	\$ 3,364	\$ -	373	W	20	\$ 0.86	\$ 0.86	1	756	246	\$ 2,220.24	246	ResYel13	
48	Gas Pool Heater	Residential	HVAC	\$ 8,651	\$ -	373	W	20	\$ 2.20	\$ 2.20	84	15,750	28,112		28,112	ResRed1	
49	Gas Pool Heater	Residential	HVAC	\$ 8,651	\$ -	373	W	20	\$ 2.20	\$ 2.20	1	15,750	220		220	ResRed1	
50	Heating System Maintenance (filter)	Residential	HVAC	\$ 200	\$ -	50	W	2	\$ 2.21	\$ 2.21	1,403		62,832		62,832	ResRed1	
51	High efficiency boiler	Residential	HVAC	\$ 1,000	\$ -	40	W	20	\$ 2.37	\$ 2.37	842		30,159	\$ 841,500.00	30,159	ResRed1	
52	High efficiency boiler	Residential	DHW	\$ 5,000	\$ -	40	W	20	\$ 11.89	\$ 11.89	2	660	79	\$ 11,000.00	79	ResRed1	
53	High efficiency furnace	Residential	HVAC	\$ 800	\$ -	120	W	20	\$ 0.63	\$ 0.63	140	22,905	16,808	\$ 112,200.00	16,808	ResYel14	
54	High efficiency furnace	Residential	HVAC	\$ 800	\$ -	72	W	20	\$ 1.06	\$ 1.06	1,683	51,530	121,176	\$ 1,346,400.00	121,176	ResYel15	
55	High efficiency furnace	Residential	HVAC	\$ 800	\$ -	61	W	20	\$ 1.24	\$ 1.24	6	1,180	302	\$ 4,400.00	302	ResRed1	

Measure #	Measure	Market segment	Program bundle	Incremental TRC cost / unit	Non-Energy Benefits	First yr therm svgs / unit	Winter or Annual	Measure life	Levelized TRC cost / therm	Levelized TRC cost/therm w/o NEBs	New Acquirable Potential (units)	Technical Potential	Annual therm acquirable potential	Annual total (for whole pgm) cost less NEB credit	Achievable Therms Entered into SENDOUT®	SENDOUT® Code
56	High Efficiency furnace	Residential	HVAC	\$ 800	\$ -	61	W	20	\$ 1.25	\$ 1.25	50		2,705	\$ 39,600.00	2,705	ResRed1
57	High efficiency water heater (tankless)	Residential	DHW	\$ 60	\$ -	20	A	12	\$ 0.38	\$ 0.38	1,683		30,159	\$ 100,980.00	30,159	ResMTA
58	High efficiency water heater (tankless)	Residential	DHW	\$ 60	\$ -	20	A	12	\$ 0.38	\$ 0.38	3		49	\$ 165.00	49	ResMTA
59	High efficiency water heater (tankless)	Residential	DHW	\$ 60	\$ -	20	A	12	\$ 0.38	\$ 0.38	1,346		24,127	\$ 80,784.00	24,127	ResMTA
60	High efficiency water heater (tankless)	Residential	DHW	\$ 60	\$ -	20	A	12	\$ 0.38	\$ 0.38	158		2,839	\$ 9,504.00	2,839	ResMTA
61	High efficiency water heater (tankless)	Residential	DHW	\$ 260	\$ -	20	A	12	\$ 1.64	\$ 1.64	1,683		30,159	\$ 437,580.00	30,159	ResRed2
62	High efficiency water heater (tankless)	Residential	DHW	\$ 260	\$ -	20	A	12	\$ 1.64	\$ 1.64	3		49	\$ 715.00	49	ResRed2
63	High efficiency water heater (tankless)	Residential	DHW	\$ 95	\$ -	7	A	25	\$ 1.17	\$ 1.17	48		337	\$ 4,571.88	337	ResRed2
64	High efficiency water heater (tankless)	Residential	DHW	\$ 100	\$ -	7	A	25	\$ 1.18	\$ 1.18	48		351	\$ 4,812.50	351	ResRed2
65	Horizontal axis clothes washer	Residential	Appliances	\$ 70	\$53	17	A	13	\$ 0.12	\$ 0.49	505	12,252	7,691	\$ 8,735.63	7,691	ResMTA
66	Horizontal axis clothes washer	Residential	Appliances	\$ 70	\$63	17	A	13	\$ 0.05	\$ 0.49	1,332	274,860	20,295	\$ 9,326.63	20,295	ResMTA
67	Installing storm windows	Residential	Shell	\$ 15	\$ -	1	W	25	\$ 0.90	\$ 0.90	220		308	\$ 3,196.60	308	ResYel16
68	Low flow showerheads	Residential	DHW	\$ 2	\$ 2	6	A	4	\$ 0.02	\$ 0.12	1,870		10,053	\$ 748.00	10,053	ResMTA
69	Low flow showerheads	Residential	DHW	\$ 2	\$ 2	6	A	4	\$ 0.02	\$ 0.12	1,403		7,540	\$ 561.00	7,540	ResMTA
70	Low flow showerheads	Residential	DHW	\$ 2	\$ 2	6	A	4	\$ 0.02	\$ 0.12	1,403		7,540	\$ 561.00	7,540	ResMTA
71	Passive solar water heating	Residential	DHW	\$ 2,000	\$ -	150	A	15	\$ 1.47	\$ 1.47	2	2,143,911	269	\$ 4,000.00	269	ResRed2
72	Passive solar water heating	Residential	DHW	\$ 2,000	\$ -	150	A	15	\$ 1.47	\$ 1.47	5		672	\$ 10,000.00	672	ResRed2
73	Pipe insulation	Residential	DHW	\$ 121	\$ -	10	A	15	\$ 1.34	\$ 1.34	94	153,739	838	\$ 11,313.50	838	ResRed2
74	Pipe insulation/wrap - long wrap (1/2")	Residential	DHW	\$ 15	\$ -	2	A	15	\$ 0.75	\$ 0.75	10		23	\$ 154.69	23	ResYel17
75	Pipe insulation/wrap - short wrap (1/2")	Residential	DHW	\$ 5	\$ -	1	A	15	\$ 0.69	\$ 0.69	10		8	\$ 51.56	8	ResYel18
76	Pool blanket	Residential	DHW	\$ 1,100	\$ -	1,360	A	10	\$ 0.12	\$ 0.12	1	1,274,184	1,219	\$ 1,100.00	1,219	ResMTA
77	Pool blanket	Residential	DHW	\$ 25	\$ -	41	A	20	\$ 0.06	\$ 0.06	20		740	\$ 500.00	740	ResMTA
78	Power burner	Residential	HVAC	\$ 180	\$ -	27	W	12	\$ 0.85	\$ 0.85	6		146	\$ 990.00	146	ResYel19
79	Tankless water heater	Residential	DHW	\$ 800	\$ -	82	A	20	\$ 0.93	\$ 0.93	84	56,346	6,900	\$ 67,320.00	6,900	ResYel20
80	Tankless water heater	Residential	DHW	\$ 800	\$ -	82	A	20	\$ 0.93	\$ 0.93	1	6,498	90	\$ 880.00	90	ResYel21
81	Tankless water heater	Residential	DHW	\$ 800	\$ -	82	A	20	\$ 0.93	\$ 0.93	9	676,157	767	\$ 7,480.00	767	ResYel22
82	Tankless water heater	Residential	DHW	\$ 800	\$ -	82	A	20	\$ 0.93	\$ 0.93	1	77,979	90	\$ 880.00	90	ResYel23
83	Tankless water heater	Residential	DHW	\$ 700	\$ -	102	A	15	\$ 0.76	\$ 0.76	168	901,542	17,167	\$ 117,810.00	17,167	ResYel24
84	Thermal Vent Damper	Residential	HVAC	\$ 60	\$ -	27	W	12	\$ 0.28	\$ 0.28	990	14,309	23,624	\$ 59,400.00	23,624	ResMTW
85	Wall insulation	Residential	Shell	\$ 2	\$ -	0	W	45	\$ 0.23	\$ 0.23	2,244,000	67,141	989,126	\$ 3,366,000.00	989,126	ResMTW
86	Walls insulation	Residential	Shell	\$ 1	\$ -	0	W	45	\$ 1.39	\$ 1.39	2,750		132	\$ 2,750.00	132	ResRed1
87	Zone and Loop Controls	Residential	HVAC	\$ 630	\$ -	63	W	15	\$ 1.11	\$ 1.11	47		2,926	\$ 29,452.50	2,926	ResYel25
88	BBQ / Rotisserie Oven	Non-residenti.	Cooking	\$ 1,003	\$ -	198	A	15	\$ 0.56	\$ 0.56	1	337	198	\$ 1,003.00	198	ComYel1
89	Boiler	Non-residenti.	DHW	\$ 11,928	\$ -	800	W	20	\$ 1.42	\$ 1.42	50	7,194	4,120	\$ 596,400.00	4,120	ComRed2
90	Boiler Tune-up	Non-residenti.	HVAC	\$ 100	\$ -	67	W	5	\$ 0.37	\$ 0.37	10	10,422	69	\$ 1,000.00	69	ComMTW
91	Clothes washer	Non-residenti.	Appliances	\$ 2,250	\$ -	50	A	11	\$ 6.02	\$ 6.02	2	4,678	10	\$ 4,500.00	10	ComRed1
92	Clothes washer	Non-residenti.	Appliances	\$ 900	\$193	50	A	11	\$ 1.89	\$ 2.41	5	425	26	\$ 3,535.07	26	ComRed1
93	Coin-Op Clothers Dryer	Non-residenti.	Appliances	\$ 5,573	\$ -	419	A	11	\$ 1.78	\$ 1.78	2	21,722	86	\$ 11,146.00	86	ComRed1
94	Coin-Op Clothers Dryer	Non-residenti.	Appliances	\$ 613	\$ -	419	A	11	\$ 0.20	\$ 0.20	2	1,975	86	\$ 1,226.00	86	ComMTA
95	Coin-op clothes washer	Non-residenti.	Appliances	\$ 750	\$ -	11	A	11	\$ 9.13	\$ 9.13	5	1,504	6	\$ 3,750.00	6	ComRed1
96	Coin-op clothes washer	Non-residenti.	Appliances	\$ 300	\$125	29	A	11	\$ 0.81	\$ 1.39	10	137	290	\$ 1,748.99	290	ComYel2
97	Combination Oven	Non-residenti.	Cooking	\$ 17,018	\$ -	164	A	15	\$ 11.45	\$ 11.45	2	2,182	34	\$ 34,036.00	34	ComRed1
98	Combination Oven	Non-residenti.	Cooking	\$ 1,667	\$ -	164	A	15	\$ 1.12	\$ 1.12	7	146	1,148	\$ 11,669.00	1,148	ComRed1
99	Condensing Boiler	Non-residenti.	DHW	\$ 36,701	\$ -	1,200	A	20	\$ 2.90	\$ 2.90	5	14,046	618	\$ 183,505.00	618	ComRed1
100	Condensing Storage Water Heater	Non-residenti.	DHW	\$ 848	\$ -	308	A	15	\$ 0.30	\$ 0.30	10	15,373	317	\$ 8,480.00	317	ComMTA
101	Condensing Tank Water Heater	Non-residenti.	DHW	\$ 3,855	\$ -	771	A	15	\$ 0.55	\$ 0.55	8	518,830	6,168	\$ 30,840.00	6,168	ComYel3
102	Convection Oven	Non-residenti.	Cooking	\$ 5,762	\$ -	324	A	20	\$ 1.69	\$ 1.69	2	26,784	67	\$ 11,524.00	67	ComRed1
103	Convection Oven	Non-residenti.	Cooking	\$ 2,696	\$ -	324	A	20	\$ 0.79	\$ 0.79	5	1,786	1,620	\$ 13,480.00	1,620	ComYel4
104	Conveyer Broiler	Non-residenti.	Cooking	\$ 3,674	\$ -	661	A	15	\$ 0.61	\$ 0.61	1	981	661	\$ 3,674.00	661	ComYel5
105	Conveyer Broiler	Non-residenti.	Cooking	\$ 1,182	\$ -	661	A	15	\$ 0.20	\$ 0.20	2	65	136	\$ 2,364.00	136	ComMTA
106	Demand control ventilation	Non-residenti.	HVAC	\$ 0.8	\$ -	0.3888	W	20	\$ 0.20	\$ 0.20	15		1	\$ 12.00	1	ComMTW
107	Energy recovery ventilation	Non-residenti.	HVAC	\$ 4	\$ -	0.4403	W	20	\$ 0.86	\$ 0.86	2,500		1,101	\$ 10,000.00	1,101	ComYel6
108	Energy Star Steamer	Non-residenti.	Cooking	\$ 970	\$ -	643	A	20	\$ 0.14	\$ 0.14	20	5,015	1,325	\$ 19,400.00	1,325	ComMTA
109	Energy Star Steamer	Non-residenti.	Cooking	\$ 111	\$ -	643	A	20	\$ 0.02	\$ 0.02	20	334	1,325	\$ 2,220.00	1,325	ComMTA
110	Fryer	Non-residenti.	Cooking	\$ 3,500	\$ -	445	A	15	\$ 0.87	\$ 0.87	2		890	\$ 7,000.00	890	ComYel7
111	Fryer	Non-residenti.	Cooking	\$ 1,219	\$ -	404	A	15	\$ 0.33	\$ 0.33	6		250	\$ 7,314.00	250	ComMTA

Measure #	Measure	Market segment	Program bundle	Incremental TRC cost / unit	Non-Energy Benefits	First yr therm svgs / unit	Winter or Annual	Measure life	Levelized TRC cost / therm	Levelized TRC cost/therm w/o NEBs	New Acquirable Potential (units)	Technical Potential	Annual therm acquirable potential	Annual total (for whole pgm) cost less NEB credit	Achievable Therms Entered into SENDOUT®	SENDOUT® Code
112	Gas Pool Heater	Non-residenti.	Pool	\$ 8,651	\$ -	373	A	20	\$ 2.20	\$ 2.20	2	5,231	77	\$ 17,302.00	77	ComRed1
113	Gas Spa Heater	Non-residenti.	Pool	\$ 1,377	\$ -	13	A	20	\$ 9.82	\$ 9.82	2	110	3	\$ 2,754.00	3	ComRed1
114	Griddle	Non-residenti.	Cooking	\$ 1,500	\$ -	81	A	15	\$ 2.04	\$ 2.04	2		17	\$ 3,000.00	17	ComRed1
115	Griddle	Non-residenti.	Cooking	\$ 491	\$ -	75	A	15	\$ 0.72	\$ 0.72	4		300	\$ 1,964.00	300	ComYel8
116	High efficiency charbroiler	Non-residenti.	Cooking	\$ 1,313	\$ -	298	A	15	\$ 0.49	\$ 0.49	2	521	61	\$ 2,626.00	61	ComMTA
117	High efficiency condensing hot wa	Non-residenti.	Cooking	\$ 4,153	\$ -	483	A	15	\$ 0.95	\$ 0.95	5	518,830	2,415	\$ 20,765.00	2,415	ComYel9
118	High efficiency condensing hot wa	Non-residenti.	Cooking	\$ 2,266	\$ -	218	A	15	\$ 1.15	\$ 1.15	5	15,373	1,090	\$ 11,330.00	1,090	ComRed1
119	High efficiency hot water heater	Non-residenti.	Cooking	\$ 551	\$ -	13	A	15	\$ 4.68	\$ 4.68	5		7	\$ 2,755.00	7	ComRed1
120	High efficiency hot water heater	Non-residenti.	Cooking	\$ 175	\$ -	12	A	15	\$ 1.61	\$ 1.61	5		6	\$ 875.00	6	ComRed1
121	Multi-tank conveyer dishwasher	Non-residenti.	Cooking	\$ 24,000	\$ -	1,092	A	15	\$ 2.43	\$ 2.43	2		225	\$ 48,000.00	225	ComRed1
122	Multi-tank conveyer dishwasher	Non-residenti.	Cooking	\$ 4,000	\$ -	993	A	15	\$ 0.44	\$ 0.44	4		409	\$ 16,000.00	409	ComMTA
123	Occupancy sensors for PTAC uni	Non-residenti.	HVAC	200	\$ -	34.13	W	20	\$ 0.56	\$ 0.56	200		703	\$ 40,000.00	703	ComMTW
124	Pizza / Deck Oven	Non-residenti.	Cooking	\$ 8,007	\$ -	256	A	20	\$ 2.97	\$ 2.97	1		26	\$ 8,007.00	26	ComRed1
125	Pizza / Deck Oven	Non-residenti.	Cooking	\$ 466	\$ -	256	A	20	\$ 0.17	\$ 0.17	2	284	53	\$ 932.00	53	ComMTA
126	Point of Use hot water heater	Non-residenti.	Cooking	\$ 1,118	\$ -	18	A	15	\$ 6.85	\$ 6.85	2		4	\$ 2,236.00	4	ComRed1
127	Point of Use hot water heater	Non-residenti.	Cooking	\$ 371	\$ -	17	A	15	\$ 2.41	\$ 2.41	2		4	\$ 742.00	4	ComRed1
128	Pool blanket	Non-residenti.	Pool	\$ 2,200	\$ -	2,720	A	10	\$ 0.12	\$ 0.12	5	9,792	1,401	\$ 11,000.00	1,401	ComMTA
129	Programmable Thermostats	Non-residenti.	HVAC	\$ 100	\$ -	117	W	20	\$ 0.08	\$ 0.08	10		121	\$ 1,000.00	121	ComMTW
130	Rack / Tray Oven	Non-residenti.	Cooking	\$ 9,709	\$ -	1,013	A	20	\$ 0.91	\$ 0.91	3	2,134	3,039	\$ 29,127.00	3,039	ComYel10
131	Radiant heat	Non-residenti.	HVAC	\$ 25	\$ -	117	W	20	\$ 0.02	\$ 0.02	6		72	\$ 150.00	72	ComMTW
132	Recirculation Controls	Non-residenti.	DHW	\$ 1,311	\$ -	386	A	10	\$ 0.49	\$ 0.49	8	33,802	318	\$ 10,488.00	318	ComMTA
133	Retro-Commissioning	Non-residenti.	HVAC	3000	\$ -	2000	W	7	\$ 0.28	\$ 0.28	5		1,030	\$ 15,000.00	1,030	ComMTW
134	Roof insulation	Non-residenti.	Shell	\$ 0	\$ -	0	W	30	\$ 0.15	\$ 0.15	30	7,683	1	\$ 12.00	1	ComMTW
135	Rooftop Maintenance	Non-residenti.	HVAC	\$ 100	\$ -	117	W	20	\$ 0.08	\$ 0.08	20		241	\$ 2,000.00	241	ComMTW
136	Salamander	Non-residenti.	Cooking	\$ 300	\$ -	137	A	15	\$ 0.24	\$ 0.24	15	28	212	\$ 4,500.00	212	ComMTA
137	Salamander (Broiler)	Non-residenti.	Cooking	\$ 2,221	\$ -	137	A	15	\$ 1.79	\$ 1.79	15	425	212	\$ 33,315.00	212	ComRed1
138	Single tank conveyer dishwasher	Non-residenti.	Cooking	\$ 7,000	\$ -	559	A	15	\$ 1.38	\$ 1.38	5		288	\$ 35,000.00	288	ComRed1
139	Single tank conveyer dishwasher	Non-residenti.	Cooking	\$ 2,000	\$ -	509	A	15	\$ 0.43	\$ 0.43	10		524	\$ 20,000.00	524	ComMTA
140	Single tank door type dishwasher	Non-residenti.	Cooking	\$ 6,000	\$ -	669	A	15	\$ 0.99	\$ 0.99	5		3,345	\$ 30,000.00	3,345	ComYel11
141	Single tank door type dishwasher	Non-residenti.	Cooking	\$ 2,000	\$ -	608	A	15	\$ 0.36	\$ 0.36	10		626	\$ 20,000.00	626	ComMTA
142	Solar water	Non-residenti.	DHW	\$ 2,000	\$ -	150	A	11	\$ 1.79	\$ 1.79	1		15	\$ 2,000.00	15	ComRed1
143	Tankless Water Heater	Non-residenti.	DHW	\$ 600	\$ -	211	A	20	\$ 0.27	\$ 0.27	25	3,935	543	\$ 15,000.00	543	ComMTA
144	Time clock control of hot water he	Non-residenti.	Cooking	\$ 224	\$ -	11	A	15	\$ 2.25	\$ 2.25	1		1	\$ 224.00	1	ComRed1
145	Time clock control of hot water he	Non-residenti.	Cooking	\$ 224	\$ -	11	A	15	\$ 2.25	\$ 2.25	1		1	\$ 224.00	1	ComRed1
146	Under counter dishwashers	Non-residenti.	Cooking	\$ 6,000	\$ -	358	A	15	\$ 1.85	\$ 1.85	5		184	\$ 30,000.00	184	ComRed1
147	Under counter dishwashers	Non-residenti.	Cooking	\$ 1,000	\$ -	326	A	15	\$ 0.34	\$ 0.34	10		336	\$ 10,000.00	336	ComMTA
148	Vent Damper	Non-residenti.	HVAC	\$ 304	\$ -	134	W	12	\$ 0.29	\$ 0.29	10	5,848	139	\$ 3,040.00	139	ComMTW
149	Vent Hood Controls	Non-residenti.	Cooking	\$ 2,160	\$ -	293	A	15	\$ 0.81	\$ 0.81	5		1,465	\$ 10,800.00	1,465	ComYel12
150	Vent Hood Controls	Non-residenti.	Cooking	\$ 1,298	\$ -	293	A	15	\$ 0.49	\$ 0.49	5		151	\$ 6,490.00	151	ComMTA
151	Wall insulation	Non-residenti.	Shell	\$ 0	\$ -	0	W	30	\$ 0.11	\$ 0.11	500,000	15,782	15,087	\$ 195,000.00	15,087	ComMTW
152	Warm Up Control	Non-residenti.	HVAC	\$ 300	\$ -	240	W	10	\$ 0.18	\$ 0.18	50	6,246	1,234	\$ 15,000.00	1,234	ComMTW
153	Window retrofit	Non-residenti.	Shell	\$ 30	\$ -	2	W	30	\$ 1.61	\$ 1.61	150,000	15,874	23,453	\$ 4,500,000.00	23,453	ComRed2
												10,387,595	3,016,057	\$ 5,153,638.00	3,016,057	

Appendix 4.2 - Oregon DSM Programs Details

Measure #	Measure	Market segment	Program bundle	Incremental TRC cost / unit	Non-Energy Benefits	First yr therm svgs / unit	Winter or Annual	Measure life	Levelized TRC cost / therm	Levelized TRC cost/therm w/o NEBs	New Acquirable Potential (units)	Technical Potential	Annual therm acquirable potential	Annual total (for whole pgm) cost less NEB credit	Achievable Therms Entered into SENDOUT®	SENDOUT® Code
1	Air sealing weatherstr	Residential	Shell	\$ 250	\$ -	51	W	10	\$ 0.61	\$ 0.61	33		1,645	\$ 8,128.13	1,645	ResYel1
2	Air sealing weatherstr	Residential	Shell	\$ 150	\$ -	30	W	10	\$ 0.61	\$ 0.61	8		232	\$ 1,147.50	232	ResYel2
3	Air sealing weatherstr	Residential	Shell	\$ -	\$ -	0	W	25	\$ -	\$ -	5,000	814	100	\$ -	100	ResMTW
4	Attic insulation	Residential	Shell	\$ 1	\$ -	0	W	45	\$ 1.90	\$ 1.90	10,000	415	366	\$ 14,000.00	366	ResRed1
5	Attic insulation	Residential	Shell	\$ 666	\$ -	59	W	45	\$ 0.56	\$ 0.56	217	16,678	12,786	\$ 144,355.50	12,786	ResMTW
6	Blow-in insulation for	Residential	Shell	\$ 1	\$ -	0	W	25	\$ 1.30	\$ 1.30	2,000		100	\$ 2,000.00	100	ResRed1
7	Boiler tune-up	Residential	HVAC	\$ 100	\$ -	27	W	5	\$ 0.85	\$ 0.85	9	11,447	226	\$ 850.00	226	ResYel3
8	Combo boiler	Residential	DHW	\$ 3,850	\$ -	180	A	20	\$ 1.60	\$ 1.60	4	494,749	650	\$ 13,908.13	650	ResRed2
9	Combo boiler (air)	Residential	DHW	\$ 3,850	\$ -	180	A	20	\$ 1.60	\$ 1.60	2	57,058	383	\$ 8,181.25	383	ResRed2
10	Combo boiler (air)	Residential	DHW	\$ 2,700	\$ -	71	A	20	\$ 2.84	\$ 2.84	1	11,087	54	\$ 2,065.50	54	ResRed2
11	Combo boiler (hydron	Residential	DHW	\$ 2,200	\$ -	71	A	20	\$ 2.32	\$ 2.32	3	11,087	217	\$ 6,732.00	217	ResRed2
12	Condensing boiler	Residential	HVAC	\$ 570	\$ -	80	W	20	\$ 0.53	\$ 0.53	2	429	122	\$ 872.10	122	ResMTW
13	Condensing boiler	Residential	HVAC	\$ 570	\$ -	80	W	20	\$ 0.53	\$ 0.53	2	1,563	122	\$ 872.10	122	ResMTW
14	Condensing boiler	Residential	DHW	\$ 570	\$ -	80	W	20	\$ 0.53	\$ 0.53	1	308	61	\$ 436.05	61	ResMTW
15	Condensing boiler	Residential	DHW	\$ 570	\$ -	80	W	20	\$ 0.53	\$ 0.53	1	912	61	\$ 436.05	61	ResMTW
16	Direct vent gas unit h	Residential	HVAC	\$ 713	\$ -	127	W	20	\$ 0.42	\$ 0.42	1	1,214	77	\$ 436.36	77	ResMTW
17	Direct vent gas unit h	Residential	HVAC	\$ 1,560	\$ -	127	W	20	\$ 0.92	\$ 0.92	4	24,270	457	\$ 5,635.50	457	ResYel4
18	Duct commissioning	Residential	HVAC	\$ 300	\$ -	60	W	20	\$ 0.37	\$ 0.37	7	7,027	390	\$ 1,950.75	390	ResMTW
19	Duct insulation retrofit	Residential	HVAC	\$ 459	\$ -	93	W	20	\$ 0.37	\$ 0.37	28	23,649	2,576	\$ 12,684.75	2,576	ResMTW
20	Duct insulation retrofit	Residential	HVAC	\$ 275	\$ -	47	W	20	\$ 0.44	\$ 0.44	1	1,827	40	\$ 233.75	40	ResMTW
21	Duct sealing	Residential	HVAC	\$ 800	\$ -	125	W	20	\$ 0.48	\$ 0.48	31	278,273	3,839	\$ 24,565.00	3,839	ResMTW
22	Duct sealing	Residential	HVAC	\$ 800	\$ -	63	W	20	\$ 0.96	\$ 0.96	4	8,061	266	\$ 3,400.00	266	ResYel5
23	Duct sealing	Residential	HVAC	\$ 200	\$ -	75	W	20	\$ 0.20	\$ 0.20	5	8,061	398	\$ 1,062.50	398	ResMTW
24	Energy Star Clothes W	Residential	Appliances	\$ 150	\$ 63	5	A	13	\$ 1.76	\$ 3.04	858		4,290	\$ 74,643.28	4,290	ResRed2
25	Energy Star Dishwash	Residential	Appliances	\$ 50	\$ 37	5	A	13	\$ 0.26	\$ 1.01	434		2,168	\$ 5,635.50	2,168	ResMTA
26	Energy Star Dishwash	Residential	Appliances	\$ 50	\$ 37	5	A	13	\$ 0.26	\$ 1.01	43		213	\$ 552.50	213	ResMTA
27	Energy Star Dishwash	Residential	Appliances	\$ 50	\$ 37	5	A	13	\$ 0.26	\$ 1.01	40		199	\$ 517.97	199	ResMTA
28	Energy Star Windows	Residential	Shell	\$ 392	\$ -	68	W	45	\$ 0.29	\$ 0.29	13	4,193	866	\$ 4,998.00	866	ResMTW
29	Energy Star Windows	Residential	Shell	\$ 500	\$ -	89	W	45	\$ 0.28	\$ 0.28	145	67,481	12,796	\$ 72,250.00	12,796	ResMTW
30	Fireplace dampers	Residential	Shell	\$ 200	\$ -	76	W	15	\$ 0.24	\$ 0.24	7		538	\$ 1,416.67	538	ResMTW
31	Floor insulation	Residential	Shell	\$ 1,200	\$ -	45	W	45	\$ 1.32	\$ 1.32	2	718	77	\$ 2,040.00	77	ResRed1
32	Floor insulation	Residential	Shell	\$ 1,244	\$ -	128	W	45	\$ 0.48	\$ 0.48	108	40,692	13,912	\$ 134,818.50	13,912	ResMTW
33	Furnace retrofit	Residential	HVAC	\$ 600	\$ -	71	W	20	\$ 0.64	\$ 0.64	253		17,843	\$ 151,725.00	17,843	ResYel6
34	Furnace retrofit	Residential	HVAC	\$ 600	\$ -	71	W	20	\$ 0.63	\$ 0.63	4		302	\$ 2,550.00	302	ResYel7
35	Furnace tune-up	Residential	HVAC	\$ 200	\$ -	10	W	3	\$ 7.23	\$ 7.23	48		478	\$ 9,562.50	478	ResRed1
36	Gas Pool Heater	Residential	HVAC	\$ 3,364	\$ -	373	W	20	\$ 0.67	\$ 0.67	1	43,722	373	\$ 3,364.00	373	ResYel8
37	Gas Pool Heater	Residential	HVAC	\$ 3,364	\$ -	373	W	20	\$ 0.67	\$ 0.67	1	252	364	\$ 3,281.16	364	ResYel9
38	Gas Pool Heater	Residential	HVAC	\$ 3,364	\$ -	373	W	20	\$ 0.67	\$ 0.67	1	252	190	\$ 1,715.64	190	ResYel10
39	Gas Pool Heater	Residential	HVAC	\$ 8,651	\$ -	373	W	20	\$ 1.73	\$ 1.73	1	5,250	404	\$ 9,375.52	404	ResRed1
40	Gas Pool Heater	Residential	HVAC	\$ 8,651	\$ -	373	W	20	\$ 1.73	\$ 1.73	0	5,250	95	\$ 2,206.01	95	ResRed1
41	Heating System Main	Residential	HVAC	\$ 200	\$ -	50	W	2	\$ 2.13	\$ 2.13	542		27,094	\$ 108,375.00	27,094	ResRed1
42	High efficiency boiler	Residential	HVAC	\$ 1,000	\$ -	40	W	20	\$ 1.87	\$ 1.87	8		312	\$ 7,803.00	312	ResRed1
43	High efficiency boiler	Residential	DHW	\$ 5,000	\$ -	40	W	20	\$ 9.36	\$ 9.36	2	220	85	\$ 10,625.00	85	ResRed1
44	High efficiency furnac	Residential	HVAC	\$ 600	\$ -	71	W	20	\$ 0.63	\$ 0.63	325	16,299	23,084	\$ 195,075.00	23,084	ResYel11
45	High efficiency furnac	Residential	HVAC	\$ 600	\$ -	71	W	20	\$ 0.63	\$ 0.63	253	17,177	17,954	\$ 151,725.00	17,954	ResYel12

Measure #	Measure	Market segment	Program bundle	Incremental TRC cost / unit	Non-Energy Benefits	First yr therm svgs / unit	Winter or Annual	Measure life	Levelized TRC cost / therm	Levelized TRC cost/therm w/o NEBs	New Acquirable Potential (units)	Technical Potential	Annual therm acquirable potential	Annual total (for whole pgm) cost less NEB credit	Achievable Therms Entered into SENDOUT®	SENDOUT® Code
46	High efficiency furnac	Residential	HVAC	\$ 600	\$ -	71	W	20	\$ 0.63	\$ 0.63	2	393	151	\$ 1,275.00	151	ResYel13
47	High efficiency water	Residential	DHW	\$ 60	\$ -	27	A	12	\$ 0.24	\$ 0.24	81	7,635	2,195	\$ 4,876.88	2,195	ResMTA
48	High efficiency water	Residential	DHW	\$ 60	\$ -	27	A	12	\$ 0.24	\$ 0.24	65		1,756	\$ 3,901.50	1,756	ResMTA
49	High efficiency water	Residential	DHW	\$ 60	\$ -	27	A	12	\$ 0.24	\$ 0.24	84		2,272	\$ 5,049.00	2,272	ResMTA
50	High efficiency water	Residential	DHW	\$ 260	\$ -	27	A	12	\$ 1.04	\$ 1.04	72	91,620	1,936	\$ 18,646.88	1,936	ResRed2
51	Horizontal axis clothe	Residential	Appliances	\$ 150	\$ 63	5	A	13	\$ 1.77	\$ 3.04	434	4,084	2,168	\$ 37,910.16	2,168	ResRed2
52	Horizontal axis clothe	Residential	Appliances	\$ 150	\$ 63	5	A	13	\$ 1.76	\$ 3.04	461		2,303	\$ 40,071.66	2,303	ResRed2
53	Passive solar water h	Residential	DHW	\$ 2,000	\$ -	150	A	15	\$ 1.21	\$ 1.21	1	714,637	90	\$ 1,200.00	90	ResRed2
54	Passive solar water h	Residential	DHW	\$ 2,000	\$ -	150	A	15	\$ 1.21	\$ 1.21	2		225	\$ 3,000.00	225	ResRed2
55	Pipe insulation	Residential	DHW	\$ 121	\$ -	10	A	15	\$ 1.10	\$ 1.10	36	51,246	361	\$ 4,371.13	361	ResRed2
56	Pipe insulation/wrap -	Residential	DHW	\$ 15	\$ -	2	A	15	\$ 0.62	\$ 0.62	4		9	\$ 59.77	9	ResYel14
57	Pipe insulation/wrap -	Residential	DHW	\$ 5	\$ -	1	A	15	\$ 0.57	\$ 0.57	4		3	\$ 19.92	3	ResYel15
58	Pool blanket	Residential	DHW	\$ 1,100	\$ 0	1,360	A	10	\$ 0.10	\$ 0.10	0	424,728	408	\$ 330.00	408	ResMTA
59	Programmable Therm	Residential	HVAC	\$ 75	\$ 0	27	W	20	\$ 0.21	\$ 0.21	200		5,400	\$ 15,000.00	5,400	ResMTW
60	Programmable Therm	Residential	HVAC	\$ 75	\$ -	27	W	20	\$ 0.21	\$ 0.21	200		5,400	\$ 15,000.00	5,400	ResMTW
61	Programmable Therm	Residential	HVAC	\$ 75	\$ -	27	W	20	\$ 0.21	\$ 0.21	200		5,400	\$ 15,000.00	5,400	ResMTW
62	Tankless water heate	Residential	DHW	\$ 800	\$ -	90	A	20	\$ 0.66	\$ 0.66	75	18,782	6,730	\$ 59,823.00	6,730	ResYel16
63	Tankless water heate	Residential	DHW	\$ 800	\$ -	90	A	20	\$ 0.66	\$ 0.66	0	2,166	38	\$ 340.00	38	ResYel17
64	Tankless water heate	Residential	DHW	\$ 800	\$ -	90	A	20	\$ 0.66	\$ 0.66	72	225,386	6,503	\$ 57,800.00	6,503	ResYel18
65	Tankless water heate	Residential	DHW	\$ 800	\$ -	90	A	20	\$ 0.66	\$ 0.66	0	25,993	38	\$ 340.00	38	ResYel19
66	Tankless water heate	Residential	DHW	\$ 700	\$ -	102	A	15	\$ 0.63	\$ 0.63	65	300,514	6,633	\$ 45,517.50	6,633	ResYel20
67	Thermal Vent Damp	Residential	HVAC	\$ 60	\$ -	27	W	12	\$ 0.24	\$ 0.24	383	4,770	10,187	\$ 22,950.00	10,187	ResMTW
68	Wall insulation	Residential	Shell	\$ 2	\$ -	0	W	45	\$ 0.15	\$ 0.15	3,853	22,380	1,896	\$ 5,780.00	1,896	ResMTW
69	BBQ / Rotisserie Ove	Non-residential	Cooking	\$ 5,746	\$ -	198	A	15	\$ 2.64	\$ 2.64	1	112	198	\$ 5,746.00	198	ComRed1
70	BBQ / Rotisserie Ove	Non-residential	Cooking	\$ 1,003	\$ -	198	A	15	\$ 0.46	\$ 0.46	1	7	198	\$ 1,003.00	198	ComMTA
71	Boiler	Non-residential	DHW	\$ 11,928	\$ -	800	W	20	\$ 1.11	\$ 1.11	3	2,398	2,400	\$ 35,784.00	2,400	ComYel1
72	Boiler Tune-up	Non-residential	HVAC	\$ 100	\$ -	67	W	5	\$ 0.34	\$ 0.34	5	3,474	333	\$ 500.00	333	ComMTW
73	Cheesemelter	Non-residential	Cooking	\$ 408	\$ -	203	A	15	\$ 0.18	\$ 0.18	1	11	203	\$ 408.00	203	ComMTA
74	Cheesemelter (broiler	Non-residential	Cooking	\$ 3,937	\$ -	203	A	15	\$ 1.77	\$ 1.77	1	159	203	\$ 3,937.00	203	ComRed1
75	Clothes Dryer	Non-residential	Appliances	\$ 14,415	\$ -	740	A	11	\$ 2.25	\$ 2.25	1	23,076	740	\$ 14,415.00	740	ComRed1
76	Clothes Dryer	Non-residential	Appliances	\$ 1,586	\$ -	740	A	11	\$ 0.25	\$ 0.25	1	2,098	740	\$ 1,586.00	740	ComMTA
77	Clothes washer	Non-residential	Appliances	\$ 2,250	\$ -	50	A	11	\$ 5.19	\$ 5.19	1	1,559	50	\$ 2,250.00	50	ComRed1
78	Clothes washer	Non-residential	Appliances	\$ 900	\$ 224	50	A	11	\$ 1.56	\$ 2.07	1	142	50	\$ 675.82	50	ComRed1
79	Coin-Op Clothers Dry	Non-residential	Appliances	\$ 5,573	\$ 0	419	A	11	\$ 1.53	\$ 1.53	4	7,241	1,676	\$ 22,292.00	1,676	ComRed1
80	Coin-Op Clothers Dry	Non-residential	Appliances	\$ 613	\$ -	419	A	11	\$ 0.17	\$ 0.17	4	658	1,676	\$ 2,452.00	1,676	ComMTA
81	Coin-op clothes wash	Non-residential	Appliances	\$ 750	\$ -	11	A	11	\$ 7.86	\$ 7.86	4	501	44	\$ 3,000.00	44	ComRed1
82	Coin-op clothes wash	Non-residential	Appliances	\$ 300	\$ 145	29	A	11	\$ 0.61	\$ 1.19	4	46	116	\$ 618.72	116	ComYel2
83	Combination Oven	Non-residential	Cooking	\$ 5,717	\$ 586	403	A	12	\$ 1.37	\$ 1.53	2	727	806	\$ 10,262.00	806	ComRed1
84	Combination Oven	Non-residential	Cooking	\$ 5,717	\$ 586	403	A	12	\$ 1.37	\$ 1.53	2	49	806	\$ 10,262.00	806	ComRed1
85	Condensing Boiler	Non-residential	DHW	\$ 36,701	\$ -	1,200	A	20	\$ 2.29	\$ 2.29	2	4,682	2,400	\$ 73,402.00	2,400	ComRed1
86	Condensing Storage \	Non-residential	DHW	\$ 2,500	\$ -	1,200	A	15	\$ 0.19	\$ 0.19	3	5,124	3,600	\$ 7,500.00	3,600	ComMTA
87	Condensing Tank Wa	Non-residential	DHW	\$ 7,800	\$ -	1,200	A	15	\$ 0.59	\$ 0.59	2	172,943	2,400	\$ 15,600.00	2,400	ComYel3
88	Convection Oven	Non-residential	Cooking	\$ 1,886	\$ -	324	A	12	\$ 0.63	\$ 0.63	5	8,928	1,620	\$ 9,430.00	1,620	ComYel4
89	Convection Oven	Non-residential	Cooking	\$ 1,886	\$ -	324	A	12	\$ 0.63	\$ 0.63	5	595	1,620	\$ 9,430.00	1,620	ComYel5
90	Conveyer Broiler	Non-residential	Cooking	\$ 3,674	\$ -	661	A	15	\$ 0.51	\$ 0.51	2	327	1,322	\$ 7,348.00	1,322	ComYel6
91	Conveyer Broiler	Non-residential	Cooking	\$ 1,182	\$ -	661	A	15	\$ 0.16	\$ 0.16	2	22	1,322	\$ 2,364.00	1,322	ComMTA

Measure #	Measure	Market segment	Program bundle	Incremental TRC cost / unit	Non-Energy Benefits	First yr therm svgs / unit	Winter or Annual	Measure life	Levelized TRC cost / therm	Levelized TRC cost/therm w/o NEBs	New Acquirable Potential (units)	Technical Potential	Annual therm acquirable potential	Annual total (for whole pgm) cost less NEB credit	Achievable Therms Entered into SENDOUT@	SENDOUT@ Code
92	Demand control venti	Non-residential	HVAC	0.8	\$ -	0.3888	W	20	\$ 0.15	\$ 0.15	7,500		2,916	\$ 6,000.00	2,916	ComMTW
93	Energy recovery venti	Non-residential	HVAC	\$ 4	\$ -	0	W	20	\$ 0.68	\$ 0.68	10,000		4,403	\$ 40,000.00	4,403	ComYel7
94	Energy Star Steamer	Non-residential	Cooking	\$ 3,733	\$ 1,083	2,084	A	12	\$ 0.14	\$ 0.19	3	1,672	6,252	\$ 7,950.00	6,252	ComMTA
95	Energy Star Steamer	Non-residential	Cooking	\$ 3,733	\$ 1,083	2,084	A	12	\$ 0.14	\$ 0.19	3	111	6,252	\$ 7,950.00	6,252	ComMTA
96	Fryer	Non-residential	Cooking	\$ 1,219	\$ -	505	A	12	\$ 0.26	\$ 0.26	5		2,525	\$ 6,095.00	2,525	ComMTA
97	Fryer	Non-residential	Cooking	\$ 1,219	\$ -	505	A	12	\$ 0.26	\$ 0.26	5		2,525	\$ 6,095.00	2,525	ComMTA
98	Gas Pool Heater	Non-residential	Pool	\$ 8,651	\$ -	373	A	20	\$ 1.73	\$ 1.73	1	1,744	373	\$ 8,651.00	373	ComRed1
99	Gas Pool Heater	Non-residential	Pool	\$ 3,364	\$ -	373	A	20	\$ 0.67	\$ 0.67	1	87	373	\$ 3,364.00	373	ComYel8
100	Gas Spa Heater	Non-residential	Pool	\$ 1,377	\$ -	13	A	20	\$ 7.73	\$ 7.73	1	37	13	\$ 1,377.00	13	ComRed1
101	Gas Spa Heater	Non-residential	Pool	\$ 344	\$ -	13	A	20	\$ 1.93	\$ 1.93	1	2	13	\$ 344.00	13	ComRed1
102	Griddle	Non-residential	Cooking	\$ 491	\$ -	88	A	12	\$ 0.60	\$ 0.60	2		176	\$ 982.00	176	ComYel9
103	Griddle	Non-residential	Cooking	\$ 491	\$ -	88	A	12	\$ 0.60	\$ 0.60	2		176	\$ 982.00	176	ComYel10
104	High efficiency charbr	Non-residential	Cooking	\$ 9,029	\$ -	298	A	15	\$ 2.76	\$ 2.76	2	2,604	596	\$ 18,058.00	596	ComRed1
105	High efficiency charbr	Non-residential	Cooking	\$ 1,313	\$ -	298	A	15	\$ 0.40	\$ 0.40	2	174	596	\$ 2,626.00	596	ComMTA
106	High efficiency conde	Non-residential	Cooking	2500	\$ -	1200	A	15	\$ 0.19	\$ 0.19	3	172,943	3,600	\$ 7,500.00	3,600	ComMTA
107	High efficiency conde	Non-residential	Cooking	\$ 7,800	\$ -	1,200	A	15	\$ 0.59	\$ 0.59	5	5,124	6,000	\$ 39,000.00	6,000	ComYel11
108	High efficiency hot wa	Non-residential	Cooking	\$ 551	\$ -	13	A	15	\$ 3.86	\$ 3.86	10		130	\$ 5,510.00	130	ComRed1
109	High efficiency hot wa	Non-residential	Cooking	\$ 175	\$ -	12	A	15	\$ 1.33	\$ 1.33	10		120	\$ 1,750.00	120	ComRed1
110	Infrared Fryer Griddle	Non-residential	Cooking	\$ 5,899	\$ -	194	A	20	\$ 2.27	\$ 2.27	1	1,825	194	\$ 5,899.00	194	ComRed1
111	Infrared Fryer Griddle	Non-residential	Cooking	\$ 2,146	\$ -	194	A	20	\$ 0.83	\$ 0.83	1	122	194	\$ 2,146.00	194	ComYel12
112	Infrared General Purp	Non-residential	Cooking	\$ 5,889	\$ -	300	A	15	\$ 1.79	\$ 1.79	1	7,355	300	\$ 5,889.00	300	ComRed1
113	Infrared General Purp	Non-residential	Cooking	\$ 3,186	\$ -	300	A	15	\$ 0.97	\$ 0.97	1	490	300	\$ 3,186.00	300	ComYel13
114	Multi-tank conveyer d	Non-residential	Cooking	\$ 4,000	\$ -	993	A	15	\$ 0.37	\$ 0.37	1		993	\$ 4,000.00	993	ComMTA
115	Multi-tank conveyer d	Non-residential	Cooking	\$ 4,000	\$ -	993	A	15	\$ 0.37	\$ 0.37	1		993	\$ 4,000.00	993	ComMTA
116	Oven Conveyer	Non-residential	Cooking	\$ 5,933	\$ -	364	A	20	\$ 1.22	\$ 1.22	4	26	1,456	\$ 23,732.00	1,456	ComRed1
117	Pizza / Deck Oven	Non-residential	Cooking	\$ 466	\$ -	256	A	20	\$ 0.14	\$ 0.14	1	95	256	\$ 466.00	256	ComMTA
118	Point of Use hot wate	Non-residential	Cooking	\$ 1,118	\$ -	18	A	15	\$ 5.66	\$ 5.66	1		18	\$ 1,118.00	18	ComRed1
119	Point of Use hot wate	Non-residential	Cooking	\$ 371	\$ -	17	A	15	\$ 1.99	\$ 1.99	1		17	\$ 371.00	17	ComRed1
120	Pool blanket	Non-residential	Pool	\$ 2,200	\$ -	2,720	A	10	\$ 0.10	\$ 0.10	3	3,264	8,160	\$ 6,600.00	8,160	ComMTA
121	Power Burner	Non-residential	HVAC	\$ 913	\$ -	134	W	12	\$ 0.73	\$ 0.73	2	975	269	\$ 1,826.00	269	ComYel14
122	Programmable Therm	Non-residential	HVAC	\$ 100	\$ -	117	W	20	\$ 0.06	\$ 0.06	20		2,344	\$ 2,000.00	2,344	ComMTW
123	Programmable Therm	Non-residential	HVAC	25	\$ -	117.1802578	W	20	\$ 0.02	\$ 0.02	20		2,344	\$ 500.00	2,344	ComMTW
124	Rack / Tray Oven	Non-residential	Cooking	\$ 4,933	\$ -	1,034	A	12	\$ 0.51	\$ 0.51	2	10,671	2,068	\$ 9,866.00	2,068	ComYel15
125	Rack / Tray Oven	Non-residential	Cooking	\$ 4,933	\$ -	1,034	A	12	\$ 0.51	\$ 0.51	2	711	2,068	\$ 9,866.00	2,068	ComYel16
126	Radiant heat	Non-residential	HVAC	\$ 25	\$ -	117	W	20	\$ 0.02	\$ 0.02	5		586	\$ 125.00	586	ComMTW
127	Recirculation Control	Non-residential	DHW	\$ 1,311	\$ -	386	A	10	\$ 0.42	\$ 0.42	1	11,267	386	\$ 1,311.00	386	ComMTA
128	Recirculation Control	Non-residential	HVAC	\$ 200	\$ -	35	W	25	\$ 0.37	\$ 0.37	1		35	\$ 200.00	35	ComMTW
129	Retro-Commissioning	Non-residential	HVAC	\$ 3,000	\$ -	2,000	W	7	\$ 0.25	\$ 0.25	5		10,000	\$ 15,000.00	10,000	ComMTW
130	Roof insulation	Non-residential	Shell	\$ 0	\$ -	0	W	30	\$ 0.11	\$ 0.11	20	2,561	4	\$ 8.00	4	ComMTW
131	Rooftop Maintenance	Non-residential	HVAC	\$ 100	\$ -	117	W	20	\$ 0.06	\$ 0.06	50		5,859	\$ 5,000.00	5,859	ComMTW
132	Salamander	Non-residential	Cooking	\$ 300	\$ -	137	A	15	\$ 0.20	\$ 0.20	1	9	137	\$ 300.00	137	ComMTA
133	Salamander (Broiler)	Non-residential	Cooking	\$ 2,221	\$ -	137	A	15	\$ 1.48	\$ 1.48	1	142	137	\$ 2,221.00	137	ComRed1
134	Single tank conveyer	Non-residential	Cooking	\$ 3,000	\$ -	508	A	15	\$ 0.54	\$ 0.54	2		1,016	\$ 6,000.00	1,016	ComYel17
135	Single tank conveyer	Non-residential	Cooking	\$ 3,000	\$ -	508	A	15	\$ 0.54	\$ 0.54	2		1,016	\$ 6,000.00	1,016	ComYel18
136	Single tank door type	Non-residential	Cooking	\$ 2,000	\$ -	554	A	15	\$ 0.33	\$ 0.33	2		1,108	\$ 4,000.00	1,108	ComMTA
137	Single tank door type	Non-residential	Cooking	\$ 2,000	\$ -	554	A	15	\$ 0.33	\$ 0.33	2		1,108	\$ 4,000.00	1,108	ComMTA

Measure #	Measure	Market segment	Program bundle	Incremental TRC cost / unit	Non-Energy Benefits	First yr therm svgs / unit	Winter or Annual	Measure life	Levelized TRC cost / therm	Levelized TRC cost/therm w/o NEBs	New Acquirable Potential (units)	Technical Potential	Annual therm acquirable potential	Annual total (for whole pgm) cost less NEB credit	Achievable Therms Entered into SENDOUT@	SENDOUT@ Code
138	Solar water	Non-residential	DHW	\$ 2,000	\$ -	150	A	11	\$ 1.54	\$ 1.54	2		300	\$ 4,000.00	300	ComRed1
139	Tankless Water Heatr	Non-residential	DHW	\$ 600	\$ -	211	A	20	\$ 0.21	\$ 0.21	5	1,312	1,055	\$ 3,000.00	1,055	ComMTA
140	Time clock control of	Non-residential	Cooking	\$ 224	\$ -	11	A	15	\$ 1.85	\$ 1.85	20		220	\$ 4,480.00	220	ComRed1
141	Time clock control of	Non-residential	Cooking	\$ 224	\$ -	11	A	15	\$ 1.85	\$ 1.85	10		110	\$ 2,240.00	110	ComRed1
142	Under counter dishwa	Non-residential	Cooking	\$ 1,000	\$ -	217	A	15	\$ 0.42	\$ 0.42	2		434	\$ 2,000.00	434	ComMTA
143	Under counter dishwa	Non-residential	Cooking	\$ 1,000	\$ -	217	A	15	\$ 0.42	\$ 0.42	2		434	\$ 2,000.00	434	ComMTA
144	Vent Damper	Non-residential	HVAC	\$ 304	\$ -	134	W	12	\$ 0.24	\$ 0.24	20	1,949	2,690	\$ 6,080.00	2,690	ComMTW
145	Vent Hood Controls	Non-residential	Cooking	\$ 2,160	\$ -	293	A	15	\$ 0.67	\$ 0.67	5		1,465	\$ 10,800.00	1,465	ComYel19
146	Vent Hood Controls	Non-residential	Cooking	\$ 1,298	\$ -	293	A	15	\$ 0.40	\$ 0.40	5		1,465	\$ 6,490.00	1,465	ComMTA
147	Wall insulation	Non-residential	Shell	\$ 0	\$ -	0	W	30	\$ 0.08	\$ 0.08	10	5,261	3	\$ 3.90	3	ComMTW
148	Warm Up Control	Non-residential	HVAC	\$ 300	\$ -	240	W	10	\$ 0.16	\$ 0.16	10	2,082	2,397	\$ 3,000.00	2,397	ComMTW
149	Window retrofit	Non-residential	Shell	\$ 30	\$ -	2	W	30	\$ 1.17	\$ 1.17	5	5,291	8	\$ 150.00	8	ComYel20
												3,529,552	326,413	\$ 2,140,843.97	326,413	

APPENDIX 4.3

SENDOUT® SELECTED CONSERVATION MEASURES

DSM Program	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029
SpoNwComYel8	9.30	18.60	27.98	37.20	46.50	55.80	65.28	74.40	83.70	93.00	102.58	111.60	120.90	130.20	139.88	139.50	139.50	139.50	139.88	139.50
SpoNWComYel9	74.87	149.73	225.21	299.46	374.32	449.19	525.49	598.92	673.78	748.65	825.77	898.38	973.24	1,048.11	1,126.05	1,122.98	1,122.98	1,122.98	1,126.05	1,122.98
SpoNWPComMTA	249.35	498.70	750.11	997.41	1,246.76	1,496.11	1,750.25	1,994.82	2,244.17	2,493.52	2,750.39	2,992.23	3,241.58	3,490.93	3,750.53	3,989.64	3,989.64	3,989.64	4,000.57	3,989.64
SpoNWPComMTW	578.77	1,152.53	1,703.96	2,249.87	2,795.19	3,340.68	3,855.90	4,365.93	4,873.29	5,384.66	5,903.81	6,414.43	6,925.04	7,436.67	7,949.04	8,452.22	8,969.11	9,453.05	9,951.21	10,446.52
SpoNWPResMTA	6,415.31	12,830.62	19,298.66	25,661.24	32,076.55	38,491.86	45,030.21	51,322.48	57,737.80	64,153.11	70,761.76	70,568.42	70,568.42	70,568.42	70,761.76	70,568.42	70,568.42	70,568.42	70,761.76	70,568.42
SpoNWPResMTW	55,852.47	111,220.74	164,434.32	217,115.28	269,739.75	322,380.36	372,099.63	421,318.56	470,279.25	519,627.30	569,725.86	619,001.29	668,276.70	717,648.96	767,093.85	815,651.02	865,531.71	912,232.80	960,305.81	1,008,104.40
SpoNWResRed1	18,950.97	37,737.65	55,793.23	73,668.09	91,523.79	109,384.96	126,254.91	142,955.09	159,567.65	176,311.64	193,310.29	210,029.64	226,748.99	243,501.19	260,278.05	276,753.70	293,678.41	309,524.28	308,686.40	307,848.51
SpoNWResRed2	1,401.83	2,803.67	4,217.02	5,607.33	7,009.17	8,411.00	9,839.72	11,214.67	12,616.50	14,018.33	15,462.41	16,822.00	18,223.83	19,625.67	21,085.11	21,027.50	21,027.50	21,027.50	21,085.11	21,027.50
SpoNWResYel1	62.25	123.96	183.28	241.99	300.65	359.32	414.74	469.59	524.16	579.17	633.75	688.33	742.91	797.50	852.08	906.66	961.25	1,015.83	1,070.42	1,125.00
SpoNWResYel2	1,028.30	2,047.68	3,027.39	3,997.30	4,966.17	5,935.33	6,850.71	7,756.88	8,658.29	9,566.84	10,489.20	11,396.41	12,303.62	13,212.61	14,122.94	15,016.92	15,935.27	16,795.08	17,680.15	18,560.17
SpoNWResYel3	18.02	36.25	53.59	70.76	87.91	105.06	122.21	139.36	156.51	173.66	190.81	207.96	225.11	242.26	259.41	276.56	293.71	310.86	328.01	345.16
SpoNWResYel4	98.29	195.73	289.38	382.09	474.71	567.35	654.85	741.46	827.63	914.47	1,002.64	1,089.36	1,176.08	1,262.97	1,349.98	1,435.44	1,523.22	1,605.41	1,690.01	1,774.13
SpoNWResYel5	19.46	39.15	57.88	76.42	94.94	113.47	130.97	148.29	165.53	182.89	200.53	217.87	235.22	252.59	270.00	287.09	304.64	321.08	338.00	354.83
SpoNWResYel6	98.29	195.73	289.38	382.09	474.71	567.35	654.85	741.46	827.63	914.47	1,002.64	1,089.36	1,176.08	1,262.97	1,349.98	1,435.44	1,523.22	1,605.41	1,690.01	1,774.13
SpoNWResYel7	19.46	39.15	57.88	76.42	94.94	113.47	130.97	148.29	165.53	182.89	200.53	217.87	235.22	252.59	270.00	287.09	304.64	321.08	338.00	354.83
SpoNWResYel8	36.75	73.17	108.18	142.84	177.47	212.10	244.81	277.19	309.40	341.87	374.83	407.25	439.67	472.15	504.68	536.63	569.44	600.17	631.80	663.25
SpoNWResYel9	37.29	74.25	109.78	144.95	180.08	215.22	248.42	281.28	313.96	346.91	380.35	413.25	446.15	479.11	512.12	544.54	577.84	609.01	641.11	673.02
Total	334,773.39	667,296.95	988,536.74	1,303,215.49	1,617,684.94	1,931,911.48	2,232,354.20	2,528,495.50	2,823,605.22	3,120,181.74	3,422,328.51	3,697,358.23	3,971,359.62	4,241,877.10	4,509,973.28	4,760,566.91	5,017,071.09	5,257,940.63	5,451,730.10	5,640,674.84
WA/ID	301,814.13	601,712.74	891,185.01	1,177,562.75	1,463,920.90	1,750,299.42	2,023,082.98	2,292,255.67	2,560,765.39	2,831,156.39	3,105,933.78	3,354,136.74	3,603,255.05	3,852,844.71	4,103,825.60	4,340,392.14	4,583,618.25	4,811,199.92	4,991,177.33	5,168,015.00
OR	28,184.13	56,085.76	83,463.49	107,828.20	132,020.36	155,984.57	179,756.19	202,962.26	225,922.66	248,427.17	272,083.29	295,243.72	316,709.66	334,892.88	349,861.12	362,267.71	373,952.22	385,992.22	398,268.95	409,028.72

APPENDIX 4.4

ENVIRONMENTAL EXTERNALITIES

APPENDIX 4.4 – ENVIRONMENTAL EXTERNALITIES (OREGON JURISDICTION ONLY)

OVERVIEW

The methodology for determining avoided costs from reduced incremental natural gas usage considers commodity and variable transportation costs only. These avoided cost streams do not include environmental externality costs related to the gathering, transmission, distribution or end-use of natural gas.

Per traditional economic theory and industry practice, an environmental externality factor is typically added to the avoided cost when there is an opportunity to displace traditional supply-side resources with an alternative resource with no adverse environmental impact.

REGULATORY GUIDANCE

The Oregon Public Utility Commission (OPUC) issued Order 93-965 (UM-424) to address how utilities should consider the impact of environmental externalities in planning for future energy resources. The Order required analysis on the potential natural gas cost impacts from emitting carbon dioxide (CO₂) and nitric-oxide (NO_x).

The OPUC's Order No. 07-002 in Docket UM 1056 (Investigation Into Integrated Resource Planning) established the following guideline for the treatment of environmental costs used by energy utilities that evaluate demand-side and supply-side energy choices:

UM 1056, Guideline 8 - Environmental Costs

“Utilities should include, in their base-case analyses, the regulatory compliance costs they expect for carbon dioxide (CO₂), nitrogen oxides (NO_x), sulfur oxides (SO₂), and mercury (Hg) emissions. Utilities should analyze the range of potential CO₂ regulatory costs in Order No. 93-695, from \$0 - \$40 (1990\$). In addition, utilities should perform sensitivity analysis on a range of reasonably possible cost adders for nitrogen oxides (NO_x), sulfur dioxide (SO₂), and mercury (Hg), if applicable.

In June 2008, the OPUC issued Order 08-338 (UM1302) which revised UM1056, Guideline 8. The revised guideline requires the utility should construct a base case portfolio to reflect what it considers to be the most likely regulatory compliance future for the various emissions. Additionally the guideline requires the utility to develop several compliance scenarios ranging from the present CO₂ regulatory level to the upper reaches of credible proposals and each scenario should include a time profile of CO₂ costs. The utility is also required to include a “trigger point” analysis in which the utility must determine at what level of carbon costs its selection of portfolio resources would be significantly different.

ANALYSIS

Unlike electric utilities, environmental cost issues rarely impact a natural gas utility's supply-side resource options. This is because the only supply-side energy resource is natural gas. The utility cannot choose between say "dirty" coal-fired generation and "clean" wind energy sources. The supply-side implication of environmental externalities generally relates to combustion of fuel to move or compress natural gas. Avista's direct gas distribution system infrastructure relies solely on the upstream line pressure of the interstate

pipeline transportation network to distribute natural gas to its customers and thus does not directly combust fuels that result in any CO₂, NO_x, SO₂, or Hg emissions.

Upstream gas system infrastructure (pipelines, storage facilities, and gathering systems), however, do produce CO₂ emissions via compressors used to pressurize and move natural gas. Accessing CO₂ emissions data on these upstream activities to perform detailed meaningful analysis is challenging but increasingly important given building momentum around legislative developments regarding GHG legislation and the movement towards the creation of carbon cap and trade markets. Avista believes the cap and trade proposals being contemplated are the likely form of environmental externality cost capture versus a carbon tax framework. Under either structure, Avista believes the cost pass through mechanisms for upstream gas system infrastructure will not make a difference in supply-side resource selection although the amount of cost pass through could differ widely.

Table 4.2.1 summarizes a range of environmental cost adders we believe capture several compliance futures including our expected scenario and upper reaches of credible proposals. The CO₂ cost adders reflect outlooks we obtained from one of our consultants, and following discussion and feedback from the TAC, have been incorporated into each of our six demand scenarios at various assumption levels.

The guidelines also call for a trigger point analysis that reflects a “turning point” at which an alternate resource portfolio would be selected at different carbon cost adders levels. Because natural gas is the only supply resource applicable to LDC’s any alternate resource portfolio selection would be a result of delivery methods of natural gas to customers. Conceptually, there could be differing levels of cost adders applicable to pipeline transported supply versus in service territory LNG storage gas. From a practical standpoint however, the differences in these relative cost adders would be very minor and would not change supply-side resource selection regardless of various carbon cost adder levels. We do acknowledge there is influence on the level of demand-side measures that could be cost effective. This alternate demand-side resource portfolio selection is captured in our overall process of comparing demand-side and supply-side resources described in Chapter 4 – Demand-Side Resources.

CONSERVATION COST ADVANTAGE

For this IRP, we also incorporated a 10 percent environmental externality factor into our assessment of the cost-effectiveness of existing demand-side management programs. Our assessment of prospective demand-side management opportunities is based on an avoided cost stream that includes this 10 percent factor.

Environmental externalities were evaluated in the IRP by adding the cost per therm equivalent of the externality cost values to supply-side resources as described in OPUC Order No. 93-965. Avista found that the environmental cost adders had no impact on the company’s supply-side choices, although they did impact the level of demand-side measures that could be cost-effective to acquire.

REGULATORY FILING

Avista will file revised cost-effectiveness limits (CELs) based upon the updated avoided costs available from this IRP process within the prescribed regulatory timetable. We anticipate this will occur in early 2010.

Table 4.2.1 Environmental Externalities Cost Adder Analysis (2009\$)

		2015	2020	2025	2030	
Expected Case - Updated June Data	NOx	\$/ton	\$ 1,750	\$ 1,237	\$ 1,205	\$ 1,119
		\$/lb	\$ 0.88	\$ 0.62	\$ 0.60	\$ 0.56
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder \$/therm	\$ 0.01	\$ 0.00	\$ 0.00	\$ 0.00
		\$/therm	\$ 12.58	\$ 16.69	\$ 21.30	\$ 27.19
	CO2	\$/lb	\$ 0.0063	\$ 0.0083	\$ 0.0107	\$ 0.0136
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder \$/therm	\$ 0.07	\$ 0.10	\$ 0.12	\$ 0.16
		Total Adders \$/therm	\$ 0.08	\$ 0.10	\$ 0.13	\$ 0.16
Expected Case (Jan Data)	NOx	\$/ton	\$ 1,343	\$ 1,140	\$ 1,137	\$ 1,268
		\$/lb	\$ 0.67	\$ 0.57	\$ 0.57	\$ 0.63
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder \$/therm	\$ 0.01	\$ 0.00	\$ 0.00	\$ 0.01
		\$/therm	\$ 21.00	\$ 46.00	\$ 58.00	\$ 71.00
	CO2	\$/lb	\$ 0.0105	\$ 0.0230	\$ 0.0290	\$ 0.0355
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder \$/therm	\$ 0.12	\$ 0.27	\$ 0.34	\$ 0.41
		Total Adders \$/therm	\$ 0.13	\$ 0.27	\$ 0.34	\$ 0.42
Green Future	NOx	\$/ton	\$ 1,343	\$ 1,140	\$ 1,137	\$ 1,268
		\$/lb	\$ 0.67	\$ 0.57	\$ 0.57	\$ 0.63
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder \$/therm	\$ 0.01	\$ 0.00	\$ 0.00	\$ 0.01
		\$/therm	\$ 46.45	\$ 67.03	\$ 96.74	\$ 139.60
	CO2	\$/lb	\$ 0.0232	\$ 0.0335	\$ 0.0484	\$ 0.0698
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder \$/therm	\$ 0.27	\$ 0.39	\$ 0.56	\$ 0.81
		Total Adders \$/therm	\$ 0.28	\$ 0.39	\$ 0.57	\$ 0.82

		2015	2020	2025	2030	
Expected Case - Updated Alt NOx	NOx	\$/ton	\$ 7,001	\$ 4,947	\$ 4,821	\$ 4,475
		\$/lb	\$ 3.50	\$ 2.47	\$ 2.41	\$ 2.24
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder \$/therm	\$ 0.03	\$ 0.02	\$ 0.02	\$ 0.02
		\$/therm	\$ 12.58	\$ 16.69	\$ 21.30	\$ 27.19
	CO2	\$/lb	\$ 0.0063	\$ 0.0083	\$ 0.0107	\$ 0.0136
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder \$/therm	\$ 0.07	\$ 0.10	\$ 0.12	\$ 0.16
		Total Adders \$/therm	\$ 0.10	\$ 0.12	\$ 0.14	\$ 0.18
Expected Case (Jan Data) Alt NOx	NOx	\$/ton	\$ 5,373	\$ 4,560	\$ 4,547	\$ 5,070
		\$/lb	\$ 2.69	\$ 2.28	\$ 2.27	\$ 2.54
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder \$/therm	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.02
		\$/therm	\$ 21.00	\$ 46.00	\$ 58.00	\$ 71.00
	CO2	\$/lb	\$ 0.0105	\$ 0.0230	\$ 0.0290	\$ 0.0355
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder \$/therm	\$ 0.12	\$ 0.27	\$ 0.34	\$ 0.41
		Total Adders \$/therm	\$ 0.14	\$ 0.29	\$ 0.36	\$ 0.43
Green Future Alt NOx	NOx	\$/ton	\$ 5,373	\$ 4,560	\$ 4,547	\$ 5,070
		\$/lb	\$ 2.69	\$ 2.28	\$ 2.27	\$ 2.54
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder \$/therm	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.02
		\$/therm	\$ 46.45	\$ 67.03	\$ 96.74	\$ 139.60
	CO2	\$/lb	\$ 0.0232	\$ 0.0335	\$ 0.0484	\$ 0.0698
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder \$/therm	\$ 0.27	\$ 0.39	\$ 0.56	\$ 0.81
		Total Adders \$/therm	\$ 0.29	\$ 0.41	\$ 0.58	\$ 0.83

