

# **DSM PERFORMANCE MEASURES**

**FY 2008**



## **RESIDENTIAL COMMERCIAL & GREEN BUILDING**

May 19<sup>th</sup> 2009

**Distributed Energy Services  
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**EXECUTIVE SUMMARY**

The Austin Energy's **Power Saver Program** provides *Residential* and *Commercial* energy management services to customers of Austin Energy (AE). By offering technical assistance and energy audits, DSM helps identify efficiency opportunities, makes recommendations on the most cost-effective measures, and offers financial incentives for installations of qualifying equipment. The Austin Energy's **Green Building Program** provides plan-review and technical assistance services to building industry professionals seeking to have their projects evaluated for energy and resource efficiency or sustainability.

The AE **Power Saver** and **Green Building** programs' drive market transformation to maximize energy resources by lowering electric bills while increasing customer comfort and satisfaction. Higher efficiency lowers costs to AE and its customers, while also reducing power plant emissions and promoting economic development in the Austin area. The capital purchases provide economic benefits through increased employment in the local energy efficiency industry. The resulting gain in disposable income increases spending in the local economy.

The diverse mixture of Residential Efficiency, Commercial Energy Management, and Green Building programs offered by AE have achieved substantial reductions in peak electric demand, and all-time record reductions in both energy usage, and power plant emissions. From October 2007 through September 2008, Austin Energy achieved the two impacts below.

A. Demand and Energy Reduction:

- o 64.1 Megawatts of *Required Power-Plant Peak Capacity* in Table 2
- o 132,000 Megawatt-hours of Energy Savings in Table 3

B. Estimated *Annual Power-Plant Emissions' Reductions* in Table 5.

- o Carbon Dioxide: 85,500 tons (77,600 metric tons)
- o Nitrogen Oxides: 59.6 tons (54.1 metric tons)
- o Sulfur Dioxide: 53.9 tons (48.9 metric tons)
- o Carbon Monoxide: 41.4 tons (37.6 metric tons)
- o Suspended Particulates: 7.3 tons (6.6 metric tons)
- o NMOC (VOC): 2.1 tons (1.9 metric tons)

**POWER SAVER & GREEN BUILDING  
FY 2008**

AE's Distributed Energy Services Division is responsible for the design, implementation and evaluation of Residential Energy Efficiency, Commercial Energy Management and Green Building programs offered to its electric customers. These diverse programs which were offered in Fiscal Year 2008 are summarized below.

**Residential Efficiency**

In 2008, AE's *Residential Efficiency Programs* achieved significant results in participation and savings. For all programs combined, over 44,000 residential customers participated, with a peak demand savings of 25 MW.

*Austin Energy's Home Performance with ENERGY STAR®* was awarded the National ENERGY STAR® – "Sustained Excellence" Award in recognition for its consistent high performance each year. Austin Energy received this award at a banquet in Washington D.C. from the U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA).

**Air Conditioning Rebate (Appliance Efficiency)**

Air Conditioning Rebates are offered on high efficiency air conditioning units and heat pumps that are more efficient than the local energy code requirements and the national appliance manufacturing standards. AE adopts the Consortium for Energy Efficiency (CEE) air conditioning efficiency standards. The CEE standard requires the central air conditioning systems meet both a SEER and EER requirement to be listed in the CEE database. To receive an ENERGY STAR® label, the Department of Energy requires the central air conditioning system have an efficiency rating of at least 14.0 SEER and 11.5 EER. Rebates for ENERGY STAR® window unit air conditioners are also available. For the first time, new construction air conditioning was excluded due to diminishing returns above 14 SEER. This rebate is available for existing homes and small businesses installs of 5 tons and less.

**Home Performance with ENERGY STAR® – Rebate**

The *Home Performance with ENERGY STAR® – Rebate* provides rebates to customers as an incentive to make energy-saving home improvements based on an energy analysis performed by a trained home performance contractor. Through this program, rebates are offered for attic insulation, solar screens, Energy Star windows, duct repair and sealing, and installing a properly sized high-efficiency heating and cooling system. If a homeowner makes all of the recommended weatherization improvements and installs a properly sized unit, customers can qualify for a "bonus" rebate which ranges higher than that offered through the Appliance Efficiency program. Because the energy improvements bring the home to current energy code standards, this program is offered to existing homes only.

**Home Performance with ENERGY STAR – Loan**

This program is identical to the *Home Performance with ENERGY STAR® – Rebate*, but enables the customer to borrow money to complete the home energy efficiency improvements. The loan covers the cost for installing attic insulation, solar screens, Energy Star windows, duct repair and sealing, and installing a new properly sized high efficiency heating and cooling system. The *Home*

## **DSM Performance Measures – FY 2007-2008**

*Performance with ENERGY STAR® Program* emphasizes improving the total home, providing the customer with:

- Greater comfort
- Better energy performance
- Improved indoor air quality

Currently, AE buys down the interest rates through a partnership with Velocity Credit Union. Customers can lock-in at an interest rate of 0% APR interest for 3 or 5 years, or 3.5% for 7 or 10 years.

### **Free Weatherization**

Austin Energy offers *Free Weatherization Services* to **qualified** low-income, elderly and physically/mentally disabled customers, free energy audits and free energy improvements on their homes. The program includes the installation of attic insulation, solar screens caulking/weather stripping doors and windows, re-glazing of windows, sealing and repair of ducts, and other minor energy-related repairs to address substandard housing conditions. In conjunction with the *Free Weatherization Program*, customers may apply for a *Home Performance with ENERGY STAR® Loan* or an *Air Conditioning Rebate* to install cooling equipment. **ENERGY STAR** labeled compact fluorescent light (CFL) bulbs are also installed in high usage fixtures.

Home safety improvements are installed including advanced smoke and carbon monoxide detectors and improved methods of air testing to insure the health and safety of AE customers. AE also provides qualified customers a \$500 voucher for the purchase of an ENERGY STAR® labeled window unit air conditioner through the *Window Unit Voucher Program*. The program unit cost increased in FY2008 because insulation equipment increased from R-26 to R-38.

### **Multi-Family Incentive**

*Multi-Family Incentives* are provided to owners, developers and managers of apartment communities and other multi-housing properties with rebates for making energy efficiency improvements.

For existing multi-housing properties, AE's Conservation Program Specialists are available to perform a free walk-through energy audit to identify energy improvements that qualify for rebates. AE recently implemented a *Duct Diagnostic and Sealing Program* for existing multi-family properties. Through this program, contractors perform a diagnostic inspection and a duct blaster test to check duct leakage. Recommendations are made to the property manager for duct improvements. Initial duct leakage testing has shown an average duct leakage rate of 40%.

For new construction multi-housing properties, AE's Conservation Program Specialist assist builders, developers and owners with rebates to encourage upgrading air conditioners and heat pumps that exceed national energy code requirements, expertise to review duct system designs, and inspection services to assure quality work.

All participating apartment communities and multi-housing properties can partner with AE and use the Multi-Family logo in their advertising as a symbol of energy efficiency and comfort. Residents of these communities have benefited from the improvements through: utility savings ranging from 10% - 40%, improved air quality and higher comfort year-round.

The Multi-Family energy savings increased substantially from 7,000 MWh in 2007 to 24,000 in 2008, therefore, increasing total DSM savings by 11% to 132,000. This was due to CFL increasing from 28% to 87% of projects. The associated unit savings increased from 300 kWh/participant in 2007 to

1,100 in 2008. The CFL will saturate in 2009. In addition, EISA 2007 will phase out the most common incandescent light bulb by 2012-2014.

### **The Power Partner**

During the last seven years, Austin has grown at a phenomenal rate. The *Power Partner* load management is a solution to accommodate that growth, and its associated need for increased energy. This program provides AE with an affordable method of load reduction during times of peak demand, and at the same time provides participants with the opportunity to save energy year round, and the ability to make a difference in Austin's energy future by making sure there will be enough electricity for future power needs.

These load management programmable thermostats allow residential owners to schedule the "on-off" operating schedule of the air conditioner, as well as pre-program setback temperature schedules. Additionally, the programmable thermostats have radio-controlled devices that allow AE to cycle-off air conditioning units during periods of high summer system peak demand. Power Partners' air conditioners may be cycled off as needed for no more than 10 minutes every half-hour (additional \$25 incentive for 50% cycling) from 3 to 8 p.m., Monday – Friday, June through September. Participation in the program is voluntary and offered on a first-come, first-served basis. By participating in the *Power Partner Program*, customers agree to allow AE to cycle their air conditioner during these times.

### **Cycle Saver Water-Heater Timers**

The Cycle Saver – Water Heater Timer program is another load management program. This program was created to help AE manage peak energy demand by installing energy control timers on individual electric water heaters at multi-family properties. The program directly targets apartments with electric water heaters, providing the owners and managers with incentives for participation. AE has programmed the energy control timers to cycle off June through September, Monday – Friday, 3 pm to 7 pm. The unit does not cycle off the water heater on weekends or holidays.

AE selected the Vaughn Energy Controller IV ([www.vaughncorp.com](http://www.vaughncorp.com)) because of its easy to use, yet sophisticated, load control capabilities. This product was specifically designed to meet electric utility's needs for dedicated peak control of electric water heaters, while offering customer flexibility. State-of-the-art microprocessor technology offers programming capabilities flexible enough to accommodate AE's load management strategies to save energy, money, and also reduce peak summer demand for electricity.

Property managers of apartment communities like offering this product to its customers because it gives residents an opportunity to save additional energy on their electric bill. The vacation button feature on the timer allows the residence to shut off the water heater for extended periods.

### **Duct Diagnostic and Sealing (Multi-Family)**

The *Duct Diagnostic and Sealing* is now only for Multi-Family. It encourages customers to have their duct system diagnosed for air leakage and proper distribution of air. AE contracts with specially trained contractors who have been certified by the National Balancing Institute (NBI) to provide duct diagnostic testing for \$50 per unit, which includes the following:

- Duct leakage analysis
- Duct airflow test
- Temperature test

- Return sizing test
- Combustion safety test

The duct diagnostic testing identifies significant duct leakage that could reduce cooling and heating capacity and result in higher energy bills. Testing also reveals if rooms have sufficient temperature and airflow for adequate heating and cooling, if return air vents receive sufficient air; and if return air vents are drawing unconditioned air from the attic, garage or crawl space, or introducing unwanted allergens in rooms. The contractor can then make necessary recommendations, and AE can provide rebate opportunities to help offset the cost of improvements.

The benefits of having duct improvements may include: saving money, increasing comfort, improved indoor air quality and a safer home.

The single family incentives ended in December 2008. Therefore, the Duct Diagnostic was merged into the Multi-Family program.

### **Compact Fluorescent Lamps (CFL) Rebate Coupon**

The *CFL Rebate Coupon* encourages customers to purchase “ENERGY STAR®” labeled compact fluorescent light bulbs, instead of incandescent light bulbs. AE offers \$2-\$4 discount coupons to help offset the initial cost of buying the CFL bulbs. Local retailers, working together with AE, help promote the program by stocking CFL bulbs, and accepting the \$2-\$4 discount “point of purchase” coupons. Local retail participants then send the collected coupons to AE and are reimbursed for the face value of the coupons.

The *CFL Rebate Coupon* provides the following benefits to AE, the environment, and its customers:

- Saves money by reducing energy use in customer’s homes
- Reduces the amount of heat gain from lighting by 80%, thus reducing cooling loads
- Lowers the amount of fossil fuels burned to produce energy
- Assists Austin Energy to reduce energy use during on and off peak usage times
- Reduces bulb replacement cost due to a ten times longer life than standard bulbs.

### **Refrigerator Recycling**

The *Refrigerator Recycling Program* is the newest residential energy efficiency program for AE. The program is intended for those homeowners with a working refrigerator that they would like to recycle. AE arranges for the pick up of the refrigerator at no cost. As an added incentive, the homeowner will receive \$50. Ninety-eight percent of the refrigerator is recycled, avoiding disposal in a landfill. The program is intended to remove inefficient refrigerators which can cost homeowners an average of \$150 a year.

### **Residential Online Energy Analysis**

AE offers residential customers the opportunity to go “online” to perform an energy analysis on their own home. Customers can log onto Austin Energy’s website at [www.austinenergy.com](http://www.austinenergy.com) to perform the energy analysis.

Customers answer a list of questions about the characteristics of their home. The questions include details on wall and attic insulation levels, type of appliances in the home, appliance usage schedules, number and type of lights, and types of heating, cooling and water heating equipment.

After customers have completed the questions, the online analysis will provide:

- Estimated operating cost of customers home appliances
- List of no cost and low cost energy efficiency retrofits
- Savings estimates of recommended retrofits
- Comparison of customers home verses an efficient home of similar size
- Colorful graphs of appliance usage

“Appliance Calculators” have been added to allow customers to determine energy savings for specific products such as a refrigerator, dishwasher, cooling system, heating system, water heater and lighting.

If the customer is interested in implementing some of the measures recommended, they are directed to the AE’s Residential Efficiency Program webpage.

## **Commercial Energy Management**

### **On-Site Energy Surveys**

AE performs no-cost energy audits of commercial buildings to identify energy efficiency opportunities. An experienced staff of energy engineers and energy technicians perform walk-through energy surveys of facilities, educate building owners and operators on facility energy management and identify cost saving opportunities. AE provides pre-inspections of major equipment prior to its replacement and projects are inspected before any rebate funds are disbursed. Inspections can be waived for rebates below \$500.

### **Commercial Rebates**

AE’s business customers can get utility rebates for investing in new, energy efficient equipment. Rebates are offered for energy efficient technologies that reduce summertime electric peak demand. Eligible measures include lighting, HVAC, thermal cool storage, motors, variable frequency drives, building envelope and other custom technologies. Trade allies have been very instrumental in helping create awareness among AE’s commercial customers. AE has strong and productive relationships with local equipment suppliers. Austin Energy utilizes Key Account Managers and sales staff to better promote these programs to the large and mid market commercial accounts.

To encourage greater participation in the small business sector, Austin Energy offered 20% bonus rebates. This has effectively increased participation in the small business market. The bonus rebate program helped commercial rebates to exceed the MW goal.

### **Small Business 20% Bonus**

This program is designed to help small-to-midsize business, non-demand and limited-demand customers (less than 100 kW summer average) and tax-exempt not-for-profit organizations implement a variety of energy efficiency measures that can reduce their electric demand by offsetting their initial investment. Qualified businesses and organizations received an additional 20% bonus on one or more of AE’s Commercial Rebates (with the sole exception of a Solar PV rebate).

All rebates must comply with all the requirements of each individual commercial rebate program offering.

Projects that are classified as “New Construction” under AE’s Guidelines will also qualify for the bonus if the project’s account is assigned for a qualified tax-exempt not-for-profit business or organization.

### **Small Business Lighting**

The objective of this program is to motivate small-to-midsize business, non-demand and limited-demand customers (less than 100 kW summer average) and tax-exempt not-for-profit organizations to participate in this program through the direct installation of energy efficiency lighting equipment. The program offers participating customers a discount for the retrofit of qualifying energy efficient lighting equipment. In the traditional rebate program, commercial customers receive a rebate after the purchase and installation of the lighting equipment. However, the Small Business Lighting Program offers participating customers a discount before the equipment purchase. This process gives the participant the advantage of reducing their “initial cost”, which has historically been an obstacle for the small business community to implement energy efficiency measures.

The vendor performs the lighting audit in this unique program. This provides the customer an opportunity to meet and interact with the vendor. AE provides a final inspection on selected lighting projects after the equipment is installed.

In FY 2008, the program was revamped to be a rebate style program. In addition, there was no contractor for most of the summer therefore, the program was dormant.

### **Inter-local Agreements**

Through Inter-local Agreements, AE can provide customized energy consultations and energy project solutions to institutional and governmental agencies. Public institutions, school districts, State, Federal, County, and Municipal Departments require special assistance when it comes to energy management services. Through Inter-local Agreements, AE establishes a closer working relationship with public agencies to identify and implement facility energy management. AE rebates can be allocated for energy conservation projects, and project-financing solutions can also be identified. The only inter-local projects were Solar for Schools.

### **Municipal Energy Conservation**

The *Municipal Energy Conservation Program (MECP)* provides technical support, employee awareness training, and funding for energy conservation projects. The MECP has led the City's efforts in Senate Bill 5 compliance and now Senate Bill 7.

In January 2005, the City Manager issued an Administrative Bulletin (05-01) that outlined the City's commitment to energy conservation in its own facilities and designated AE as the City's Energy Manager. It also outlined the responsibilities of each department and requires energy management plans to be submitted.

In fulfillment of the role as the City's Energy Manager, MECP staff executed a \$10 million performance contract with three Energy Service Companies (ESCOs) to implement energy conservation in City of Austin facilities over the next two to three years. The ESCOs have retrofits at Austin Energy's facilities as well as completed proposals at the airport and within Parks and Recreation facilities. The retrofits will be completed during FY09.

By the end of 2005, the City of Austin had reduced its energy consumption by almost 9% when compared to the 2001 baseline usage. These results were reported to the State Energy Conservation Office (SECO) as required by Senate Bill 5, 1999.

Also, the Texas A&M Energy Systems Laboratory has been hired to conduct their Continuous Commissioning program on the new Austin City Hall. The year long commissioning program is expected to reduce the cost of operating city hall by about \$60,000 per year.

### **Commercial Power Partner**

These load management programmable thermostats allow business owners to schedule the “on-off” operating schedule of the air conditioner, as well as pre-program setback temperature schedules. Additionally, the programmable thermostats have radio-controlled devices that allow AE to cycle-off air conditioning units during periods of high summer system peak demand. Power Partners’ air conditioners may be cycled off as needed for no more than 10 minutes every half-hour (additional \$25 incentive for 50% cycle) from 3 to 7 p.m., Monday – Friday, June through September. Participation in the program is voluntary and offered on a first-come, first-served basis. By participating in the *Power Partner Program*, customers agree to allow AE to cycle their air conditioner during these times.

### **Engineering Services**

AE constructed one district cooling plant in the Central Business District in 2001. Construction of a second plant (on the same loop) was begun in 2003 and commenced operation in 2007. The first plant serves approximately 10 buildings through an underground distribution network of chilled water pipes.

An integral part of both plants is a Thermal Energy Storage (TES) system. The existing plant contains three, 2,000 ton water chillers, two 1,000 ton glycol or ice chillers, and one 26,000 ton-hour ice-based TES system. The second plant has been operating successfully and contains one glycol chiller and a 52,000 ton-hr TES system. One additional glycol chiller has been installed and one new water chiller ordered and spaces for new water chillers are provided to accommodate additional chiller capacity as chilled water demand grows.

In FY 2008, three customers were added, resulting in an additional 2.16 MW of peak load reduction.

### **Thermal Energy Storage**

This program offers an opportunity for AE customers to reduce their utility bills while reducing peak demand during the utility’s on-peak periods. Thermal Energy Storage (TES) is a proven technology using conventional refrigeration equipment and specialized storage tanks to shift all or part of a facilities cooling load from on-peak to off-peak.

TES rebates levels were adjusted in an attempt to increase participation. The former \$250/kW is now a declining block structure from \$300 to \$50/kW. This effort recognizes that the economy of scale is not available with smaller systems.

In FY 2008, one thermal energy storage studies was completed and three had preliminary assessments. There are several customers are considering the implementation of these systems in the future.

One system was installed in 2008, but due to operational problems no rebate was paid or claimed. It is anticipated this will be operational in FY 09.

### **Smart Vendor**

The Smart Vendor Program was started in 2002 with offering free Vending Misers® for soda machines. In 2005, it was expanded to also include free devices for snack machines, reach-in beverage coolers, and selected plug loads. No-cost (to customer) installations significantly reduce refrigeration loads through the use of occupancy sensors. This energy conservation strategy is a low cost option to new equipment purchases.

### **Solar Photovoltaic (PV) Rebate**

AE's *Solar Rebate Program* is designed to help customers implement photovoltaic (PV) technology in their home or business by offering financial incentives that can offset customers' initial investment. As an energy management partner, AE offers unbiased expertise on cost-effective use of energy dollars. By implementing PV technology, customers will be helping the City of Austin reduce the need to generate additional power, lower our long-term investment costs for new electric facilities and also enhance the City's environment.

The current rebate level is \$4.50/watt. The annual limits are \$13,500 for residential and \$100,000 for commercial customers.

The total installations were 900 kW of PV and 17 solar hot water systems.

Solar is not included in Performance Measures tables because it is classified as generation.

### **Green Building Programs**

*AE Green Building* offers consultation, technical assistance, and green building rating services to all building industry professionals working on projects within the Austin Energy service area.

The program representatives and resources provide design assistance and evaluation of new construction and major renovations that:

- Are more energy efficient
- Uses material resources efficiently
- Provides a healthier indoor environment
- Reduces water consumption and lessens the impact of storm water run off

The program's primary concerns are not only energy consumption, but also life-cycle impact of various building materials and strategies on human health, water and waste generation. This program looks at the "big picture" in the building or remodeling a home or building, and how the building affects not only its occupants, but also the community and, ultimately, the planet and its climate.

*AE Green Building* consists of Residential single family, Multi-Family, and Commercial Green Building Programs and is responsible for the adoption and implementation of the City of Austin Energy Code.

### **Green Building Rating**

The concept underlying *AE Green Building* is that homes and buildings can be evaluated based on their sustainability. Sustainability is defined as meeting today's needs without compromising future generation's ability to meet their needs. To this end the *AE Green Building* rating evaluates homes and buildings in the areas of energy efficiency and renewable energy, water conservation and water quality, efficient use of materials including recycled and recyclable materials and construction waste management, indoor environmental quality, and community impacts. All of the rating tools used by *AE Green Building*; single family, multi-family, and commercial; have been designed by *Green Building* staff to meet Austin's specific climate and construction needs and to further the City's policies. The tools rate projects on a one star to five star scale with five stars being the highest rating possible.

### **Residential Single Family**

The single family program provides plan review and technical assistance to designers and builders to ensure that the homes they build are as energy and resource efficient, or green, as possible. All affordable housing built with any incentives from the City of Austin is required to achieve a one star Green Building rating, so the program devotes a significant amount of its efforts to that sector of the housing market. This ensures that Austin residents with the most need get homes that are not only affordable to purchase but also affordable to operate, more durable, and healthier. In FY 2008 the Single Family Program rated 1021 homes.

### **Residential Multifamily**

The multifamily program provides services to developers, designers, and builders of low and mid rise multifamily buildings. In FY 2008 the program rolled out a new much more comprehensive rating system designed to promote a higher level of efficiency in all areas of sustainability. This new tool will enable the program to measure the results of their efforts more effectively and to provide AE planners with more accurate energy and demand projections. In FY 2008, Multifamily Green Building rated projects containing 1611 units.

### **Commercial Green Building**

The AE Commercial Green Building Program assists owners, developers and building industry professionals in achieving a Commercial Green Building rating for their new construction or major renovation projects. The program evaluates the success of buildings in achieving their sustainability goals in the areas of sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. The intent is to minimize adverse effects on the environment and natural resources while maximizing the benefit to the community, building owners, and occupants.

Green Building ratings are now required for all major projects downtown, all buildings at the Mueller redevelopment, in several PUDs and in other instances where mandated by City Council. This growth of required ratings has resulted in a significant growth in the demand and energy savings attributed to *Commercial Green Building*. In FY 2008, Commercial Green Building rated 18 projects containing approximately 3,221,558 square feet.

### **Energy Code Enforcement**

The *Green Building Program* is responsible for overseeing the City of Austin Energy Code. As part of this effort *Green Building* was responsible for bringing together the Zero Energy Capable Homes by 2015 plan. The plan establishes the process through which the City of Austin Energy Code will be used to raise the bar on energy efficiency until all new homes constructed in the City will be efficient enough to make it cost effective to install on-site renewable generation systems and make the homes net zero energy homes by 2015. The first increment of the zero energy capable homes plan was passed by City Council on October 18, 2007 and went into effect on January 1, 2008. This plan is a major part of the Austin Climate Protection Plan. The 2007 average new home built in Austin was 2,262 SF and used 16,992 kWh. The 2008 energy code reduces the energy use of that same model house by 2,515 kWh and the final 2015 ZEC code will reduce total energy use by 7,839 kWh.

## **DESCRIPTION OF TABLES & EXHIBITS**

This report is divided into two parts. Section I - consists of a series of tables that present the participation, demand, energy and emission reductions achieved by the AE's Distributed Energy Services division in Fiscal Year 2007-2008. The tables itemize performance in each of the last five years, as well as a summary of 1982 to 2003.

Section II - consists of a series of exhibits that present financial information on the programs offered by the Distributed Energy Services division.

### **SECTION I**

A brief explanation for each of the tables that make up this part of the report is listed below.

#### **Table 1 - Annual Program Participation**

This table depicts the number of participants by year for each of the programs offered by the AE. Participants are those homes and facilities where the energy conservation measures were installed, inspected and approved by AE.

#### **Table 2 - Annual Peak Demand Reduction (MW)**

This table shows the reduction in peak electrical demand achieved by conservation programs for 2008. These numbers include the avoided *Utility Capacity Reserve Margin* of 12% and avoided *Transmission & Distribution* losses of 7%. **Figure 1** depicts the last five years of demand reduction.

#### **Table 3 - Annual Energy Saving (Megawatt-Hours)**

This table shows the savings in electrical energy consumption achieved by the energy programs. These numbers include the avoided *Transmission & Distribution* losses of 7%. **Figure 2** graphs five years of energy reduction.

#### **Table 4 - Goals for Participation, MW, and MWh**

The goals are itemized for participation, demand, and energy.

#### **Table 5 - Emissions Reductions**

This table shows the reduced quantity of pollutants' emission as a result of DSM activities for FY 2007-2008.

## **SECTION II**

A brief explanation of the contents of each exhibit that makes up this part of the report is included in the exhibit itself.

### **Exhibit A - Expenditures**

This exhibit shows the operating expenses and incentives of each program for FY 2007-2008.

### **Exhibit B – Benefit Cost Analysis Ratio**

This exhibit shows the calculated *Benefit Cost Ratios* for the programs offered by DSM.

### **Exhibit C - Net Present Values**

This exhibit shows the calculated *Net Present Values* for the programs offered by DSM.

### **Exhibit D - Expenses for Demand Reduction (\$/kW)**

The allocated expenses are weighted by demand reduction.

[\*\*Figure 3: Life Cycle versus Capital Cost\*\*](#)

[\*\*Figure 4: Ranked Utility Levelized Life Cycle ¢/kWh\*\*](#)

[\*\*Figure 5: Ranked Capital Cost\*\*](#)

### **Exhibit E - Solar Photovoltaic Program**

This is a separate Exhibit, because Solar is classified as generation, and thus excluded from the Performance Measures DSM report.

**DSM Performance Measures –FY 2007- 2008**

**Table 1: Annual Program Participation<sup>1</sup>**

	1982-'03	2004	2005	2006	2007	2008	Total
<b>Residential Efficiency</b>							
Appliance Efficiency Program	148,871	3,665	4,688	4,214	2,415	3,093	166,946
Home Performance ES - Rebate	16,813	1,106	1,075	1,381	1,712	2,223	24,310
H. P. Energy Star - Loan	13,880	232	324	350	248	213	15,247
Free Weatherization	10,820	565	455	720	632	505	13,697
Multi-Family Program	71,948	8,044	6,501	7,899	10,505	21,814	126,711
Clothes Washer Rebate	2,096	420	411	545	882	813	5,167
Duct Leaks Sealing/Diagnosis	926	251	238	232	147	231	2,025
Refrigerator Recycling	0	198	2,323	2,679	3,200	4,114	12,514
Power Partner	26,186	5,931	8,314	10,210	10,355	9,934	70,930
Cycle Saver	4,849	1,126	2,597	2,366	2,279	1,237	14,454
Compact Fluorescent <sup>2</sup>	0	0	0	0	0	0	0
Discontinued Programs	103,518						103,518
Subtotal Residential	399,907	21,538	26,926	30,596	32,375	44,177	555,519
<b>Commercial Energy Management</b>							
Commercial Rebate	547	213	306	170	325	351	1,912
Commercial AEP	12,459	0	9	0	0	0	12,468
Small Business	219	146	164	362	349	264	1,504
Municipal	244	12	16	5	1	129	407
Municipal Power Partner	742	60	27	32	23	0	884
Commercial Power Partner	2,105	657	619	1,250	2,034	1,331	7,996
Load Coop	8	0	1	3	23	29	64
Engineering Support	16	2	3	4	3	3	31
Commercial Smart Vendor	2,094	1,776	1,557	368	572	420	6,787
Muni. Vend & Monitor Misers	136	0	0	0	0	0	136
Discontinued Programs	2,965	0	0	0	0	0	2,965
Subtotal Commercial	21,535	2,866	2,702	2,194	3,330	2,527	35,154
<b>Green Building</b>							
Residential Ratings	10,816	730	1,087	1,049	981	1,021	15,684
Residential Energy Code	10,559	3,437	1,600	4,994	5,270	2,941	28,801
Multi-Family Energy Code	17,015	2,691	4,000	4,104	6,056	4,805	38,671
Multi-Family-Ton Reduction	0	0	4	8	0	0	12
Commercial Ratings	0	0	1	5	0	0	6
Commercial Energy Code	2,191	0	261	0	0	0	2,452
Subtotal Green Building	40,581	6,858	6,953	10,160	12,307	8,767	85,626
<b>Total DSM Programs</b>							
	<b>462,023</b>	<b>31,262</b>	<b>36,581</b>	<b>42,950</b>	<b>48,012</b>	<b>55,471</b>	<b>676,299</b>

Notes:

<sup>1</sup> Fiscal year participation is based on inspection dates.

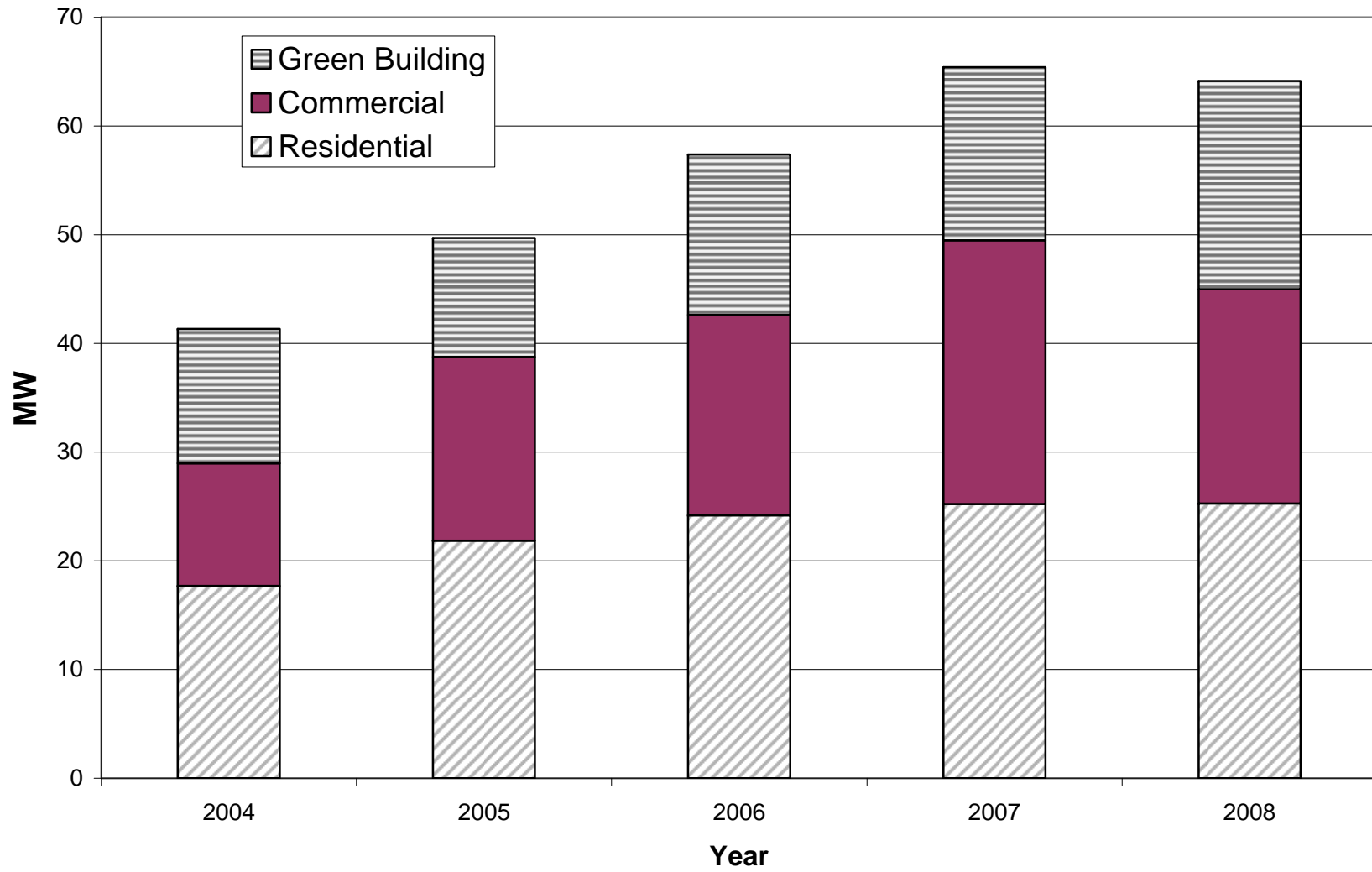
<sup>2</sup> Compact Fluorescent Lamp participation did not have site visits.

**Table 2: Annual Peak Demand Reduction (MW)**

	1982-'03	2004	2005	2006	2007	2008	Total
<b>Residential Efficiency</b>							
Appliance Efficiency	123.6	3.3	4.2	3.7	2.29	2.93	140
H P Energy Star - Rebate	42.1	2.4	2.4	2.5	3.08	4.02	56
Home Performance ES - Loan	36.6	0.5	0.7	0.6	0.45	0.38	39
Free Weatherization	16.0	0.5	0.4	0.7	0.60	0.48	19
Multi-Family	36.7	3.9	3.2	3.8	5.15	4.61	57
Clothes Washer Rebates	0.3	0.1	0.0	0.1	0.11	0.04	0.6
Duct Leaks Sealing/Diagnosis	0.8	0.3	0.3	0.3	0.18	- - -	1.9
Refrigeration Recycling	0.0	0.0	0.6	0.6	0.73	1.21	3.2
Power Partner	33.2	5.9	8.2	10.1	10.22	9.80	77
Cycle Saver	3.5	0.7	1.8	1.5	1.48	0.80	10
CFL	0.2	0.1	0.1	0.3	0.94	0.99	2.6
Discontinued Programs	25.8						25.8
Subtotal Res.	319	17.7	21.9	24.2	25.2	25.3	433
<b>Commercial Energy Management</b>							
Commercial Rebate & ILA	24.1	7.2	12.6	10.1	14.1	12.8	81.0
Commercial AEP	15.3	0.0	0.0	0.0	0.00	0.00	15.3
Small Business Lighting	1.3	1.1	0.6	2.0	1.31	1.10	7.3
Municipal	9.9	0.5	0.4	0.2	0.00	0.13	11.1
Power Partner	4.3	1.1	0.9	2.0	1.69	1.43	11.3
Load Coop	7.7	0.0	0.7	1.0	3.56	1.25	14.1
Engineering Support & TES	6.4	1.04	1.20	2.15	2.04	2.16	15.0
Commercial Smart Vendor	0.4	0.4	0.2	0.063	0.10	0.07	1.2
Small Business Air Conditioner	0.0	0.0	0.4	1.1	1.46	0.73	3.7
Discontinued Programs	125						125
Subtotal Comm.	194	11.3	16.9	18.5	24.3	19.7	285
<b>Green Building</b>							
Residential	11.8	0.6	0.9	0.9	0.82	0.85	16
Residential Energy Code	14.2	4.5	5.7	6.5	6.90	4.86	43
Multi-Family Energy Code	8.0	1.2	1.0	1.9	2.74	2.17	17
Multi-Family (ton reduction)	0.2	1.8	0.4	0.6	0.80	1.30	5
Commercial	2.9	0.0	0.4	0.4	1.48	4.77	10
Commercial Energy Code	7.7	4.3	2.5	4.5	3.18	5.21	27
Subtotal GB	44.73	12.4	10.9	14.8	15.9	19.2	118
<b>Total DSM</b>							
	<b>558</b>	<b>41.3</b>	<b>49.7</b>	<b>57.4</b>	<b>65.4</b>	<b>64.1</b>	<b>836</b>

Note: The avoided demand includes the avoided utility Reserve Margin of 12% and Transmission & Distribution Losses of 7%.

Figure 1: Demand Reduction



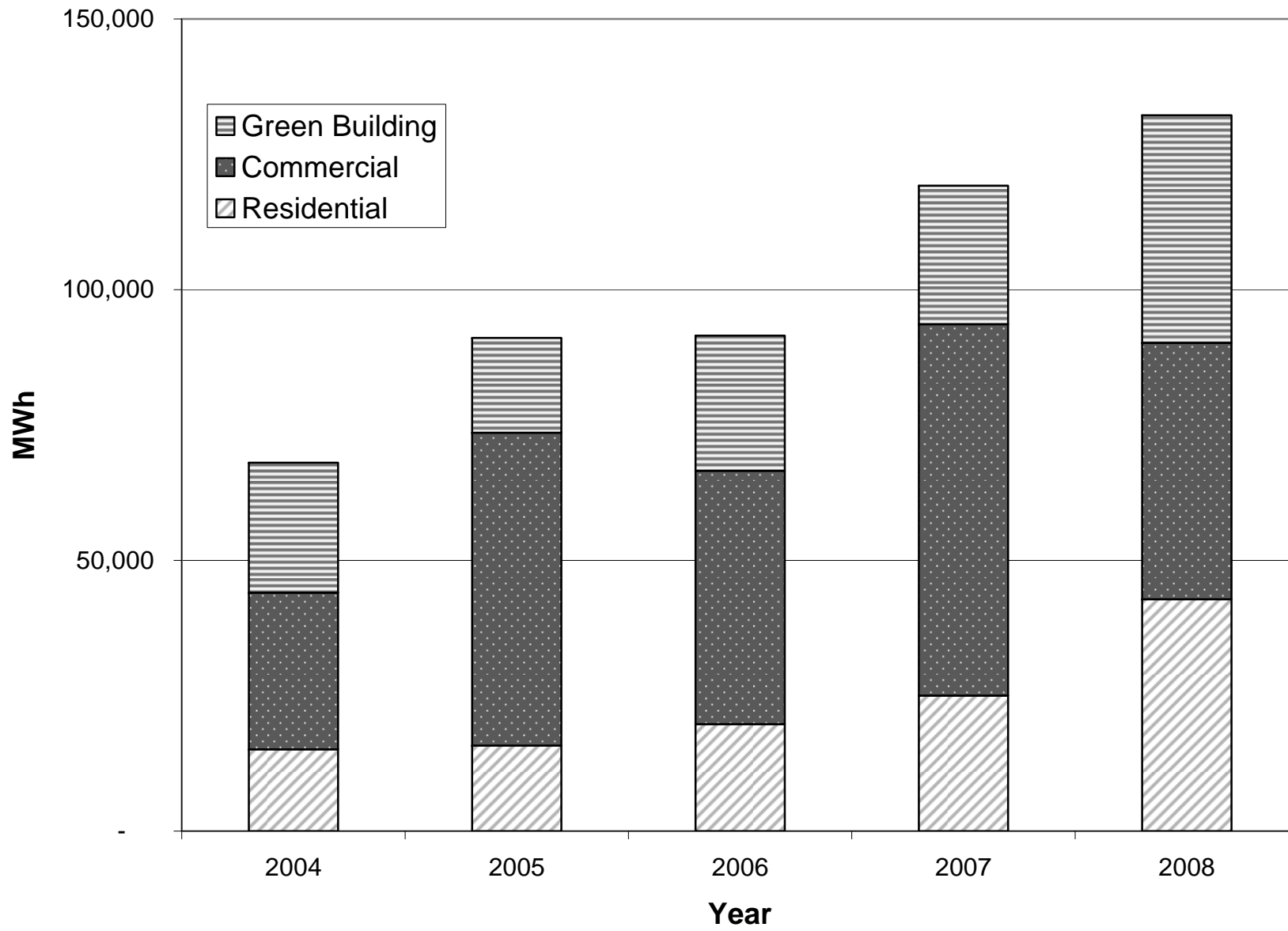
**DSM Performance Measures –FY 2007- 2008**

**Table 3: Annual Energy Savings (MWH)**

<b>Program</b>	<b>'82-'03</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Total</b>
<b>Residential Efficiency</b>							
Appliance Efficiency Program	116,324	3,927	4,243	4,290	2,768	3,782	135,335
Home Performance ES - Loan	46,037	543	758	819	496	421	49,072
H P with Energy Star - Rebate	50,836	2,891	2,810	3,610	3,382	4,390	67,919
Free Weatherization	12,913	619	499	789	691	552	16,062
Multi-Family	54,065	5,368	4,165	5,055	7,198	23,847	99,698
Clothes Washer Rebates	1,057	208	204	270	254	234	2,228
Duct Leaks Seal/Diagnosis	1,216	302	469	457	1,954	- - -	4,398
Refrigeration Recycling	0	234	2,193	2,446	2,706	3,235	10,813
Power Partner Program	394	76	88	107	102	97	864
Cycle Saver Program	470	106	16	15	14	7	627
CFL Program	1,140	801	338	1,898	5,440	6,244	15,861
Previous Programs	11,567						11,567
<b>Subtotal Residential</b>	<b>296,017</b>	<b>15,076</b>	<b>15,782</b>	<b>19,756</b>	<b>25,004</b>	<b>42,810</b>	<b>414,445</b>
<b>Commercial Energy Management</b>							
Commercial Rebate & ILA	71,791	18,753	52,122	38,373	59,166	42,783	282,988
Commercial AEP	29,177	0	0	0	0	0	29,177
Small Business Lighting	2,361	2,252	1,422	5,672	3,557	2,414	17,678
Municipal	36,544	5,839	2,374	428	0	383	45,568
Power Partner	47	8	67	15	1,285	14	1,436
Load Coop	20	0	13	30	129	19	211
Commercial Smart Vendor	2,506	2,130	1,340	383	566	492	7,416
Engineering Support & TES	34	0	0	0	0	0	34
Traffic Signal LED's	7,755						7,755
Small Business Air Conditioner	0	0	465	1,871	3,892	1,238	7,466
Previous Programs	315,738						315,738
<b>Subtotal Commercial</b>	<b>465,972</b>	<b>28,981</b>	<b>57,804</b>	<b>46,771</b>	<b>68,595</b>	<b>47,343</b>	<b>715,467</b>
<b>Green Building</b>							
Residential	16,429	1,022	1,522	1,469	1,470	1,529	23,441
Residential Energy Code	13,166	3,437	4,324	4,994	5,639	7,914	39,474
Multi-Family Energy Code	17,370	2,422	2,082	3,694	5,832	4,627	36,027
Multi-Family tonnage reduction	403	3,348	0	0	0	0	3,751
Commercial	9,895	83	1,554	1,596	3,716	13,377	30,222
Commercial Energy Code	22,646	13,658	8,034	13,222	8,923	14,590	81,073
<b>Subtotal Green Building</b>	<b>79,909</b>	<b>23,969</b>	<b>17,516</b>	<b>24,974</b>	<b>25,580</b>	<b>42,039</b>	<b>213,987</b>
<b>Total DSM</b>	<b>841,899</b>	<b>68,026</b>	<b>91,102</b>	<b>91,502</b>	<b>119,178</b>	<b>132,192</b>	<b>1,343,900</b>

Note: The avoided energy includes Transmission & Distribution Losses of 7%.

Figure 2: Energy Savings



**Table 4: Goals for Participation, MW, and MWh**

	Participants	MW			MWh		
	Actual	Goal	Actual	%Goal	Goal	Actual	%Goal
<b>Residential Efficiency</b>							
Appliance Efficiency	3,093	2.97	2.93	99%	3,833	3,782	99%
Home Perform. ES - Rebate	2,223	2.66	4.02	151%	2,568	4,390	171%
H P Energy Star - Loan	213	0.54	0.38	71%	593	421	71%
Free Weatherization	505	0.53	0.48	91%	598	552	92%
Multi-Family	21,814	2.68	4.61	172%	13,863	23,847	172%
Clothes Washer Rebates	813	0.02	0.04	203%	115	234	203%
Duct Leak Sealing/Diagnosis	231	---	---		---	---	N/A
Refrigeration Recycling	4,114	0.72	1.21	168%	2,668	3,235	121%
Power Partner	9,934	9.48	9.80	103%	93	97	105%
Cycle Saver	1,237	0.65	0.80	124%	6	7	118%
CFL	0	0.20	0.99	494%	1,263	6,244	494%
Subtotal Res.	44,177	20.45	25.27	124%	25,599	42,810	167%
<b>Commercial Energy Management</b>							
Commercial Rebate & ILA	547	10.22	12.84	126%	34,064	42,783	126%
Commercial AEP <sup>1</sup>	0	0.00	0.00	NA	0	0	N/A
Small Business Lighting	264	2.05	1.10	53%	4,515	2,414	53%
Municipal	5	1.00	0.13	13%	2,924	383	13%
Power Partner	1,243	2.50	1.43	57%	0	14	N/A
Load Coop	3	2.35	1.25	53%	N/A	19	N/A
Engineering Support & TES	4	2.70	2.16	80%	0	0	N/A
Commercial Smart Vendor	368	0.15	0.07	44%	1,118	492	N/A
Small Business Air Condition	98	1.60	0.73	46%	2,706	1,238	46%
Subtotal Comm.	2,532	22.57	19.70	87%	45,326	47,343	104%
<b>Green Building</b>							
Residential	1,021	0.83	0.85	102%	2,515	1,529	61%
Residential Energy Code	2,941	6.62	4.86	74%	10,060	7,914	79%
Multi-Family Energy Code	4,805	1.81	2.17	120%	3,600	4,627	129%
Multi-Family-Ton Reduction	0	0.71	1.30	182%	850	0	0%
Commercial	0	9.36	4.77	51%	24,745	13,377	54%
Commercial Energy Code	0	2.05	5.21	254%	5,967	14,590	245%
Subtotal GB	8,767	21.38	19.17	90%	47,737	42,039	88%
<b>Total DSM</b>	<b>55,476</b>	<b>64.4</b>	<b>64.1</b>	<b>100%</b>	<b>118,663</b>	<b>132,192</b>	<b>111%</b>

Note: <sup>1</sup> Commercial AEP savings are claimed in residential AEP.

**DSM Performance Measures – FY 2007-2008**

**Table 5: Emission Reductions (Metric Tons)**

	Sulfur Dioxide	Nitrogen Oxides	Suspended Particulates	NMOC / VOC	Carbon Monoxide	Carbon Dioxide	Total
<b>Residential Efficiency</b>							
Appliance Efficiency Program	1.40	1.55	0.19	0.05	1.08	2,220	2,224
H P with Energy Star - Rebate	1.62	1.80	0.22	0.06	1.25	2,577	2,582
Home Performance ES - Loan	0.16	0.17	0.02	0.01	0.12	247	247
Free Weatherization	0.20	0.23	0.03	0.01	0.16	324	325
Multi-Family	8.82	9.76	1.20	0.34	6.78	13,998	14,025
Clothes Washer Rebates	0.09	0.10	0.01	0.00	0.07	137	138
Duct Leaks Seal/Diagnosis	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration Recycling	1.20	1.32	0.16	0.05	0.92	1,899	1,903
Power Partner Program	0.04	0.04	0.00	0.00	0.03	57	57
Cycle Saver Program	0.00	0.00	0.00	0.00	0.00	4	4
CFL Program	2.31	2.55	0.31	0.09	1.78	3,665	3,672
Subtotal Residential	15.8	17.5	2.2	0.60	12.2	25,130	25,178
<b>Commercial Energy Management</b>							
Commercial Rebate & ILA	15.83	17.50	2.15	0.60	12.17	25,114	25,162
Small Business Lighting	0.89	0.99	0.12	0.03	0.69	1,417	1,420
Municipal	0.14	0.16	0.02	0.01	0.11	225	225
Power Partner	0.01	0.01	0.00	0.00	0.00	8	8
Load Coop	0.01	0.01	0.00	0.00	0.01	11	11
Commercial Smart Vendor	0.18	0.20	0.02	0.01	0.14	289	289
Engineering Support & TES	0.00	-	-	-	-	-	0
Small Business Air Conditioner	0.46	0.51	0.06	0.02	0.35	727	728
Sub-total Commercial	17.52	19.37	2.38	0.67	13.46	27,791	27,844
<b>Green Building</b>							
Residential	0.57	0.63	0.08	0.02	0.43	898	900
Residential Energy Code	2.93	3.24	0.40	0.11	2.25	4,646	4,655
Multi-Family Energy Code	1.71	1.89	0.23	0.07	1.32	2,716	2,721
Multi-Family tonnage reduction							
Commercial	4.95	5.47	0.67	0.19	3.80	7,853	7,868
Commercial Energy Code	5.40	5.97	0.73	0.21	4.15	8,564	8,581
Sub-total Green Building	15.56	17.20	2.11	0.59	11.96	24,677	24,724
<b>TOTAL DSM PROGRAMS</b>	<b>48.9</b>	<b>54.1</b>	<b>6.65</b>	<b>1.866</b>	<b>37.6</b>	<b>77,597</b>	<b>77,746</b>

**Notes:**

1. Metric ton is equal to 1,000 kilograms or 1.102 English tons (2,200 lbs).
2. DSM avoided incremental generation was 89% gas-fired, 11% coal-fired, and 0% nuclear.

**DSM Performance Measures – FY 2007-2008**

**Section II- Exhibit A: Expenditures (\$)**

	Operating	Op %	Oprt-65%	Incentives	Marketing	Total
<b>Residential Efficiency</b>						
Appliance Efficiency Program	\$ 219,261	4.3%	142,520	1,348,529	51,334	\$ 1,542,383
Home Perform. ES - Rebate	\$ 300,708	5.9%	195,460	1,849,451	70,402	\$ 2,115,313
Home Perform. ES - Loan	\$ 28,684	0.6%	18,644	233,380	6,715	\$ 258,740
Free Weatherization	\$ 35,892	0.7%	23,330	757,545	8,403	\$ 789,278
Multi-Family Program	\$ 344,893	6.7%	224,180	1,549,841	80,747	\$ 1,854,768
Clothes Washer Rebate	\$ 3,041	0.1%	1,977	50,495	712	\$ 53,184
Duct Leaks Sealing/Diagnosis		0.0%	0	0	0	\$ -
Refrigerator Recycling	\$ 90,475	1.8%	58,809	515,186	21,182	\$ 595,177
Power Partner	\$ 733,541	14.3%	476,802	2,512,974	171,738	\$ 3,161,513
Cycle Saver	\$ 60,154	1.2%	39,100	220,129	14,083	\$ 273,312
Compact Fluorescent Lighting	\$ 73,947	1.4%	48,066	101,265	17,313	\$ 166,643
Subtotal Residential	\$1,890,596	37%	1,228,887	9,138,795	442,629	\$10,810,311
<b>Commercial Energy Management</b>						
Commercial Rebate	\$ 960,313	18.7%	624,203	3,025,751	224,830	\$ 3,874,784
Small Business	\$ 81,996	1.6%	53,298	666,400	19,197	\$ 738,894
Small Bus. Air Conditioning	\$ 54,764	1.1%	35,597	0	12,821	\$ 48,418
Municipal	\$ 9,801	0.2%	6,370	219,363	2,295	\$ 228,028
Power Partner (Comm & Muni)	\$ 106,760	2.1%	69,394	306,130	24,995	\$ 400,518
Load Coop	\$ 93,889	1.8%	61,028	4,567	21,981	\$ 87,576
Engineering Support & TES	\$ 161,598	3.2%	105,039	0	37,834	\$ 142,872
Commercial Smart Vendor	\$ 4,938	0.1%	3,210	86,520	1,156	\$ 90,886
Subtotal Commercial	\$1,474,058	29%	958,138	4,308,731	345,108	\$ 5,611,977
<b>Green Building</b>						
Residential	\$ 442,447	8.6%	287,591	0	58,063	\$ 345,654
Residential Energy Code	\$ 126,344	2.5%	82,124	0		\$ 82,124
Multi-Family Energy Code	\$ 288,578	5.6%	187,576	0		\$ 187,576
Multi-Fam Tonnage Reduction	\$ 126,344	2.5%	82,124	0	14,397	\$ 96,521
Commercial	\$ 647,734	12.6%	421,027	0	35,797	\$ 456,824
Commercial Energy Code	\$ 126,344	2.5%	82,124			\$ 82,124
Subtotal Green Building	\$1,757,792	34%	1,142,565	0	108,257	\$ 1,250,822
<b>Total DSM Programs</b>						
	<b>\$5,122,446</b>	<b>100%</b>	<b>3,329,590</b>	<b>13,447,526</b>	<b>895,994</b>	<b>\$ 7,673,110</b>

- Notes: 1. The subtotal is the sum of incentives, marketing and 65% of operation expenses.  
 2. The total for all DSM Programs was \$17.6 Million. Solar is excluded starting in 2007.

**Exhibit B: Benefit Cost Ratio**

Benefit-cost ratios should exceed 1.0 to be considered beneficial. These ratios represent the present value (PV) of all benefits divided by the PV of all additional costs incurred over the life of the installed measures. The cost of implementing energy efficiency measures is the incremental first cost over and above the cost of installing a standard efficiency product. The benefits are all operating and maintenance savings over the life of the equipment.

PROGRAMS	Load	Societal	Utility	Participant	Utility Levelized Life Cycle ¢/kWh
<b>RESIDENTIAL PROGRAMS</b>					
Appliance Efficiency Program	Passive	1.39	3.59	1.32	4.20
Home Performance - ES Rebate	Passive	1.17	3.25	1.09	4.96
Home Performance - ES Loan	Passive	1.21	2.54	1.24	6.33
Free Weatherization*	Passive	-	-	-	-
Multi-Family Program	Passive	1.73	5.10	1.98	2.91
Clothes Washer Rebate	Passive	1.08	3.47	1.34	3.09
Duct Leaks Sealing/Diag. (S.Fam)	Passive				
Refrigerator Recycling	Passive	1.61	4.86	1.70	2.50
The Power Partner Program	Active	1.29	1.29	High	582
Cycle Saver Program	Direct	1.62	1.62	High	500
CFL Program	Passive	6.92	11.13	9.08	1.00
<b>COMMERCIAL PROGRAMS</b>					
Commercial Rebate	Passive	3.95	9.49	3.23	1.23
Small Business	Passive	2.86	4.47	3.20	2.93
Municipal	Passive	NA	NA	NA	NA
Power Partner (Comm & Muni)	Active	1.36	1.36	High	499
Load Coop	Active	1.42	1.44	1.13	249
Engineering Support & TES	Direct	9.90	9.90	3.23	NA
Commercial Smart Vendor	Passive	3.17	3.17	3.07	3.31
<b>GREEN BUILDING PROGRAMS</b>					
Total Green Building	Passive	2.76	31.70	2.15	0.66
<b>Total All Programs</b>					2.35

- Notes:
1. These values incorporate all direct and 65% of operating (indirect) departmental expenses.
  2. The societal perspective encompasses the overall effects on society as a whole.
  3. **Green Builder** produces energy and non-energy environmental benefits, which are not quantified at this point: water efficiency, solid waste reduction and environmentally friendly building materials.
  4. Load Control: Passive is 24 hr savings, Direct is 4-8 pm M-F summer, and Active is cycling 20 hours per year during 3-7pm in summer above 100°F.
  5. **Free Weatherization** is not evaluated for Benefit and Cost.
  6. Demand Response (**Res PP, Comm PP, Comm LCOOP**) does reduce energy
  7. **Municipal** incentives pay full technology cost as well as education, databases, etc.]\\];'

**DSM Performance Measures – FY 2007-2008**

**Exhibit C: Net Present Values**

The net present value (NPV) of an investment is the present value of all income or benefits minus the present value of all costs incurred over the life of the investment. The NPV is derived from the same spreadsheet calculation as the Cost-benefit ratio. These benefits are reduced to their present value by discounting the cash flows by the cost of borrowing funds, estimated to be 5% for the City and 7% for participating customers.

<b>PROGRAMS</b>	<b>Societal</b>	<b>Utility</b>	<b>Participant</b>
<b>RESIDENTIAL PROGRAMS</b>			
Appliance Efficiency Program	\$ 1,564,400	\$ 3,992,206	\$ 1,192,841
Home Performance - ES Rebate	\$ 1,013,718	\$ 4,768,664	\$ 517,072
Home Performance - ES Loan	\$ 114,398	\$ 399,640	\$ 124,088
Free Weatherization*	-	-	-
Multi-Family Program	\$ 3,992,053	\$ 7,608,349	\$ 5,059,220
Clothes Washer Rebate	\$ 13,492	\$ 131,315	\$ 56,783
Duct Leaks Sealing/Diag. (S.Fam)			
Refrigerator Recycling	\$ 1,098,243	\$ 2,300,343	\$ 1,210,371
The Power Partner Program	\$ 928,614	\$ 928,639	\$ 58,777
Cycle Saver Program	\$ 142,058	\$ 142,058	\$ 453,536
CFL Program	\$ 1,586,994	\$ 1,688,258	\$ 1,637,082
Subtotal Residential	\$ 10,453,970	\$ 21,959,472	\$ 10,309,770
<b>COMMERCIAL PROGRAMS</b>			
Commercial Rebate	\$ 27,454,413	\$ 32,901,781	\$ 18,854,299
Small Business	\$ 2,284,585	\$ 2,728,852	\$ 2,447,745
Municipal	NA	NA	NA
Power Partner (Comm & Muni)	\$ 142,934	\$ 142,934	\$ 4,126
Load Coop	\$ 37,444	\$ 38,586	\$ 734
Engineering Support & TES	\$ 1,270,951	\$ 1,270,951	\$ 1,425,034
Commercial Smart Vendor	\$ 197,076	\$ 197,076	\$ 179,179
Subtotal Commercial	\$ 31,387,404	\$ 37,280,181	\$ 22,911,117
<b>GREEN BUILDING PROGRAMS</b>			
Total Green Building	\$25,275,475	\$38,394,981	\$15,047,202
<b>TOTAL</b>	<b>\$ 67,116,849</b>	<b>\$ 97,634,634</b>	<b>\$ 48,268,088</b>

**Exhibit D: Expense of Demand Reduction (\$/kW)**

	Financial Incentives (\$/kW)					Total Allocated Expenses (\$/kW)				
	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
<b>Residential Efficiency</b>										
Appliance Efficiency Program	447	362	447	403	460	571	421	543	536	526
Home Performance ES - Rebate	395	406	411	410	460	519	519	482	515	526
Home Performance ES - Loan	362	411	475	598	609	486	515	580	730	675
Free Weatherization	1,010	1,084	1,165	824	1,579	1,102	1,084	1,362	1,057	1,645
Multi-Family Program	324	389	349	234	336	344	438	399	290	402
Clothes Washer Rebate	382	605	400	400	1,242	506	719	443	453	1,308
Duct Leaks Sealing/Diag. (S.Fam)	504	583	598	922		628	611	658	1,008	
Refrigerator Recycling	-	455	750	537	426	-	575	809	602	492
Power Partner	153	245	267	324	256	172	261	286	347	322
Cycle Saver	328	285	234	299	274	378	311	256	325	340
Compact Fluorescent Lighting	249	771	220	207	102	373	955	259	247	169
Subtotal (Weighted Average)	298	308	367	349	362	372	396	417	404	428
<b>Comm. Energy Management</b>										
Commercial Rebate (no ILA-03)	222	177	188	244	236	294	251	258	287	302
Small Business Lighting		271	234	174	365	389	288	265	210	404
Municipal	1,439	700	473	NA	1,675	818	523	1,823	NA	1,741
Power Partner (Comm & Muni)	184	116	273	561	215	233	331	275	636	281
Engineering Support			3	15	0		61	15	25	66
Commercial Smart Vendor		861	980	-	1,311	978	1,042	1,886	319	1,377
Subtotal (Weighted Average)	142	162	221	218	219	274	338	403	264	285
<b>Green Building</b>										
Subtotal	215	195	193	0	0.0	282	281	48	58	65
<b>Total DSM Programs</b>				<b>216</b>	<b>210</b>	<b>281</b>	<b>335</b>	<b>319</b>	<b>268</b>	<b>276</b>

Figure 3: Life Cycle versus Capital Cost

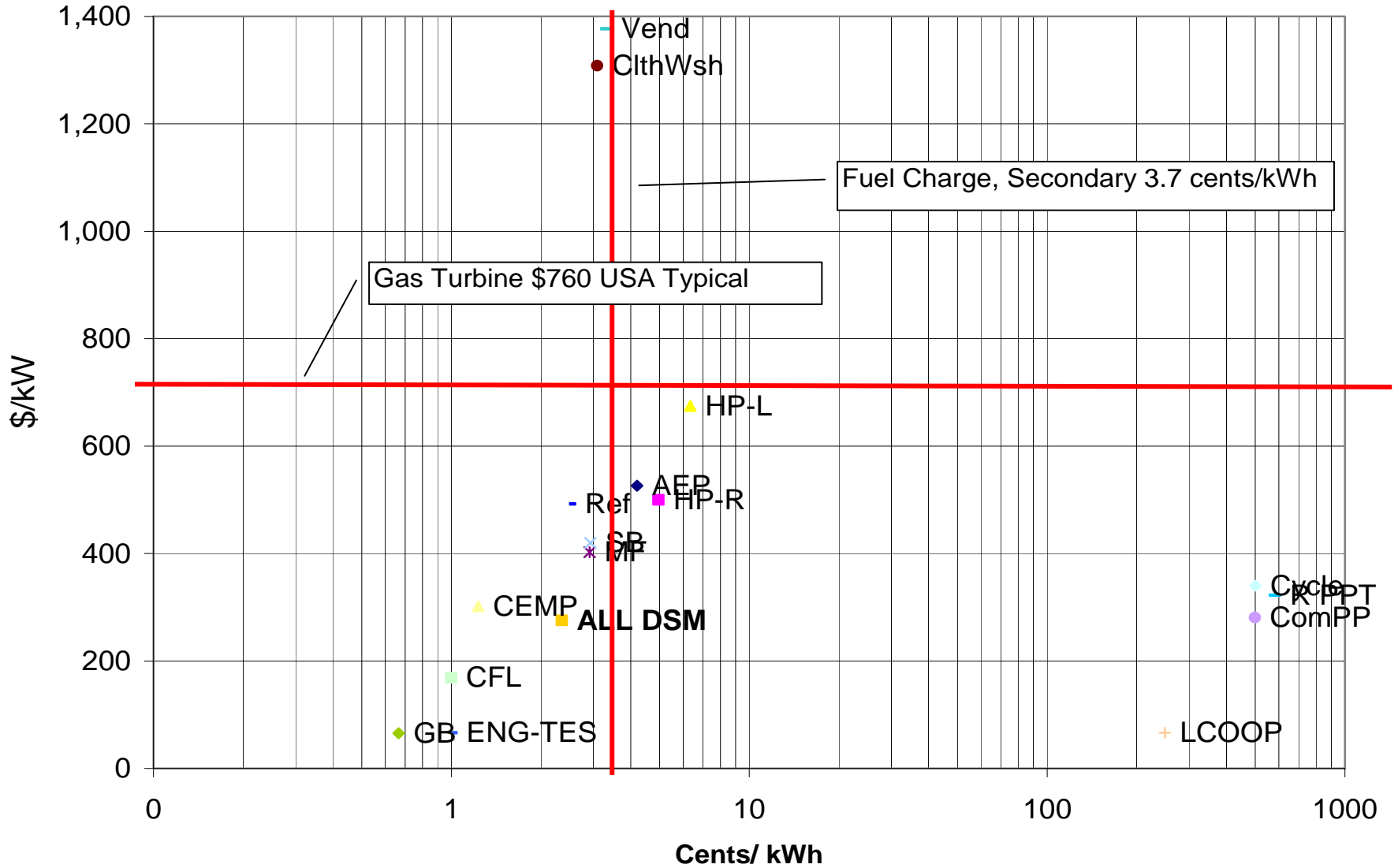


Figure 4: Ranked Utility Levelized Life Cycle  $\text{¢/kWh}$

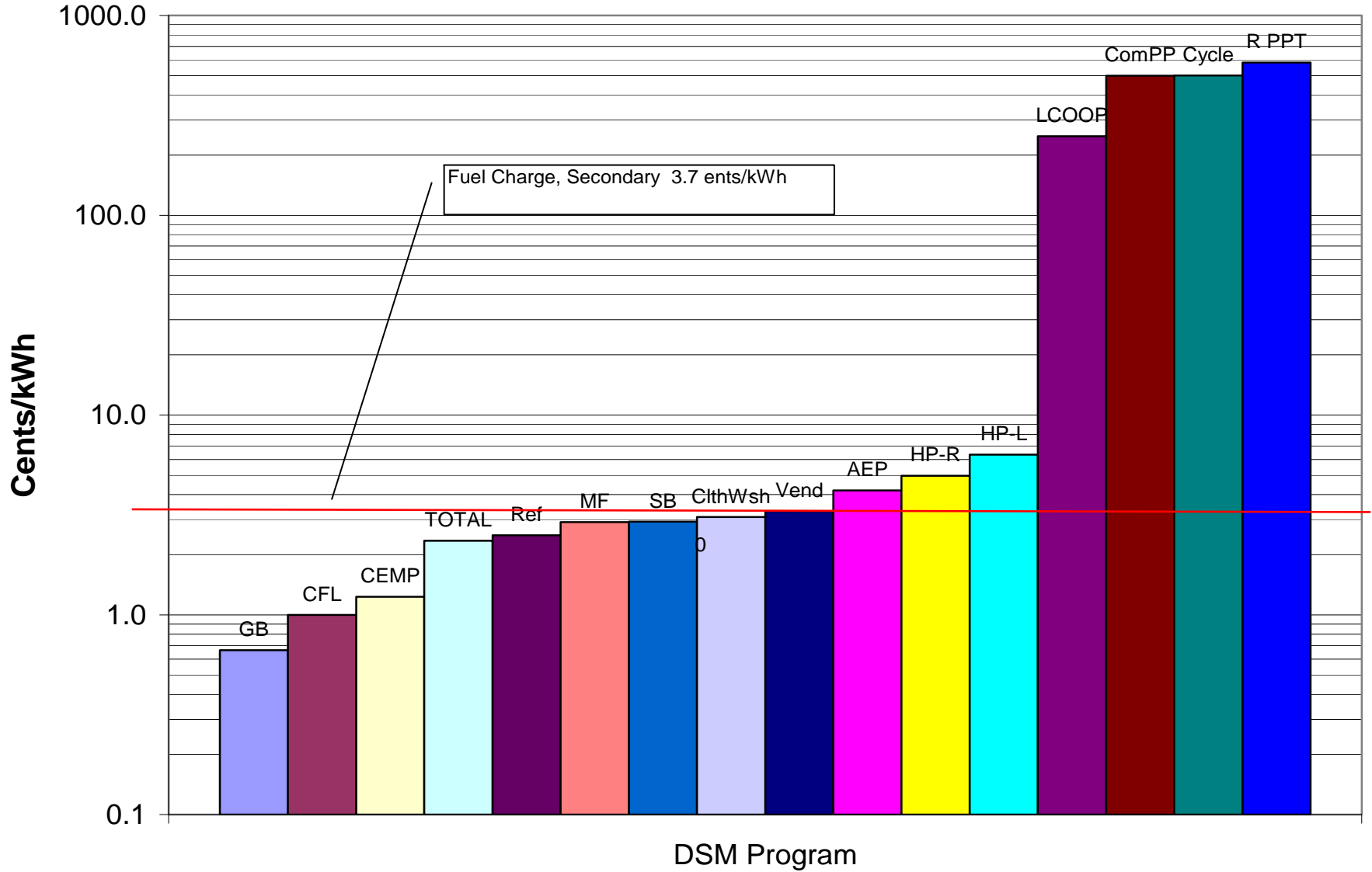
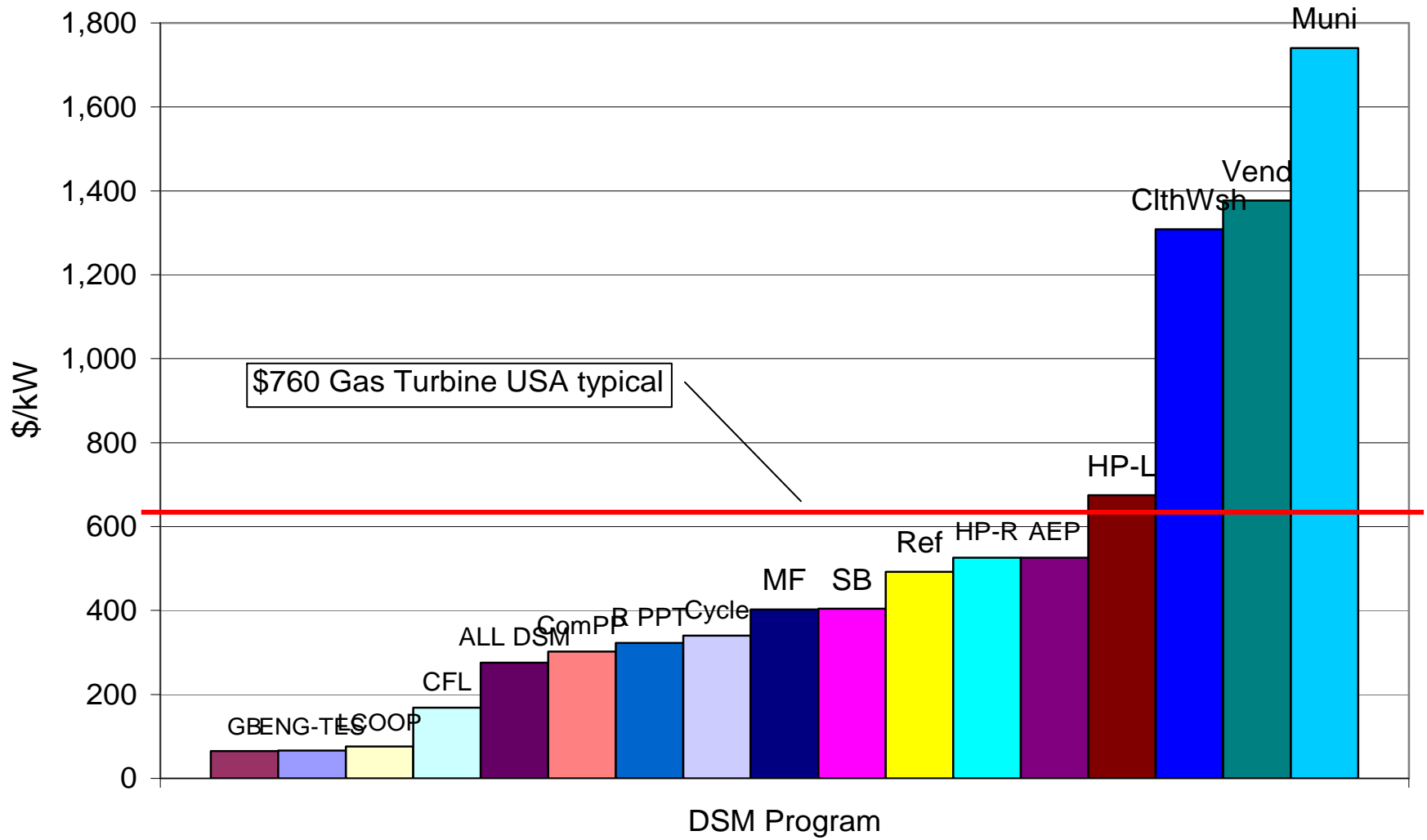


Figure 5: Ranked Capital Cost



**Exhibit E: Solar Photovoltaic Program**

	2004	2005	2006	2007	2008	Total
<b>Solar Photovoltaic</b>						
Table 1: Participation	11	177	182	147	210	727
Table 2: Demand (MW)	0.03	0.62	0.55	0.60	0.94	2.74
Table 3: Energy (MWh)	45	925	738	765	1,041	3,514
Table 4: Goals				100%	94%	
Table 5: Emissions	27	544	434	450	612	2,067
Exhibit A: Expenditures	227,000	3,221,281	3,131,703	2,776,027	2,804,936	\$5,580,963

Note:

- Solar Program commenced in FY 2004. Photovoltaic is categorized as generation and, therefore, not included in DSM Performance Measures Report.

	2004	2005	2006	2007	2008	Total
<b>Solar Hot Water</b>						
Table 1: Participation			3	4	17	24
Table 2: Demand (kW)			1.96	2.6	11.05	15.61
Table 3: Energy (MWh)			7.6	10.1	47.13	64.83
Exhibit A: Expenditures			\$ 1,900	\$ 8,000	\$32,000	\$ 41,900

**DSM Performance Measures – FY 2007-2008**

<b>Table Solar PV Rebate Program – 2007-2008 Participation Report</b>				
<b>Total Participation</b>	<b>Current</b>		<b>Final Projected</b>	<b>% of Goal</b>
	<b>Month</b>	<b>YTD</b>		
Requests Received:	71	729	539	135%
Site Surveys Completed:	93	722	539	134%
<b>LOI Issued</b>				
# of Residential	22	185	156	119%
# of Commercial	2	27	30	90%
<b>LOI \$ Committed</b>				
Residential	\$287,473	\$2,393,563	\$2,000,000	120%
Commercial	\$61,962	\$1,531,479	\$1,800,000	85%
<b>Final Inspections Completed</b>				
Residential	49	185	156	119%
Commercial	3	23	25	92%
<b>Rebates Paid</b>				
Residential	\$628,474	\$2,392,273	\$2,000,000	120%
Commercial	\$137,947	\$1,387,029	\$1,800,000	77%
<b>kW including T&amp;D (AC kW @ PTC):</b>				
Residential	162.9	579.8	477.0	122%
Commercial	33.9	324.1	423.0	77%
<b>Total kW including T&amp;D (AC kW @ PTC):</b>	<b>196.8</b>	<b>904.0</b>	<b>900.0</b>	<b>100%</b>
<b>Total annual kWh – Res</b>	<b>134,273</b>	<b>682,708</b>	<b>602,928</b>	<b>113%</b>
<b>Total annual kWh – Com</b>	<b>42,776</b>	<b>422,528</b>	<b>572,224</b>	<b>74%</b>

