2015 Integrated Resource Plan

Prepared for:

City of Gillette
Electrical Services Division
Gillette, Wyoming

December 2014

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1. Overview on the City of Gillette

1.1. Background

The City of Gillette ("the City") is a municipal utility providing electric services to the retail customers located in the City of Gillette, Wyoming. The City's service area includes the residential, commercial, and industrial electric customers of the City of Gillette as well as City owned facilities that exist outside the City Limits. The City owns two generation facilities and purchases the remainder of its requirements through bilateral agreements from regional utility systems. The City's electrical services division operates and maintains the City's underground & overhead electric distribution system and the 69kV transmission line that supplies wholesale power purchased by the City for distribution to its retail customers. The division also operates & maintains the City's electrical substations and installs line extensions into new service territory.

1.2. Customer Information

The City is located in Campbell County, Wyoming. It is approximately 19 square miles and located in the northeast portion of the state. The City is one of the more populated areas of the state with a population of approximately 32,000 (2013). The City's municipal electric utility system serves approximately 15,000 customers in the City of Gillette. It serves approximately 12,600 residential customers and 2,300 commercial customers. In addition to end-use customers, the city also serves municipal requirements, such as Regional Water System Facilities.

1.3. Overview of the City's IRP Requirements

As further discussed below, the city has previously participated in an Integrated Resource Planning ("IRP") process conducted by the Municipal Energy Agency of Nebraska ("MEAN"). As such, it previously met the Energy Planning and Management Program ("EPAMP") requirements as implemented by the Western Area Power Authority ("Western") through that process. As of September 1, 2014, the City is no longer a participant in the MEAN IRP process and is responsible for conducting its own IRP process. This IRP is the City's first and is intended to meet Western's EPAMP requirements.

1.4. Purpose, Goals, and Objectives of the IRP

The purpose of this IRP is to develop a two and five-year implementation plan for best serving the City's power supply requirements while meeting the objectives of the IRP. The City has several goals and objectives for developing and implementing its IRP process. They are as follows:

- Supply diversity;
- Meet customer preferences;
- Minimize total costs; and
- Enhance reliability.

As mentioned above, an important component of this IRP is the two and five-year implementation plans. As further described below, the City has developed these implementation plans to support and work towards meeting the goals of this IRP.

2. Customer Requirements

2.1. Historical Consumption

The City of Gillette is a summer peaking system, which experienced a peak demand of 67.0 MW and retail energy sales of 336,000 MWh in 2013. Its winter peak was 63.5 MW during the 2012/2013 winter period. The City experienced an all-time high peak demand of 71.0 MW during the summer of 2012. The City's requirements have grown considerably over the last several years, with increases in peak demand and energy at 2.6 percent and 3.4 percent, respectively, over the last 10 years. The table provided below presents the City's peak demand and energy consumption over the last 20-years.

Table 1

Historical Peak Demand and Annual Energy

	Summer Peak (MW)	Percent Change	Winter Peak (MW)	Percent Change	Summer Energy (GWh)	Winter Energy (GWh)	Annual Energy (GWh)	Percent Change	Load Factor
1994	31,920.0		34,560.0		86,932	98,184	185,116		61.15%
1995	33,170.0	3.92%	37,800.0	9.38%	89,119	101,331	190,450	2.88%	57.52%
1996	33,800.0	1.90%	37,490.0	-0.82%	90,223	103,160	193,382	1.54%	58.88%
1997	34,240.0	1.30%	34,600.0	-7.71%	91,394	100,483	191,877	-0.78%	63.31%
1998	36,800.0	7.48%	39,165.6	13.20%	96,588	103,586	200,173	4.32%	58.34%
1999	39,601.9	7.61%	35,092.0	-10.40%	99,398	104,099	203,497	1.66%	58.66%
2000	40,875.3	3.22%	39,963.5	13.88%	105,192	112,214	217,406	6.84%	60.72%
2001	44,091.5	7.87%	38,571.0	-3.48%	108,410	114,603	223,013	2.58%	57.74%
2002	45,726.0	3.71%	39,278.1	1.83%	114,151	117,854	232,005	4.03%	57.92%
2003	51,922.1	13.55%	45,031.4	14.65%	118,120	126,477	244,597	5.43%	53.78%
2004	50,176.9	-3.36%	44,883.8	-0.33%	116,557	125,573	242,129	-1.01%	55.09%
2005	55,067.6	9.75%	47,960.5	6.85%	129,559	136,147	265,706	9.74%	55.08%
2006	59,021.3	7.18%	51,542.6	7.47%	140,292	147,202	287,494	8.20%	55.61%
2007	61,907.4	4.89%	53,578.1	3.95%	147,643	155,922	303,565	5.59%	55.98%
2008	59,796.3	-3.41%	63,078.1	17.73%	147,978	165,460	313,439	3.25%	56.72%
2009	60,587.9	1.32%	61,111.1	-3.12%	150,957	165,355	316,312	0.92%	59.09%
2010	65,029.1	7.33%	60,941.0	-0.28%	153,057	169,542	322,599	1.99%	56.63%
2011	68,470.7	5.29%	56,712.1	-6.94%	158,618	164,242	322,860	0.08%	53.83%
2012	71,600.2	4.57%	58,261.9	2.73%	166,761	167,905	334,666	3.66%	53.36%
2013	66,919.0	-6.54%	63,400.8	8.82%	164,217	171,355	335,572	0.27%	57.24%

Source: City of Gillette

1. Summer months are April-September; winter months are October-March.

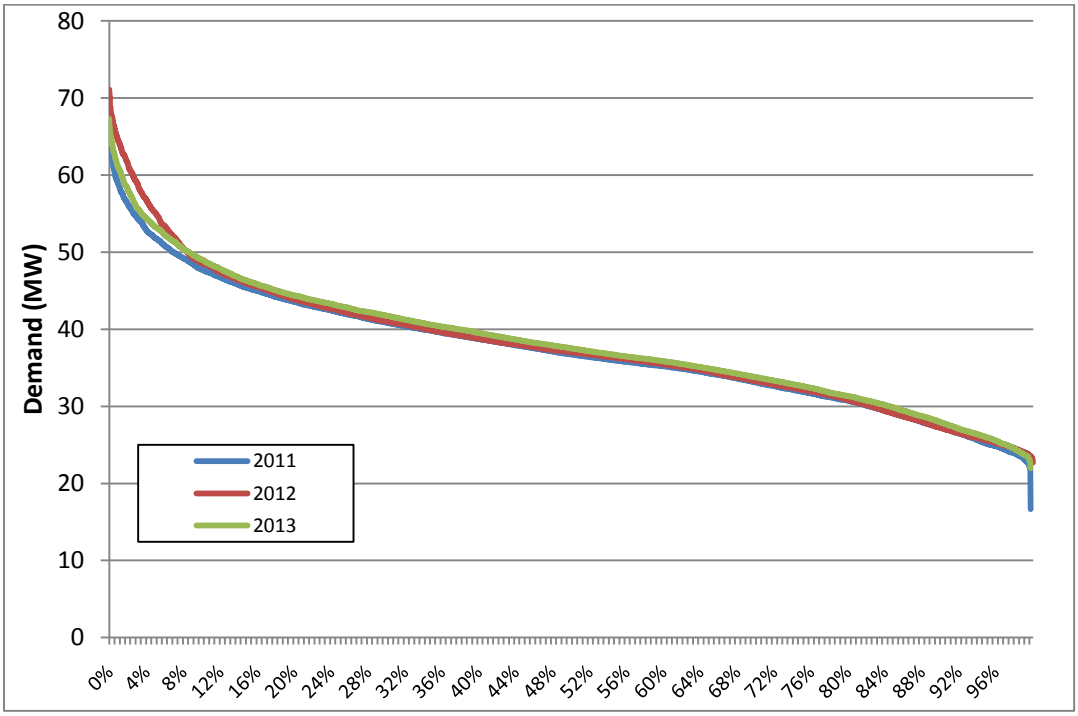
3. Winter energy consumption for 2013 is estimated.

2.2. Load Shape

As part of its forecasting process, the City conducted a review of its hourly load shape in the form of a load duration curve to identify any anomalies or specific changes for the last three years. Apart from peak demand growth, the City's peak load duration curve was found to be consistent over the last three years. Peak demand had been between 68 MW and 71 MW, with minimum demand consistently at approximately 22 MW[1].

Figure 1 provides the City's hourly load duration curve. As can be seen, the curves are fairly consistent for the three-year period, with the exception of the highest 10% of the hours for 2012 (red line). In June and July 2012 the City of Gillette experienced above average temperatures and an associated record number of cooling degree days ("CDD"). In comparison, the CDD for 2011 and 2013 are consistent with historical data.[2] Therefore, demand for the top 400 hours is likely driven by cooling load, and will be addressed later in this report.

Figure 1
Load Duration Curve 2011-2013



Source: City of Gillette

[1] In 2011 the minimum load was 16.7 MW for one hour. This occurred on December 31, 2011 at HE 8:00, and is believed to be an anomaly and not reflective of minimum load.

[2] In June and July 2012, the City of Gillette experienced 181 and 399 Cooling Degree Days (CDD), respectively. In comparison, the mean number of CDD for the 2000 to 2014 period is 62 and 245, respectively (source: www.nws.noaa.gov).

2.3. Background on Forecasting Process

The City of Gillette prepares an energy and peak demand forecast on an annual basis for the purpose of conducting resource planning studies, transmission reservation planning, and other related planning activities[3]. The forecasting methodology is based on a time series methodology and is based on over 25-years of monthly metered consumption data. The City conducts trending analyses to identify any unusual patterns. The City's most recent forecast, conducted in March 2014, projects average annual peak demand and energy growth of 5.0 percent from 2014-2019, and approximately 4.1 percent from 2014-2023. Table 2 provides the City's seasonal and annual peak demand and energy forecast for the 2015-2024 period.

Table 2
Peak Demand and Annual Energy Forecast

	Summer Peak (MW)	Percent Change	Winter Peak (MW)	Percent Change	Summer Energy (GWh)	Winter Energy (GWh)	Annual Energy (GWh)	Percent Change	Load Factor
2014	76.4		69.8		182.1	199.5	381.6		57.00%
2015	82.0	7.28%	74.8	7.15%	195.3	213.6	408.9	7.17%	56.93%
2016	87.7	6.91%	79.9	6.79%	208.7	228.0	436.7	6.79%	56.87%
2017	90.9	3.72%	83.0	3.95%	216.4	237.0	453.4	3.84%	56.94%
2018	94.2	3.58%	86.2	3.80%	224.2	246.0	470.2	3.70%	57.00%
2019	97.4	3.46%	89.3	3.66%	231.9	255.0	487.0	3.56%	57.06%
2020	100.7	3.34%	92.5	3.53%	239.7	264.0	503.7	3.44%	57.12%
2021	103.9	3.23%	95.6	3.41%	247.4	273.0	520.5	3.33%	57.17%
2022	107.2	3.13%	98.8	3.30%	255.2	282.1	537.2	3.22%	57.21%
2023	110.4	3.04%	101.9	3.19%	262.9	291.1	554.0	3.12%	57.26%
2024	113.7	2.95%	105.1	3.09%	270.7	300.1	570.7	3.02%	57.30%

Source: City of Gillette

[3] This forecast was previously submitted to MEAN for inclusion in its IRP process.

3. Existing Supply-Side Resources

The City's existing generation supply portfolio includes two municipally-owned resources as well as several short-term purchases. The City's facilities consist of a partial ownership interest in a 110 MW coal plant and full ownership of a 40 MW combustion turbine. These facilities are further described below.

3.1. WyGen III Facility

In 2010 the City acquired a 23 percent ownership interest in the 110 MW Wygen III plant. Wygen III is an efficient mine-mouth coal power plant located at the Wyodak Energy Complex, near Gillette, Wyoming. Wygen III began commercial operation on April 1, 2010 and employs state-of-the-art emissions control technology, including mercury emissions reduction. It also features air-cooled steam condensing. The ownership interest provides the City with approximately 25.3 MW of capacity for the life of the plant.

3.2. Combustion Turbine No. 2

In 2014 the City acquired a 40 MW simple-cycle gas-fired combustion turbine for meeting its peaking requirements. The unit, referred to as CT2, entered commercial operation in 2009 and is also located at the Wyodak Energy Complex. The city purchased the plant from Black Hills Electric Generation, LLC ("BHEG"). During the acquisition of CT2, the city entered into an agreement with BHEG for the purchase of economy energy. While not attributed to any one particular resource, the agreement allows the City to take advantage of non-firm energy that is priced lower than the cost of producing energy from CT2.

3.3. MEAN Supplemental Purchase

As described above, shortly after its acquisition of CT2 in 2014, the City entered into a Supplemental Agreement for Firm Power Interchange Service ("the Agreement") with MEAN. The Agreement is in effect for a term beginning September 1, 2014 through March 31, 2015. The agreement provides the following firm power supply services to the City:

3.3.1. Western Area Power Administration Loveland Area Projects

The City purchases firm capacity and energy under long-term contract from Western. This allocation has historically been delivered to the City through arrangements between Western and MEAN, whereby MEAN was the Western allocation agent. Although no longer a participant in MEAN, the Agreement provides for the continued delivery of approximately 3 MW purchase of power from Western Loveland Area Projects. The City is seeking to continue to receive firm capacity and energy purchases directly from Western after the expiration of the Agreement.

3.3.2. Wind Farm Participation

Through its membership in MEAN, the City is a participant in the Kimball Wind Generation facility ("Kimball") located in Kimball, Nebraska. The facility is a 10.5 MW facility where the City has received a

nominal share of the output. Through the Agreement with MEAN, the City continues to receive approximately 2 MW purchase of wind power from Kimball. The City seeks to retain its purchase of the output from this facility after the expiration of the Supplemental Agreement.

3.3.3. MEAN Firm Capacity and Energy Purchases

The Agreement also provide for MEAN to supply firm capacity and energy, including reserves, to the City in excess of the City's existing capacity from Wygen III, Western, and CT2. Collectively, these resources serve approximately 69 MW of the City's total load.

Provided in the table below is a summary of the City's resources for meeting its future requirements.

Table 3
Summary of Existing Power Supply Resources

Resource Name	Primary Fuel	Rated Capacity (MW)	Term of Purchase
Wygen III	Coal	25.3	Life of Unit
Combustion Turbine 2	Natural Gas	40.0	Life of Unit
Kimball Wind Generation	Wind	2.0	Through March 2015
Western LAP Firm Contract	Hydro	3.0	
MEAN Firm Capacity and Energy Purchase	System Mix	Up to peak requirement	Through March 2015

Source: City of Gillette

4. Existing Demand-Side Resources

4.1. Existing Customer Programs

For at least the last 10 years, Wyoming has consistently ranked within the top four states for having the lowest average electricity costs in the country.[4] These low costs are a result of a regionally abundant supply of low cost coal generation. The low electricity costs along with excess capacity in the region have historically made conservation and demand-side management programs cost-prohibitive. As a result, the City currently does not offer any specific demand-side management programs to its retail residential and commercial customers. Although it has participated in the demand resource research and evaluation process in prior years as part of its membership with MEAN, the City, along with other MEAN members, has not previously elected to implement any specific end-use programs at this time.

4.2. Energy Audits

The City has developed a rebate program for conducting energy audits for its residential utility customers. The city is offering a $125.00 rebate to customers seeking an energy audit to be performed by Green Steps, Inc., a certified energy auditor and the City's energy efficiency partner. With the rebate, the audits are provided at a discount to the consumer and allow the consumer to make better use of their energy dollars. The intent of this program is to help retail customers understand how they can make their home more energy efficient, safe, comfortable, and durable. The program focuses on assessing the home as a system from basement to attic utilizing the latest technologies, equipment, and building science.

4.3. Energy Efficiency Codes and Requirements

In July 2009, the City adopted the use of energy efficiency codes and requirements for residential and commercial buildings. These requirements include:

- **Chapter 11 of the 2006 Edition International Residential Code (Residential):** The stand-alone residential code contained in this document establishes minimum regulations for one- and two-family dwellings and townhouses. Chapter 11 regulates the energy efficiency for the design and construction of buildings regulated by this code.
- **2006 Edition International Energy Conservation Code (Commercial):** This comprehensive energy conservation code establishes minimum regulations for energy efficient buildings using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new energy efficient designs.

4.4. Conservation Measures Installed in City Facilities

Although the City currently does not offer any conservation programs to its retail customers at this time, it has previously undertaken several energy conservation measures. These are highlighted below:

[4] Source: EIA State Electricity Profiles, 2002-2012.

- The City recently implemented the city-wide replacement of street lights, converting traditional high-pressure sodium ("HPS") street lights fixtures to LED fixtures throughout the City. The street light program was completed in 2013.

- The City has recently implemented several demand-side measures in several city-owned buildings. These measures are as follows:

    - Variable Frequency Drives ("VFD"): Installed VFD in one of its administrative buildings, installing six VFDs on two chilled water pumps, two hot water pumps, and two condenser water pumps at its City Hall.

    - Lighting: As they need to be replaced, replacing T-8 Florescent bulbs with Alto bulbs (more efficient and less mercury). Similarly, as T12 ballasts burn out, they are being replaced with T8s (more energy efficient).

    - HVAC: each thermostat is equipped with a sensor; if a room is not occupied the temperature moves to a default setting from the manual setting to save energy.

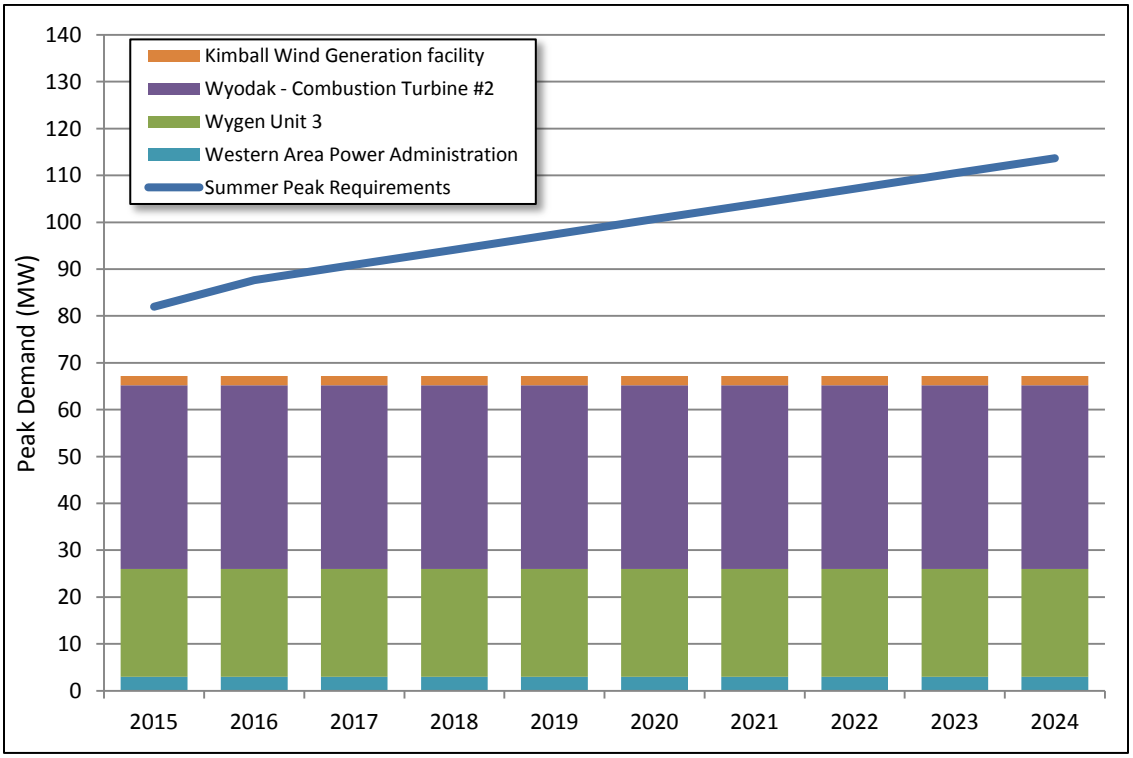
    - Installed motion detectors in conference rooms, rest rooms and other areas to control lighting in City buildings.

As discussed more fully in the next section, energy efficiency and demand-side management programs for the City's retail customers will continually be evaluated and examined for future implementation.

5. Future Resource Requirements

This section of the IRP compares the City's peak demand and reserve requirements to existing resources to determine the timing and need for additional resources. The City's peak demand requirement includes projected peak demand and estimated capacity reserves. Capacity reserves were calculated using an estimated reserve margin requirement of 15% of peak demand. Based on the comparison of peak demand requirements and existing resources, the City has an immediate need for additional resources beginning in 2015 to meet its peak demand and reserve requirement. Figure 2 summarizes the capacity position of the City and Table 4 provides similar information.

Figure 2
Comparison of Peak Demand and Resources



Source: City of Gillette
Note: Summer Peak Requirements includes peak demand and a 15% reserve margin.

Table 5
Comparison of
Summer Peak Requirements and Resources

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Peak Requirements										
Peak Demand	69.7	74.5	77.3	80.0	82.8	85.6	88.3	91.1	93.9	96.6
Reserve Margin	12.3	13.1	13.6	14.1	14.6	15.1	15.6	16.1	16.6	17.1
Summer Peak Requirements	82.0	87.7	90.9	94.2	97.4	100.7	103.9	107.2	110.4	113.7
Resources										
Wygen Unit 3	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Combustion Turbine #2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2
Western	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Kimball Wind facility	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Total	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2
Surplus/(Deficit)	(14.8)	(20.5)	(23.7)	(27.0)	(30.2)	(33.5)	(36.7)	(40.0)	(43.2)	(46.5)

Note: Summer Peak Requirements includes peak demand and a 15% reserve margin.

6. Future Supply-Side Resource Options

6.1. Resource solicitation

Based on the City's need for additional capacity beginning in April 2015, the City is currently in the process of soliciting proposals for power supply resources from investor-owned, cooperative, and joint-action agency utilities in the region. The solicitation is for a medium term (3-5 year) supply of firm capacity and energy, including reserves that will meet the City's incremental requirements above the capacity from its existing resources.

The utility has identified at least five utility systems that are in a surplus situation for the next several years. These systems are generally located on the Black Hills, Western, or MEAN transmission systems.

The evaluation criteria established to identify, evaluate, and select firm power supply resource options include the following:

- Availability to meet the City's resource timing needs;
- Reliability of the resources (or portfolio of resources);
- Transmission requirements for delivery (cost and availability);
- Environmental impacts and compliance costs of the resource; and
- Total delivered cost of the resource.

Since the solicitation is not completed, no additional information is being provided at this time.

6.2. Renewable Power

A portion of the City's current supply portfolio is energy from renewable resources, most notably wind energy generated at the Kimball Wind Farm, located in Kimball, Nebraska. City utilities may purchase 'green power' in blocks of 100 kWh per month. Purchases of green power are a voluntary way to show support for the environment and to promote the development of renewable energy in conjunction with conventional fuels such as coal and natural gas.

7. Future Demand-Side Options

7.1. Overview of Load Shape Objectives of DSM Programs

Demand Side Management ("DSM") options are evaluated as a means of deferring capacity acquisitions. DSM options modify the end use load shape. Provided below is a brief description of six industry accepted load shape objectives as developed by the Electric Power Research Institute ("EPRI").

Load Shape Objective	Description
Strategic Load Growth	Strategic Load Growth involves promoting increase in loads of any kind. This is typically for utilities with surplus low cost base load generation.
Peak Clipping	Peak Clipping is the reduction of system peak loads in order to reduce the reliance on peaking units with high fuel costs. Air conditioning load cycling is an example of a peak clipping program.
Strategic Conservation	Strategic conservation is directed at reducing end-use consumption for selected time periods. Strategic conservation has a levelized effect on end-use consumption, and may have a lesser reduction to peak load. An example of strategic conservation is promoting purchases of efficient appliances.
Valley Filling	Valley filling is a program that promotes increasing off-peak loads. Promotion of night lighting is an example of a program that may build evening loads, and promotion of electric heat pumps is a program that builds off-season loads.
Load Shifting	Load shifting moves load from peak to off-peak periods. Irrigation load control and thermal energy storage systems are examples of load shifting.
Flexible Load Shape	Flexible load shape programs modify the load shape with daily calls to reduce loads when necessary. Interruptible load programs and time-of-day rates are an example of flexible load shape.

Source: EPRI

The City selected two primary load shape objectives from the six listed above. These are 1) Strategic Conservation and 2) Peak Clipping. DSM options that satisfy these load shape objectives were selected for further evaluation. While other load shape objectives could be implemented, the two objectives identified above offer many options that encourage activities which otherwise may not occur for economic reasons.

7.2. DSM Program Evaluations

Fourteen types of DSM programs were evaluated using an economic screening analysis. These programs are the following:

1. Residential Central Air Conditioning Load Cycling - This DSM program requires the installation of a load-control device that will turn off the air conditioner for a short time during summer peak-load periods. The customer incentive to participate is estimated to be $20 per year with an average load reduction of 0.85 kW per control device on residential homes.

2. Residential Electric Water Heater Load Shedding - A customer incentive of $20 per year would be given to customers already participating in the air conditioner load cycling program and who also have their electric water heater cycled off for periods of time during summer peak-load hours.

3. Residential High Efficiency Central Air Conditioners - For customers needing to replace their existing air conditioner, this program would provide rebates or incentives when the City selects the size of the replacement air conditioner. The requirements include that the unit's size will not be more than 125% of design heat gain according to ACCA Manual J standards, and a minimum Seasonal Energy Efficiency Ratio ("SEER") of 16, which is more efficient than current DOE established standards. Additional rebates or incentives may be provided from local distributors or manufactures.

4. Room and Window Air Conditioner Rebates - This program is for customers needing to replace their existing room or window air conditioner. Rebates of $55 are provided for units with a SEER that is at least 20% more efficient than the current minimum standard established by the DOE.

5. High Efficiency Refrigerator/Freezer Rebate Program - Customers purchasing an Energy Star© Rated refrigerator/freezer would be eligible for a $50 rebate. The old refrigerator must be properly disposed of by the dealer for proper recycling of refrigerator/freezer components.

6. Old Refrigerator Pick-up Program - The purpose of this program is to remove operating refrigerators that are used as a second unit in homes and from the used appliance market. The program educates residential customers about the costs of operating a second refrigerator and offers a $50 payment for qualifying refrigerators or freezers. A regional contractor picks up the units and delivers them to a de-manufacturing facility. The total cost is about $175 per unit.

7. HVAC Loan Program for Furnace and Air Conditioning Replacement – This program would provide a loan subsidy to customers installing properly sized high-efficiency equipment. This would be achieved by the City providing loan funds or by making a payment directly to the bank granting the loan.

8. Energy Star© New Home Construction – Under this program, customers receive incentives in the form of a rebate, rate discount or a loan subsidy from the City for building a new home that meets Energy Star© Home Construction efficiency standards. This program requires high efficiency and not oversized central air conditioners and furnaces. This program also includes points for additional insulation, reduction of infiltration measures like 'wraps', efficient windows, efficient lighting and reduction of heat gain or loss.

9. Energy Efficiency for Existing Home – This program provides energy efficient improvements including additional insulation, reduction of infiltration, and full basement insulation would be eligible for a customer incentive. Additional requirements are that the central air conditioner and furnace are rates as high efficiency and not oversized.

10. Residential Energy Audits – The purpose of this program is to evaluate and potentially continue the City's current residential energy audit program. The City has developed a rebate program for conducting energy audits for its residential utility customers. The city is offering a $125.00 rebate for customers seeking an energy audit. With the rebate, the audits are provided at a discount to the consumer and allow the consumer to make better use of their energy dollars. The intent of this program is to help retail customers understand how they can more wisely spend their energy dollars.

11. Commercial High-Efficiency Lighting Conversions - This program typically provides incentives, rebates, or loans for commercial and industrial customers who increase the efficiency of their existing lighting systems. Permanent fixtures are replaced with approved high efficient fixtures. Examples include converting from T-12 to T-8 lights with electronic ballasts, high bay metal halide conversions to T-8 or T-5 or induction florescent fixtures, and adding day-light harvesting controls.

12. Commercial High-Efficiency Air Conditioners - Commercial customers would receive incentives for replacing existing air conditioners with high-efficiency air conditioners. Examples of qualifying equipment are packaged terminal units, rooftop units, and split systems.

13. Commercial HVAC Efficiency Improvement Program - Commercial and Industrial customers with large cooling systems would be eligible for incentives, rebates or loans when they reduce their electrical energy consumption of their HVAC systems by adding cooling tower capacity, variable speed drives or motors, and energy management controls to reduce peak hour loading.

7.3. Screening of the Alternatives

The screening analysis consisted of two steps. The first step, Qualitative Screening, ranked the potential DSM options according to subjective criteria, such as customer preference, market potential, and ease of implementation. A score was assigned to each DSM option and options were ranked. This narrowed the list of options for the second step, Economic Evaluation. The Economic Evaluation used the City's avoided costs for capacity and energy forecast as part of its ongoing analysis of the supply side resource market. This was used to calculate the costs and benefits of each DSM option. This DSM screening and evaluation process is consistent with the approaches used by other municipal utilities as described in their IRPs.

7.3.1. Qualitative Screening

The DSM technologies which satisfy the City's load shape objectives were subjected to qualitative screening. The qualitative screening involved the use of six criteria, called "second tier criteria," to identify those technologies most relevant to the City's objectives. The second tier criteria are:

- Costs: This includes start-up, marketing and equipment costs.
- Customer Preferences: A customer's acceptance of a technology is determined by such factors as the customer's cost perspective, comfort level with the technology, and willingness to participate.
- Environmental Impacts: DSM technologies can postpone the need to add supply-side resources that emit pollutants, but some DSM options also have environmental impacts. For example, hazardous waste disposal may be an issue with improper disposal of old refrigerator compressors containing Chlorofluorocarbons and old ballasts with Polychlorinated biphenyls.
- Market Potential: In order for the program to realize its maximum potential, end-use appliances and equipment must be identified, measured and marketed.

- Ease of Implementation: A program's success will be heavily dependent on the success of implementation. Some programs may require the simple replacement of lights or appliances, while others require major planning for changes in the building infrastructure.

- Availability: The DSM technology and contractors must be widely available and reliable to perform necessary services.

All technologies were scored from 0 to 3, with 3 being the lowest cost and/or highest value according to the measure's ability to satisfy each of the above criteria. Those technologies with higher total scores were considered to be more successful in achieving the City's load shape objectives than those with lower scores. Tables 6 and 7 provide the scores for each technology applicable to a particular customer class.

Table 6
Residential Demand-Side Options
Qualitative Screening

DSM Option	Cost	Customer Preference	Environmental Impact	Market Potential	Ease of Implementation	Commercial Availability/ Reliability	Total Points
High Efficiency Refrigerator Rebate Program	3	3	3	3	3	3	18
Old Refrigerator Pick-Up Program	2	3	3	3	3	3	17
Residential Energy Audits	3	2	3	3	3	3	17
High Efficiency Central Air Conditioners	2	3	3	3	2	3	16
Room and Window Air Conditioner Rebate Program	1	3	3	3	3	2	15
Central Air Conditioning Load Cycling	1	2	3	3	2	3	14
Electric Water Heating Load Shedding	1	3	3	2	2	3	14
Loan Program for HVAC Replacements	1	3	3	3	2	2	14
Existing Home Weatherization	2	2	3	2	0	1	10

Table 7
Commercial Demand-Side Options
Qualitative Screening

DSM Option	Cost	Customer Preference	Environmental Impact	Market Potential	Ease of Implementation	Commercial Availability/ Reliability	Total Points
High-Efficiency Lighting Conversions	3	3	3	3	3	3	18
High Efficiency Air Conditioner Education	3	3	3	2	2	3	16
HVAC Efficiency Improvement Program	2	2	3	2	2	3	14

Note: Based on data provided by electric utilities of similar size and geographic location and revised to reflect the demographics of the City.

All applicable technologies were ranked from high to low for each customer class. The City originally planned to select only the top several technologies for economic evaluation and eliminating the options that were least attractive. However, since the City has some of the lowest retail rates in the country, it decided to quantitatively analyze each of the identified options. The evaluation included nine residential options and three commercial options. Since the City does not have any industrial customers, no measures focusing specifically on this customer class were considered. This pre-screening only used qualitative factors as an attempt to focus the list for the economic evaluation.

7.4. Economic Evaluation of Alternatives

The projected annual cost for each option was compared to the projected power cost savings. The net present value (NPV) of the cost or savings of each option is then determined. The following assumptions were used in the economic evaluation:

- The evaluation was done on a "per-unit" basis, meaning the analysis evaluated one installation of the given option.
- Technical and cost information for each option is based on information contained in the 2012 IRP developed by MEAN, which includes the City's demographic information[5], and on electric utilities of similar size and geographic location.
- Avoided demand and energy costs are taken from the City's supply side resource evaluation analysis. Peak demand reductions are assumed to reduce seasonal capacity purchases. The summer season is June-September, and the winter season is October-May.
- A discount rate of 5.0% is assumed in the calculation of Net Present Value ("NPV") in the analysis.
- The Total Resource Cost ("TRC") was used to evaluate the alternatives. The TRC test is defined as the comparison of the option including costs incurred by the City or the end user, to the total cost savings realized by the City.

The 13 DSM options were evaluated over their estimated useful life. The evaluation includes estimates of installation, operation, maintenance, administrative and general expenses over the useful life of the measure.[6] The expenses are compared to the City's avoided capacity and energy cost. Annual net cost or savings are calculated and discounted to 2014 dollars.

A summary of the economic evaluations is shown in Table 8 and 9. DSM options with a positive net present value are considered economically viable. The detailed analysis of each individual DSM option is provided in Appendix A.

[5] The City was previously a member of MEAN. As such, the City's customer demographic and demand information has been incorporated and was represented by MEAN in its previous IRP filings, including its 2012 IRP, as published in October 2012.

[6] The measures, participation rates, and program savings and cost estimates were developed based on information contained in the IRPs of electric utilities with similar demographic and geographic charateristics.

As can be seen below, only one of the DSM programs is projected to be economically feasible. The residential energy audit program, which is an existing DSM program offered by the City, passed the economic evaluation (see gray highlight). The residential energy audit program was analyzed to determine its continued economic value. Other DSM programs did not pass the economic test. It is believed that the remaining DSM programs evaluated were not deemed economically viable due to the City's competitive power supply costs.

Table 8
Economic Evaluation of Alternatives
Residential Demand-Side Options

DSM Alternative	NPV Power Saving (per unit)	NPV Program Costs (per unit)	NPV Annual Program Savings/(Costs) (per unit)
High Efficiency Refrigerator Rebate Program	$205.77	$240.73	($34.96)
Old Refrigerator Pick-Up Program	$169.50	$200.49	($30.99)
Residential Energy Audits	$327.67	$166.67	$161.00
High Efficiency Central Air Conditioners	$528.76	$566.77	($38.01)
Room and Window Air Conditioner Rebate Program	$66.05	$152.91	($86.86)
Central Air Conditioning Load Cycling	$208.32	$608.02	($399.70)
Electric Water Heating Load Shedding	$109.98	$561.65	($451.66)
Loan Program for HVAC Replacements	$548.13	$1,061.85	($513.72)
Existing Home Weatherization	$725.94	$1,961.90	($1,235.96)
High Efficiency Refrigerator Rebate Program	$205.77	$240.73	($34.96)

Table 9
Economic Evaluation of Alternatives
Commercial Demand-Side Options

DSM Alternative	NPV Power Saving (per unit)	NPV Program Costs (per unit)	NPV Annual Program Savings/(Costs) (per unit)
High-Efficiency Lighting Conversions	$3,433.79	$4,051.92	($618.13)
High Efficiency Air Conditioner Education	$1,408.17	$1,608.57	($200.40)
HVAC Efficiency Improvement Program	$6,544.61	$7,936.71	($1,392.10)

8. Environmental Effects

The City complies with all applicable provisions of the state and federal environmental regulations at its existing power plants and substation facilities. The City has considered impacts on the environment when developing this IRP. Any new power supply resources developed by the City as part of this IRP will comply with the Clean Air Act and Clean Water Act, and will include emissions control technologies as may be required to help reduce the impacts of the emissions on the environment.

An important component of the City's past resource portfolio has been its purchase of renewable power from the Kimball Wind facility. This purchase was made voluntarily and without a state renewable portfolio standard requirement. In response to customer preferences, the City is seeking to continue its purchase from the Kimball Wind farm and consider other sources of renewable energy as part of its future power supply portfolio.

The City has also implemented several conservation programs and measures, including residential audits and conservation measures at City administrative properties. These conservation programs are designed to reduce energy usage and associated environmental impacts.

9. Public Participation

An important part of the IRP development process is the City's comprehensive approach for including public participation in the plan. As described below, the City encouraged and welcomed public participation, developed a process for collecting the comments of its stakeholders, and has incorporated public comments into the plan as appropriate. Provided below is a description of the public participation process as implemented by the City.

- To encourage and include public participation in the IRP planning process, the City held a presentation of this IRP as part of the City's regularly scheduled City Council work session. The work session was held on Tuesday, November 25, 2014, and was noticed in advance on the Council's agenda. The City Council work sessions are open to the public, generally well attended, and provide a great opportunity for public dialog.
- Approximately one week prior to the work session, on November 18, 2014, the City posted an announcement on its public website providing notice that the draft IRP would be presented to the public for stakeholder comment. The notice included the date, time, and location of the public presentation, and included instructions for providing written comments prior to the public participation process. The website also included access to the draft IRP document.
- Similarly, about one week prior to the meeting, on November 13, 2014 the City notified the local newspaper indicating the planned date and time for the public presentation of the IRP. The local paper, the Gillette News Record, was requested to include a public service announcement on November 19, 2014 including these details.
- In conducting the public presentation, the City videotaped the City Council meeting to accurately capture and collect any comments provided by the public.

The City believes the public presentation of the IRP at the City Council work session provided ample opportunity for full public participation in discussing the IRP. Additionally, for those stakeholders who could not attend the City Council work session in person, the opportunity for providing comments electronically via email was available. After the City Council work session, all comments, whether received at the meeting or electronically via email, were documented and incorporated into the IRP document where appropriate. Appendix B includes the stakeholder comments received at the conclusion of the public meeting.

10. Action Plan and Measurement Strategies

The City's IRP has identified an immediate need for additional resources. The recommended action plan includes the immediate solicitation and acquisition of existing resources available in the market, followed by the potential opportunity to develop, acquire, or purchase additional resources for meeting the City's future projected requirements. To the extent that DSM or supply resource availability, cost, and transmission access change over the forecast period, the city should revisit its action plan accordingly. Provided below is the City's short-term and long-term action plan.

10.1. Two-Year Action Plan

The City's research has identified that there is surplus power supply available in the region. Moreover, there are several utilities in the region that are interested in making a short-term power supply sales to the City. The following is the City's short term action plan.

- Solicit proposals for the City's capacity requirements, including reserves, for a period of three to five years. The solicitation should include all utilities interconnected to the regional transmission system. The solicitation should also include a power supply proposal from MEAN, the City's incumbent supplier. This solicitation should be concluded by January 2015.
- Continue offering residential energy audits to electric customers to identify advantageous residential energy conservation measures.
- Begin to develop a framework and collect necessary information on the energy consumption of the City's customers with the anticipation of developing a more detailed peak demand forecast. This should be completed over the next 12 months, prior to the next IRP update.
- Continue to evaluate and screen conservation programs. More detailed and customer specific conservation measure cost information should be developed for a more rigorous evaluation. As such, the City will continue to research and analyze economically viable DSM programs.

10.2. Five-Year Action Plan

The longer-term action plan includes analyzing the development and procurement of power supply options along with economically viable DSM programs. Based on the City's research of the economically valuable DSM programs and power supply options available in the market, provided below is the City's five-year action plan.

- Continue to develop and refine a more detailed methodology for forecasting the City's peak demand and energy requirements.
- Research the capital and operating costs of new combustion turbine, combined cycle, and renewable resources that could be developed and owned by the City. These cost estimates will

provide a “backstop” solution for the City and provide an estimate for comparing and evaluating any potential generation acquisition opportunities.

- Identify potential generation resources that may provide an opportunity for full or partial acquisition and ownership by the City. Consistent with this IRP process, the environmental impacts of any power supply acquisition should be considered as part of the analysis.

The City should review and modify the above action plans if there are significant changes to peak demand growth, or DSM program and power supply costs estimates.

Appendix A: Analysis of DSM Measures

Residential Central AC Load Cycling

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	0.85	0.00	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			10
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	10%	10%	10%
Market Eligibility	50%	50%	50%
Feasibility	100%	100%	100%
Estimated Controllable Units	630	630	630
Total Demand or Energy Savings (kW or kWh)	536	-	6,300

Estimated Installation Cost per Unit	$287.08
Estimated Annual Maintenance Cost per Unit	$20.00
Measure Life	25 Years
Cost Escalation	2.50%
Discount Rate	5.00%

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Annual Savings/ (Cost) ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)
2015	0.85	-	10	1.51	1.51	38.02	8.06	287.08	8.06	(279.02)	(279.02)
2016	0.85	-	10	1.66	1.66	40.80	8.85	20.00	8.85	(11.15)	(10.62)
2017	0.85	-	10	1.87	1.87	42.48	9.97	20.50	9.97	(10.53)	(9.55)
2018	0.85	-	10	2.10	2.10	45.50	11.15	21.01	11.15	(9.86)	(8.52)
2019	0.85	-	10	2.22	2.22	47.82	11.79	21.54	11.79	(9.75)	(8.02)
2020	0.85	-	10	2.33	2.33	48.98	12.36	22.08	12.36	(9.72)	(7.61)
2021	0.85	-	10	2.36	2.36	51.65	12.57	22.63	12.57	(10.06)	(7.51)
2022	0.85	-	10	2.49	2.49	53.19	13.21	23.19	13.21	(9.98)	(7.09)
2023	0.85	-	10	2.57	2.57	55.88	13.65	23.77	13.65	(10.12)	(6.85)
2024	0.85	-	10	2.71	2.71	57.37	14.39	24.37	14.39	(9.98)	(6.43)
2025	0.85	-	10	2.78	2.78	60.43	14.80	24.98	14.80	(10.18)	(6.25)
2026	0.85	-	10	2.91	2.91	62.19	15.46	25.60	15.46	(10.14)	(5.93)
2027	0.85	-	10	3.06	3.06	65.52	16.26	26.24	16.26	(9.98)	(5.56)
2028	0.85	-	10	3.25	3.25	67.49	17.24	26.90	17.24	(9.66)	(5.12)
2029	0.85	-	10	3.39	3.39	72.25	17.99	27.57	17.99	(9.58)	(4.84)
2030	0.85	-	10	3.50	3.50	74.90	18.58	28.26	18.58	(9.68)	(4.66)
2031	0.85	-	10	3.59	3.59	77.96	19.10	28.97	19.10	(9.87)	(4.52)
2032	0.85	-	10	3.71	3.71	81.56	19.75	29.69	19.75	(9.94)	(4.34)
2033	0.85	-	10	3.82	3.82	86.01	20.36	30.43	20.36	(10.07)	(4.19)
2034	0.85	-	10	3.94	3.94	89.66	20.97	31.19	20.97	(10.23)	(4.05)
2035	0.85	-	10	4.02	4.02	94.00	21.43	31.97	21.43	(10.54)	(3.97)
2036	0.85	-	10	4.03	4.03	99.24	21.55	32.77	21.55	(11.22)	(4.03)
2037	0.85	-	10	4.01	4.01	106.78	21.49	33.59	21.49	(12.10)	(4.14)
2038	0.85	-	10	3.97	3.97	111.42	21.34	34.43	21.34	(13.09)	(4.26)
2039	0.85	-	10	4.01	4.01	114.76	21.58	35.29	21.58	(13.71)	(4.25)
								$608.02	$206.76		($401.26)

Residential Electric Water Heater Load Shedding

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	0.45	0.00	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			5
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	15%	15%	15%
Market Eligibility	50%	50%	50%
Feasibility	100%	100%	100%
Estimated Controllable Units	945	945	945
Total Demand or Energy Savings (kW or kWh)	425	-	4,725

Estimated Installation Cost per Unit	$238.39	
Estimated Annual Maintenance Cost per Unit	$20.00	
Measure Life	25	Years
Cost Escalation	2.50%	
Discount Rate	5.00%	

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	0.45	-	5	1.51	1.51	38.02	4.26	238.39	4.26	(234.13)	(234.13)
2016	0.45	-	5	1.66	1.66	40.80	4.67	20.00	4.67	(15.33)	(14.60)
2017	0.45	-	5	1.87	1.87	42.48	5.27	20.50	5.27	(15.23)	(13.82)
2018	0.45	-	5	2.10	2.10	45.50	5.89	21.01	5.89	(15.12)	(13.06)
2019	0.45	-	5	2.22	2.22	47.82	6.23	21.54	6.23	(15.31)	(12.60)
2020	0.45	-	5	2.33	2.33	48.98	6.53	22.08	6.53	(15.55)	(12.18)
2021	0.45	-	5	2.36	2.36	51.65	6.64	22.63	6.64	(15.99)	(11.93)
2022	0.45	-	5	2.49	2.49	53.19	6.98	23.19	6.98	(16.21)	(11.52)
2023	0.45	-	5	2.57	2.57	55.88	7.21	23.77	7.21	(16.56)	(11.21)
2024	0.45	-	5	2.71	2.71	57.37	7.60	24.37	7.60	(16.77)	(10.81)
2025	0.45	-	5	2.78	2.78	60.43	7.81	24.98	7.81	(17.16)	(10.54)
2026	0.45	-	5	2.91	2.91	62.19	8.17	25.60	8.17	(17.44)	(10.19)
2027	0.45	-	5	3.06	3.06	65.52	8.59	26.24	8.59	(17.65)	(9.83)
2028	0.45	-	5	3.25	3.25	67.49	9.11	26.90	9.11	(17.79)	(9.43)
2029	0.45	-	5	3.39	3.39	72.25	9.50	27.57	9.50	(18.07)	(9.13)
2030	0.45	-	5	3.50	3.50	74.90	9.82	28.26	9.82	(18.44)	(8.87)
2031	0.45	-	5	3.59	3.59	77.96	10.09	28.97	10.09	(18.88)	(8.65)
2032	0.45	-	5	3.71	3.71	81.56	10.43	29.69	10.43	(19.26)	(8.40)
2033	0.45	-	5	3.82	3.82	86.01	10.75	30.43	10.75	(19.68)	(8.18)
2034	0.45	-	5	3.94	3.94	89.66	11.07	31.19	11.07	(20.12)	(7.96)
2035	0.45	-	5	4.02	4.02	94.00	11.32	31.97	11.32	(20.65)	(7.78)
2036	0.45	-	5	4.03	4.03	99.24	11.38	32.77	11.38	(21.39)	(7.68)
2037	0.45	-	5	4.01	4.01	106.78	11.35	33.59	11.35	(22.24)	(7.60)
2038	0.45	-	5	3.97	3.97	111.42	11.27	34.43	11.27	(23.16)	(7.54)
2039	0.45	-	5	4.01	4.01	114.76	11.39	35.29	11.39	(23.90)	(7.41)
								$561.65	$109.20		($452.44)

Residential High Efficiency Central AC

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	0.90	0.00	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			500
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	10%	10%	10%
Market Eligibility	50%	50%	50%
Feasibility	100%	100%	100%
Estimated Controllable Units	630	630	630
Total Demand or Energy Savings (kW or kWh)	567	-	315,000

Estimated Installation Cost per Unit	$550.00	
Estimated Annual Maintenance Cost per Unit	$3.07	
Measure Life	20	Years
Cost Escalation	2.50%	
Discount Rate	5.00%	

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	0.90	-	500	1.51	1.51	38.02	27.14	550.00	27.14	(522.86)	(522.86)
2016	0.90	-	500	1.66	1.66	40.80	29.34	3.07	29.34	26.27	25.02
2017	0.90	-	500	1.87	1.87	42.48	31.35	3.15	31.35	28.20	25.58
2018	0.90	-	500	2.10	2.10	45.50	34.07	3.23	34.07	30.85	26.65
2019	0.90	-	500	2.22	2.22	47.82	35.88	3.31	35.88	32.58	26.80
2020	0.90	-	500	2.33	2.33	48.98	37.06	3.39	37.06	33.67	26.38
2021	0.90	-	500	2.36	2.36	51.65	38.59	3.47	38.59	35.11	26.20
2022	0.90	-	500	2.49	2.49	53.19	40.02	3.56	40.02	36.46	25.91
2023	0.90	-	500	2.57	2.57	55.88	41.80	3.65	41.80	38.16	25.82
2024	0.90	-	500	2.71	2.71	57.37	43.31	3.74	43.31	39.57	25.51
2025	0.90	-	500	2.78	2.78	60.43	45.24	3.83	45.24	41.41	25.42
2026	0.90	-	500	2.91	2.91	62.19	46.80	3.93	46.80	42.87	25.07
2027	0.90	-	500	3.06	3.06	65.52	49.28	4.03	49.28	45.25	25.20
2028	0.90	-	500	3.25	3.25	67.49	51.29	4.13	51.29	47.16	25.01
2029	0.90	-	500	3.39	3.39	72.25	54.40	4.23	54.40	50.17	25.34
2030	0.90	-	500	3.50	3.50	74.90	56.33	4.34	56.33	51.99	25.01
2031	0.90	-	500	3.59	3.59	77.96	58.38	4.45	58.38	53.93	24.71
2032	0.90	-	500	3.71	3.71	81.56	60.83	4.56	60.83	56.27	24.55
2033	0.90	-	500	3.82	3.82	86.01	63.65	4.67	63.65	58.98	24.51
2034	0.90	-	500	3.94	3.94	89.66	66.08	4.79	66.08	61.29	24.25
2035											
2036											
2037											
2038											
2039											
								$566.77	$528.76		($38.01)

Residential Room and Window AC Rebates

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	0.14		
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			103
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	33%	33%	33%
Market Eligibility	15%	15%	15%
Feasibility	100%	100%	100%
Estimated Controllable Units	624	624	624
Total Demand or Energy Savings (kW or kWh)	86	-	64,272

Estimated Installation Cost per Unit	$114.55
Estimated Annual Maintenance Cost per Unit	$4.58
Measure Life	13 Years
Cost Escalation	2.50%
Discount Rate	5.00%

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	0.14	-	103	1.51	1.51	38.02	5.16	114.55	5.16	(109.39)	(109.39)
2016	0.14	-	103	1.66	1.66	40.80	5.57	4.58	5.57	0.99	0.95
2017	0.14	-	103	1.87	1.87	42.48	5.93	4.69	5.93	1.23	1.12
2018	0.14	-	103	2.10	2.10	45.50	6.42	4.81	6.42	1.61	1.39
2019	0.14	-	103	2.22	2.22	47.82	6.76	4.93	6.76	1.83	1.51
2020	0.14	-	103	2.33	2.33	48.98	6.97	5.06	6.97	1.92	1.50
2021	0.14	-	103	2.36	2.36	51.65	7.28	5.18	7.28	2.09	1.56
2022	0.14	-	103	2.49	2.49	53.19	7.54	5.31	7.54	2.23	1.58
2023	0.14	-	103	2.57	2.57	55.88	7.88	5.44	7.88	2.44	1.65
2024	0.14	-	103	2.71	2.71	57.37	8.15	5.58	8.15	2.57	1.66
2025	0.14	-	103	2.78	2.78	60.43	8.53	5.72	8.53	2.81	1.72
2026	0.14	-	103	2.91	2.91	62.19	8.81	5.86	8.81	2.95	1.73
2027	0.14	-	103	3.06	3.06	65.52	9.28	6.01	9.28	3.27	1.82
2028											
2029											
2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
2039											
								$152.91	$66.05		($86.86)

Residential High Efficiency Refrigerator/Freezer Rebate

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	0.08	0.08	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			519
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	100%	100%	100%
Market Eligibility	15%	15%	15%
Feasibility	100%	100%	100%
Estimated Controllable Units	1,890	1,890	1,890
Total Demand or Energy Savings (kW or kWh)	155	155	980,910

Estimated Installation Cost per Unit	$206.83	
Estimated Annual Maintenance Cost per Unit	$5.89	
Measure Life	10	Years
Cost Escalation	2.50%	
Discount Rate	5.00%	

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	0.08	0.08	519	1.51	1.51	38.02	21.21	206.83	21.21	(185.62)	(185.62)
2016	0.08	0.08	519	1.66	1.66	40.80	22.80	5.89	22.80	16.91	16.11
2017	0.08	0.08	519	1.87	1.87	42.48	23.89	6.04	23.89	17.85	16.19
2018	0.08	0.08	519	2.10	2.10	45.50	25.68	6.19	25.68	19.49	16.84
2019	0.08	0.08	519	2.22	2.22	47.82	27.00	6.34	27.00	20.66	17.00
2020	0.08	0.08	519	2.33	2.33	48.98	27.71	6.50	27.71	21.21	16.62
2021	0.08	0.08	519	2.36	2.36	51.65	29.13	6.66	29.13	22.47	16.77
2022	0.08	0.08	519	2.49	2.49	53.19	30.05	6.83	30.05	23.22	16.50
2023	0.08	0.08	519	2.57	2.57	55.88	31.53	7.00	31.53	24.53	16.60
2024	0.08	0.08	519	2.71	2.71	57.37	32.44	7.18	32.44	25.26	16.29
2025											
2026											
2027											
2028											
2029											
2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
2039											
								$240.73	$205.77		($34.96)

Old Refrigerator Pick-Up Program

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	0.10	0.10	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			410
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	100%	100%	100%
Market Eligibility	15%	15%	15%
Feasibility	100%	100%	100%
Estimated Controllable Units	1,890	1,890	1,890
Total Demand or Energy Savings (kW or kWh)	189	189	774,900

Estimated Installation Cost per Unit	$175.11	
Estimated Annual Maintenance Cost per Unit	$4.54	
Measure Life	10	Years
Cost Escalation	2.50%	
Discount Rate	5.00%	

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	0.10	0.10	410	1.51	1.51	38.02	17.40	175.11	17.40	(157.71)	(157.71)
2016	0.10	0.10	410	1.66	1.66	40.80	18.72	4.54	18.72	14.18	13.50
2017	0.10	0.10	410	1.87	1.87	42.48	19.66	4.65	19.66	15.01	13.61
2018	0.10	0.10	410	2.10	2.10	45.50	21.17	4.77	21.17	16.40	14.17
2019	0.10	0.10	410	2.22	2.22	47.82	22.27	4.89	22.27	17.38	14.30
2020	0.10	0.10	410	2.33	2.33	48.98	22.87	5.01	22.87	17.86	14.00
2021	0.10	0.10	410	2.36	2.36	51.65	24.01	5.14	24.01	18.88	14.09
2022	0.10	0.10	410	2.49	2.49	53.19	24.79	5.27	24.79	19.53	13.88
2023	0.10	0.10	410	2.57	2.57	55.88	25.99	5.40	25.99	20.60	13.94
2024	0.10	0.10	410	2.71	2.71	57.37	26.77	5.53	26.77	21.24	13.69
2025											
2026											
2027											
2028											
2029											
2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
2039											
								$200.49	$169.50		($30.99)

Loan Program - AC Replacement

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	1.00		
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			500
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	100%	100%	100%
Market Eligibility	5.8%	5.8%	5.8%
Feasibility	100%	100%	100%
Estimated Controllable Units	731	731	731
Total Demand or Energy Savings (kW or kWh)	731	-	365,500

Estimated Installation Cost per Unit	$928.03
Estimated Annual Maintenance Cost per Unit	$12.72
Measure Life	20 Years
Cost Escalation	2.50%
Discount Rate	5.00%

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	1.00	-	500	1.51	1.51	38.02	28.05	928.03	28.05	(899.99)	(899.99)
2016	1.00	-	500	1.66	1.66	40.80	30.34	12.72	30.34	17.62	16.78
2017	1.00	-	500	1.87	1.87	42.48	32.48	13.04	32.48	19.44	17.63
2018	1.00	-	500	2.10	2.10	45.50	35.33	13.36	35.33	21.97	18.98
2019	1.00	-	500	2.22	2.22	47.82	37.22	13.70	37.22	23.52	19.35
2020	1.00	-	500	2.33	2.33	48.98	38.46	14.04	38.46	24.41	19.13
2021	1.00	-	500	2.36	2.36	51.65	40.01	14.39	40.01	25.61	19.11
2022	1.00	-	500	2.49	2.49	53.19	41.52	14.75	41.52	26.76	19.02
2023	1.00	-	500	2.57	2.57	55.88	43.35	15.12	43.35	28.22	19.10
2024	1.00	-	500	2.71	2.71	57.37	44.94	15.50	44.94	29.44	18.98
2025	1.00	-	500	2.78	2.78	60.43	46.91	15.89	46.91	31.02	19.05
2026	1.00	-	500	2.91	2.91	62.19	48.55	16.28	48.55	32.27	18.87
2027	1.00	-	500	3.06	3.06	65.52	51.12	16.69	51.12	34.43	19.17
2028	1.00	-	500	3.25	3.25	67.49	53.24	17.11	53.24	36.13	19.16
2029	1.00	-	500	3.39	3.39	72.25	56.44	17.53	56.44	38.90	19.65
2030	1.00	-	500	3.50	3.50	74.90	58.43	17.97	58.43	40.46	19.46
2031	1.00	-	500	3.59	3.59	77.96	60.53	18.42	60.53	42.11	19.29
2032	1.00	-	500	3.71	3.71	81.56	63.06	18.88	63.06	44.17	19.27
2033	1.00	-	500	3.82	3.82	86.01	65.95	19.35	65.95	46.59	19.36
2034	1.00	-	500	3.94	3.94	89.66	68.44	19.84	68.44	48.60	19.23
2035											
2036											
2037											
2038											
2039											
								$1,061.85	$548.13		($513.72)

Existing Home Weatherization

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	1.00	1.00	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			800
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	50%	50%	50%
Market Eligibility	8%	8%	8%
Feasibility	100%	100%	100%
Estimated Controllable Units	504	504	504
Total Demand or Energy Savings (kW or kWh)	504	504	403,200

Estimated Installation Cost per Unit	$1,863.67	
Estimated Annual Maintenance Cost per Unit	$17.14	
Measure Life	15	Years
Cost Escalation	2.50%	
Discount Rate	5.00%	

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	1.00	1.00	800	1.51	1.51	38.02	48.49	1,863.67	48.49	(1,815.18)	(1,815.18)
2016	1.00	1.00	800	1.66	1.66	40.80	52.51	17.14	52.51	35.37	33.69
2017	1.00	1.00	800	1.87	1.87	42.48	56.45	17.57	56.45	38.89	35.27
2018	1.00	1.00	800	2.10	2.10	45.50	61.56	18.01	61.56	43.55	37.62
2019	1.00	1.00	800	2.22	2.22	47.82	64.87	18.46	64.87	46.41	38.18
2020	1.00	1.00	800	2.33	2.33	48.98	67.11	18.92	67.11	48.19	37.76
2021	1.00	1.00	800	2.36	2.36	51.65	69.68	19.39	69.68	50.29	37.53
2022	1.00	1.00	800	2.49	2.49	53.19	72.39	19.88	72.39	52.51	37.32
2023	1.00	1.00	800	2.57	2.57	55.88	75.51	20.37	75.51	55.14	37.32
2024	1.00	1.00	800	2.71	2.71	57.37	78.40	20.88	78.40	57.51	37.07
2025	1.00	1.00	800	2.78	2.78	60.43	81.73	21.41	81.73	60.33	37.04
2026	1.00	1.00	800	2.91	2.91	62.19	84.66	21.94	84.66	62.72	36.67
2027	1.00	1.00	800	3.06	3.06	65.52	89.13	22.49	89.13	66.64	37.11
2028	1.00	1.00	800	3.25	3.25	67.49	92.97	23.05	92.97	69.92	37.08
2029	1.00	1.00	800	3.39	3.39	72.25	98.42	23.63	98.42	74.79	37.78
2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
2039											
								$1,961.90	$725.94		($1,235.96)

Whole House Audits

DSM Technology Residential	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	0.15	0.15	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			526
Estimated Residential Customers	12,600	12,600	12,600
Estimated Appliance Saturation	50%	50%	50%
Market Eligibility	25%	25%	25%
Feasibility	100%	100%	100%
Estimated Controllable Units	1,575	1,575	1,575
Total Demand or Energy Savings (kW or kWh)	236	236	828,450

Estimated Installation Cost per Unit	$175.00
Estimated Annual Maintenance Cost per Unit	$0.00
Measure Life	15 Years
Cost Escalation	2.50%
Discount Rate	5.00%

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	0.15	0.15	526	1.51	1.51	38.02	22.71	175.00	22.71	(152.29)	(152.29)
2016	0.15	0.15	526	1.66	1.66	40.80	24.44	-	24.44	24.44	23.28
2017	0.15	0.15	526	1.87	1.87	42.48	25.71	-	25.71	25.71	23.32
2018	0.15	0.15	526	2.10	2.10	45.50	27.71	-	27.71	27.71	23.93
2019	0.15	0.15	526	2.22	2.22	47.82	29.14	-	29.14	29.14	23.98
2020	0.15	0.15	526	2.33	2.33	48.98	29.95	-	29.95	29.95	23.47
2021	0.15	0.15	526	2.36	2.36	51.65	31.42	-	31.42	31.42	23.45
2022	0.15	0.15	526	2.49	2.49	53.19	32.45	-	32.45	32.45	23.06
2023	0.15	0.15	526	2.57	2.57	55.88	34.01	-	34.01	34.01	23.02
2024	0.15	0.15	526	2.71	2.71	57.37	35.05	-	35.05	35.05	22.59
2025	0.15	0.15	526	2.78	2.78	60.43	36.79	-	36.79	36.79	22.59
2026	0.15	0.15	526	2.91	2.91	62.19	37.95	-	37.95	37.95	22.19
2027	0.15	0.15	526	3.06	3.06	65.52	39.97	-	39.97	39.97	22.26
2028	0.15	0.15	526	3.25	3.25	67.49	41.35	-	41.35	41.35	21.93
2029	0.15	0.15	526	3.39	3.39	72.25	44.10	-	44.10	44.10	22.27
2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
2039											
								$166.67	$327.67		$161.00

Commercial High-Efficiency Lighting Conversions

DSM Technology Commercial	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	2.00	2.00	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			8,320
Estimated Residential Customers	894	894	894
Estimated Appliance Saturation	100%	100%	100%
Market Eligibility	20%	20%	20%
Feasibility	100%	100%	100%
Estimated Controllable Units	179	179	179
Total Demand or Energy Savings (kW or kWh)	358	358	1,489,280

Estimated Installation Cost per Unit	$3,956.68	
Estimated Annual Maintenance Cost per Unit	$38.19	
Measure Life	10	Years
Cost Escalation	2.50%	
Discount Rate	5.00%	

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	2.00	2.00	8,320	1.51	1.51	38.02	352.47	3,956.68	352.47	(3,604.21)	(3,604.21)
2016	2.00	2.00	8,320	1.66	1.66	40.80	379.20	38.19	379.20	341.01	324.77
2017	2.00	2.00	8,320	1.87	1.87	42.48	398.37	39.14	398.37	359.23	325.83
2018	2.00	2.00	8,320	2.10	2.10	45.50	428.88	40.12	428.88	388.76	335.82
2019	2.00	2.00	8,320	2.22	2.22	47.82	451.08	41.13	451.08	409.96	337.27
2020	2.00	2.00	8,320	2.33	2.33	48.98	463.37	42.15	463.37	421.22	330.04
2021	2.00	2.00	8,320	2.36	2.36	51.65	486.45	43.21	486.45	443.24	330.75
2022	2.00	2.00	8,320	2.49	2.49	53.19	502.22	44.29	502.22	457.93	325.44
2023	2.00	2.00	8,320	2.57	2.57	55.88	526.54	45.40	526.54	481.15	325.66
2024	2.00	2.00	8,320	2.71	2.71	57.37	542.32	46.53	542.32	495.79	319.59
2025											
2026											
2027											
2028											
2029											
2030											
2031											
2032											
2033											
2034											
2035											
2036											
2037											
2038											
2039											
								$4,051.92	$3,433.79		($618.13)

Commercial High-Efficiency Air Conditioners

DSM Technology Commercial	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	2.00	0.00	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			1,440
Estimated Residential Customers	867	867	867
Estimated Appliance Saturation	100.0%	100.0%	100.0%
Market Eligibility	25%	25%	25%
Feasibility	100%	100%	100%
Estimated Controllable Units	217	217	217
Total Demand or Energy Savings (kW or kWh)	434	-	312,480

Estimated Installation Cost per Unit	$1,486.36
Estimated Annual Maintenance Cost per Unit	$13.79
Measure Life	20 Years
Cost Escalation	2.50%
Discount Rate	5.00%

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	2.00	-	1,440	1.51	1.51	38.02	72.82	1,486.36	72.82	(1,413.54)	(1,413.54)
2016	2.00	-	1,440	1.66	1.66	40.80	78.62	13.79	78.62	64.83	61.74
2017	2.00	-	1,440	1.87	1.87	42.48	83.64	14.13	83.64	69.51	63.04
2018	2.00	-	1,440	2.10	2.10	45.50	90.68	14.49	90.68	76.19	65.82
2019	2.00	-	1,440	2.22	2.22	47.82	95.47	14.85	95.47	80.62	66.33
2020	2.00	-	1,440	2.33	2.33	48.98	98.46	15.22	98.46	83.24	65.22
2021	2.00	-	1,440	2.36	2.36	51.65	102.74	15.60	102.74	87.13	65.02
2022	2.00	-	1,440	2.49	2.49	53.19	106.43	15.99	106.43	90.44	64.28
2023	2.00	-	1,440	2.57	2.57	55.88	111.28	16.39	111.28	94.89	64.22
2024	2.00	-	1,440	2.71	2.71	57.37	115.11	16.80	115.11	98.31	63.37
2025	2.00	-	1,440	2.78	2.78	60.43	120.41	17.22	120.41	103.19	63.35
2026	2.00	-	1,440	2.91	2.91	62.19	124.46	17.65	124.46	106.81	62.45
2027	2.00	-	1,440	3.06	3.06	65.52	131.06	18.09	131.06	112.97	62.90
2028	2.00	-	1,440	3.25	3.25	67.49	136.17	18.55	136.17	117.62	62.38
2029	2.00	-	1,440	3.39	3.39	72.25	144.66	19.01	144.66	125.65	63.46
2030	2.00	-	1,440	3.50	3.50	74.90	149.82	19.48	149.82	130.33	62.69
2031	2.00	-	1,440	3.59	3.59	77.96	155.36	19.97	155.36	135.39	62.02
2032	2.00	-	1,440	3.71	3.71	81.56	162.00	20.47	162.00	141.53	61.75
2033	2.00	-	1,440	3.82	3.82	86.01	169.73	20.98	169.73	148.75	61.81
2034	2.00	-	1,440	3.94	3.94	89.66	176.33	21.51	176.33	154.82	61.27
2035											
2036											
2037											
2038											
2039											
								$1,608.57	$1,408.17		($200.40)

Commercial HVAC Efficiency Improvement Program

DSM Technology Commercial	Summer Demand	Winter Demand	Annual Energy
Rated Load (kW per Unit)			
Coincident Factor (%)			
Contribution to Peak kW			
Demand Savings (%)			
Controllable Load (kW per unit)	5.00	5.00	
Annual Energy Usage			
Energy Savings (%)			
Energy Savings (kWh per unit)			6,500
Estimated Residential Customers	27	27	27
Estimated Appliance Saturation	100.0%	100.0%	100.0%
Market Eligibility	33%	33%	33%
Feasibility	100%	100%	100%
Estimated Controllable Units	9	9	9
Total Demand or Energy Savings (kW or kWh)	45	45	58,500

Estimated Installation Cost per Unit	$3,190.95
Estimated Annual Maintenance Cost per Unit	$349.97
Measure Life	20 Years
Cost Escalation	2.50%
Discount Rate	5.00%

	Summer Capacity Savings (kW/unit)	Winter Capacity Savings (kW/unit)	Annual Energy Savings (kWh/unit)	Summer Capacity Charge ($/kW-mo.)	Winter Capacity Charge ($/kW-mo.)	All-Hours Energy Charge ($/MWh)	Annual Power Cost Savings ($/unit)	Program Costs ($/unit)	Power Cost Savings ($/unit)	Present Value Annual Savings/ (Cost) ($/unit)	Annual Savings/ (Cost) ($/unit)
2015	5.00	5.00	6,500	1.51	1.51	38.02	337.48	3,190.95	337.48	(2,853.47)	(2,853.47)
2016	5.00	5.00	6,500	1.66	1.66	40.80	364.55	349.97	364.55	14.58	13.89
2017	5.00	5.00	6,500	1.87	1.87	42.48	388.47	358.72	388.47	29.75	26.98
2018	5.00	5.00	6,500	2.10	2.10	45.50	421.55	367.69	421.55	53.86	46.53
2019	5.00	5.00	6,500	2.22	2.22	47.82	443.88	376.88	443.88	67.00	55.12
2020	5.00	5.00	6,500	2.33	2.33	48.98	458.02	386.30	458.02	71.72	56.19
2021	5.00	5.00	6,500	2.36	2.36	51.65	477.53	395.96	477.53	81.57	60.87
2022	5.00	5.00	6,500	2.49	2.49	53.19	494.94	405.86	494.94	89.08	63.31
2023	5.00	5.00	6,500	2.57	2.57	55.88	517.27	416.00	517.27	101.27	68.54
2024	5.00	5.00	6,500	2.71	2.71	57.37	535.41	426.40	535.41	109.00	70.26
2025	5.00	5.00	6,500	2.78	2.78	60.43	559.75	437.06	559.75	122.68	75.32
2026	5.00	5.00	6,500	2.91	2.91	62.19	578.79	447.99	578.79	130.79	76.47
2027	5.00	5.00	6,500	3.06	3.06	65.52	609.43	459.19	609.43	150.24	83.66
2028	5.00	5.00	6,500	3.25	3.25	67.49	633.59	470.67	633.59	162.91	86.40
2029	5.00	5.00	6,500	3.39	3.39	72.25	672.73	482.44	672.73	190.29	96.11
2030	5.00	5.00	6,500	3.50	3.50	74.90	696.65	494.50	696.65	202.15	97.24
2031	5.00	5.00	6,500	3.59	3.59	77.96	722.24	506.86	722.24	215.38	98.67
2032	5.00	5.00	6,500	3.71	3.71	81.56	752.89	519.53	752.89	233.36	101.81
2033	5.00	5.00	6,500	3.82	3.82	86.01	788.47	532.52	788.47	255.94	106.35
2034	5.00	5.00	6,500	3.94	3.94	89.66	818.89	545.83	818.89	273.06	108.06
2035											
2036											
2037											
2038											
2039											
								$7,936.71	$6,544.61		($1,392.10)

Appendix B: Stakeholder Comments