

DSM PERFORMANCE MEASURES

**Fiscal Year 2009-2010
Preliminary Report
(Preliminary Un-audited Financials)**



**RESIDENTIAL
COMMERCIAL
& GREEN BUILDING**

July 27, 2011

**Distributed Energy Services
Demand Side Management
721 Barton Springs Rd.
Austin, Texas 78704**

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EXECUTIVE SUMMARY

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, Demand Side Management helps identify efficiency opportunities, makes recommendations on the most cost-effective measures, and offers financial incentives for installations of qualifying equipment. **Green Building** provides plan-review and technical assistance services to building industry professionals seeking to have their projects evaluated for energy and resource efficiency or sustainability.

AE **Power Saver** and **Green Building** programs' drive market transformation to maximize energy resources by lowering electric bills while increasing customer comfort and satisfaction. Greater 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 2009 through September 2010, Austin Energy achieved the following impacts:

A. Demand and Energy Reduction:

- o 41.2 Megawatts of *Required Power-Plant Peak Capacity* in Table 2
- o 89,000 Megawatt-hours of Energy Savings in Table 3

B. Estimated *Annual Power-Plant Emissions' Reductions* for metric tons (tonne) in Table 5.

- o Carbon Dioxide: 53,400
- o Nitrogen Oxides: 37.2
- o Sulfur Dioxide: 33.7
- o Carbon Monoxide: 25.9
- o Suspended Particulates: 4.57
- o NMOC (VOC): 1.28

**POWER SAVER & GREEN BUILDING
FY 2010**

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 2010 are summarized below.

Power Saver - Residential Program

In 2010, AE's *Residential Efficiency Programs* achieved significant results in participation and savings. For all programs combined, 37,000 residential customers participated, with a peak demand savings of 19 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 database listing requires the central air conditioning systems meet both a Seasonal Energy Efficiency (SEER for KWh) and Energy Efficiency Ratio (EER for kW). 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. New construction air conditioning is 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 2009-2010

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

The Free Weatherization program unit cost increased in FY2010 because insulation equipment increased from R-26 to R-38.

Austin Energy offers *Free Weatherization Services for energy audits and home energy improvements to qualified* low-income, elderly and physically/mentally disabled customers. The program provides 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 include advanced smoke and carbon monoxide detectors and improved methods of air testing to insure the health and safety of AE customers. AE also provides a limited number of Energy Star window air conditioning units to qualified customers.

Multi-Family Incentive

The Multi-Family energy savings diversified from primarily CFL into other retrofits. The CFL market transformation continued to accelerate towards saturation in 2010. In addition, the U.S. Energy Independence and Security Act (EISA) of 2007 will phase out the most common incandescent light bulbs starting with 100W in January 2012.

Multi-Family Incentives are provided to owners, developers and managers of apartment communities and other multi-housing (four or more units) 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%.

Currently, there are no new construction rebates. Formerly, on new construction multi-housing properties, AE's Conservation Program Specialist assisted builders, developers and owners with rebates to encourage upgrading air conditioners and heat pumps that exceeded 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 Power Partner

In FY 2010 there were 13 cycle sessions. The cycles reduced peak demand for three (3) Austin Energy and three (3) ERCOT CP out of the four total. The multiplier was reduced from 1.0 to 0.66 and 0.41 kW/stat for residential and multi-family respectively, in 2009.

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. In June of 2010 the Power Partner program revised its residential curtailment strategy; all new enrollments (participants) air conditioners may be cycled off as needed for no more than 15 minutes every half-hour (a 50% cycling strategy) from 3 to 7 p.m., Monday – Friday from 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. There is a cash incentive of \$20 per unit. 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) 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.

Air Duct System Diagnostic and Improvement

NOTE: *The goals and achievements for this program were combined with the Multi-Family Incentive program listed above for FY 2010. ADSD is part of the multifamily package only – not available to residential or commercial programs.*

The *Air Duct System Diagnostic and Improvements* program encourages customers to have their duct system diagnosed for air leakage and sealed. AE contracts with specially trained contractors who have been certified by the National Balancing Institute (NBI) to provide duct diagnostic and system improvement:

- Duct leakage analysis
- Duct airflow test
- Temperature test
- Return sizing test
- Combustion safety test

The duct diagnostic identifies significant duct leakage that could reduce cooling and heating capacity and result in higher energy bills. Duct diagnostic 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 then makes the necessary improvements and AE provides rebates 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 MF program provides incentives

- ✚ Properties are audited and rebates determined on an individual basis of “before” air duct testing.
- ✚ Rebates range from \$0.20 to \$0.38 per square foot of conditioned living space.

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 pickup 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. Multifamily and commercial customers receive a \$35 incentive to recycle inefficient working refrigerators. Refrigerators must be between 14 and 27 cubic feet in size.

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 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.

Energy Conservation and Disclosure Ordinance (No. 20081106-047)

Energy Conservation and Disclosure Ordinance (ECAD) was enacted in 2008 to pursue energy efficiency upgrades for existing buildings under The Austin Climate Protection Plan Homes and Buildings initiative. The ordinance created the Conservation Code (Chapter 6’7) that requires the disclosure of an energy audit in the residential and multi-family building sector. Commercial buildings require a building rating. The law went into effect June 1, 2009 and required home sellers whose homes had not been retrofitted to provide an energy audit to the buyer at the time of sale. Multifamily properties that had not retrofitted their heating and cooling systems are required to have an energy audit and disclose the results to current and perspective tenants. Commercial building owners are required to rate the energy use of the building using EPA’s Portfolio Manager (or another approved) on line tool to disclose to a buyer. While energy audits were required for non-energy efficient single family homes beginning June 1, 2009, multi-family energy audits and the commercial building rating must be preformed and submitted to Austin Energy before June 1, 2011.

The Fiscal year 2009/2010, ECAD has been focused on retrofits related to the sale of single-family homes. At the start of the summer, “A Guide for Home Buyers, Sellers, and Owners” was developed to promote energy efficiency to the residential real-estate market. The message was “make the improvements to help sell your home or have the energy audit to disclose the deficiencies. This piece was developed to take the next step beyond the original ECAD compliance piece developed in 2009. Incentives from Austin Energy, Texas Gas, and the federal tax credits allows a home seller to add insulation, install solar screens, seal the duct system and weatherize the house to become exempt from the audit requirement. The goal in the City Council Resolution was that 25% of the homes would receive retrofits “before or within 12 months after the sale.” Although the ordinance seemed to be affecting the upgrades to existing homes sold, the rate didn’t seem to be on track to meet the target. A market research study was conducted. One recommendation was to make the audit less technical so an initiative to design a new audit tool with a more user friendly output was started. An outbound telemarketing campaign to new homeowners was initiated with little results. Ultimately and group of stakeholders from the EEU Taskforce was convened to discuss how to achieve the 25% participation for first year home sales when the participation rate might fall well below the target outlined in the Council Resolution tied to the ordinance. Retrofits for non-exempt homes sold at the end of the year were 11% for homes sold between June 2009 and May 2010.

With energy auditors available and systems in place to manage single-family energy audits attention to workforce development for the multi-family and commercial sectors was needed. Training for multi-family energy auditors was developed internally and a curriculum for commercial building ratings was created by Austin Community College. Both had a strong emphasis on AE’s Power Saver rebate program along with the technical aspects of conducting a multifamily audit or commercial building rating. Multifamily auditor orientations began in December 2009 and Austin Community College offered a “Commercial Energy Efficiency 101” course during the Summer Semester of 2010.

DSM Performance Measures – FY 2009-2010

By the end of the year 60 of the 211 registered energy auditors were prepared to perform multi-family and single-family energy audits. With the deadline months for multifamily audit, the auditors focus was to encourage efficiency retrofits before completing the audit. Rebate requests were increasing but no audits had been submitted in the multi-family building sector. Even with the ACC commercial course only a few commercial building ratings had been submitted.

Audits Received by 2009/10 Fiscal Year end:

1. Single-Family 5,892
 - ⚡ Ducts leak almost twice the code standard 10%
 - ⚡ Older homes need 10 inches of insulation
 - ⚡ 96% of audited homes received at least one energy efficiency recommendation:
 - ⚡ 78% need in-home weatherization
 - ⚡ 58% need solar shading
 - ⚡ 68% need HVAC air duct system renovation and sealing
 - ⚡ 79% need additional attic insulation

2. Multi-family 0

3. Commercial 48
 - ⚡ High 95
 - ⚡ Low 22

A High Energy use matrix for the multifamily sector was developed using energy source and year build by energy code requirements. Preliminary results showed 66 properties to use over 150% of the average kBtu per square foot:

High Use	<i>Built prior to 1985</i>	<i>Built between 1985 and 2001</i>	<i>2001 to Present</i>
All Electric	44	8	3
Gas & Electric	8	3	0

Austin is on the leading edge of cities in the United States with this type of an ordinance under its climate protection plan. The ultimate goal is to “Make Austin the leading city in the nation in the effort to reduce and reverse the negative impacts of global warming.” The two year report is due to the Austin City Council after June 1, 2011.

Power Saver - Commercial

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 representatives or consultants perform walk-through energy surveys of facilities, educate building owners and operators on facility energy management and identify cost saving opportunities. In accordance with the Commercial Power Saver Program Guidelines, 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 energy 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 and contractors. Austin Energy utilizes Key Account Managers and sales staff to better promote these programs to the large and mid market commercial accounts.

Small Business 30% Bonus

This program is designed to help small-to-midsize businesses, non-demand and less than 100 kW demand rate customers (commercial and tax-exempt not-for-profit 501c3 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 30% 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.

Small Business Outreach Program

Energy-efficiency is the lowest cost, most reliable, cleanest, and most quickly deployable energy resource. Yet, numerous market barriers prevent us from fully tapping the potential of this resource, especially in the small business marketplace. The vision of this program is to create an outreach and delivery mechanism for energy efficiency education, AE Power Saver Program information, as well as assistance in complying with the Energy Conservation and Disclosure Ordinance (ECAD) for Austin Energy small business customers (customers who average <100 kW during summer peak months, May – October). Owners and employees of these small businesses will learn about energy efficiency, receive low-cost lighting upgrades, and be more likely to participate in future programs. This customer class is traditionally hardest to reach due to lack of capital, lack of knowledge, and the high transaction costs associated with energy efficiency retrofitting. This program is designed to quickly scale and meet the needs of Austin's small business customers.

The Small Business Outreach Program was developed as an avenue to provide an extremely high level of customer service to our hardest to reach customer class at a critical time for the US economy. Once a customer understands energy efficiency they can then understand how it impacts them and the way their building operates. The program will provide each small business customer with an energy assessment of their building as well as assisting the customer with rating their building for the ECAD ordinance. A custom report is then delivered to the customer identifying AE's

recommendations to improve the energy efficiency of the customer's building by participating in Austin Energy's Power Saver Programs.

This approach is proving to be very effective, but labor intensive. Because of this, additional personnel resources are necessary in order to make personal contact with the large number of AE small business customers. To accomplish the program goals, AE is partnering with Austin Community College (ACC). AE is utilizing interns from ACC who are enrolled in a Renewable Resources Certification Program and have a good working knowledge of building science. To complete the certification, the interns are required to complete one semester hour of internship. Four interns from this program were brought on board to perform the necessary field work and are canvassing, by zip code, AE small business customers. The program is designed to generate sales leads and ultimately more participants in the AE Power Saver programs. The Small Business Outreach Program is on track to provide education and energy assessments for at least 1000 small business customers. To date the interns have performed approximately 375 energy assessments.

Small Business Lighting

The objective of this program is to motivate small-to-midsize businesses defined as less than 100 kW summer average. These non-demand, commercial demand, and tax-exempt 501c3 not-for-profit organizations participate in this program through the direct installation of energy efficiency lighting equipment. The program offers participating customers a discount for the retrofitting 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 all lighting projects after the equipment is installed.

In FY 2008, the existing contract for the program expired. The program was then redeveloped as a rebate style program. In addition, the program was added as an offering in the Commercial Energy Conservation Program. Due to the transition, the program was active only for the 3rd and 4th quarters of FY2010. The program has been further modified for FY 2010. Consistent pricing has been developed for the program as well as specific performance standards for the registered contractors. The goal is to protect the overall objective of the program which is to pay the majority of the retrofit thereby allowing the customer to re-invest their capital in their business.

For the fiscal year - 2009 – 2010, the Small Business Lighting Program completed 314 projects with approximately 1,743 kW saved, 4,980,712 kWh saved and \$950,135.00 paid in rebates, turning in the best year ever for the program.

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 in FY 2009-2010 were Solar for Schools.

Municipal Energy Conservation

The Municipal Energy Conservation Program (MECP) was very active in fiscal year 2009-2010. Much of the activity centered round closing out Loan STAR loan activities with the Parks and Recreation Department and Aviation Departments as well as gearing up under the ARRA funded Energy Efficiency Conservation Block Grants (EECBG).

The City of Austin through Austin Energy applied for and received ~\$7.5 million in formula based block grants under the American Recovery and Reinvestment Act (ARRA) to implement energy efficiency and conservation projects. The grant application was submitted prior to FY 2010 however due to review times award of the funds occurred December 28, 2009. Much of the FY was spent on planning and preparation. By the end of the FY approximately 12% of the grant funds had been spent. Several large projects are pending and an increase in expenditures is projected for the 2nd quarter of FY 2011.

Austin Energy worked with City of Austin departments and developed projects in 6 areas that were intended to help all city departments reduce energy consumption and costs. The six project areas included:

1. HVAC Upgrades at the Technicenter Building
2. Exterior Lighting Improvements
3. Hornsby Bend Bio Gas Generator
4. Interior Lighting Improvements
5. Building Commissioning and Programmable Thermostats
6. Weatherization Improvements

Activity #1 – HVAC Upgrades at the Technicenter Building

During FY 2010, existing contracts with Chevron Energy Solutions were modified to include ARRA requirements and the final project scope negotiated. The contract modification included additional Federal reporting requirements as well as payment of Davis-Bacon wages as specified by the grant. By the end of the fiscal year the Notice to Proceed was issued which included replacement of AHUs, reworking ductwork, replacement of a hot water heating system, as well as installation of a new energy management system.

Activity #2 – Exterior Lighting Improvements

During FY 2010, the new City Hall parking garage was retrofitted with LED lighting. A test was conducted to compare lighting fixture performance of various manufacturers. Five brands were tested and in the end one was chosen. The lighting retrofit reduced energy consumption by about 50% while improving lighting levels. Additional projects are planned for FY 2011 including an LED retrofit of the One Texas Center Parking garage.

Activity #3 – Hornsby Bend Bio Gas Generator

During FY 2010, the project was being developed. Under an existing contract with Chevron Energy Solutions (CES), Austin Water Utility (AWU) plans to install an 875 KW biogas generator to operate on methane produced during the process of digesting sludge. The grant will fund up to \$1.25 million of the Bio Gas project. The proposed project was developed by CES and reviewed by AWU and a third party contractor CH2M Hill. Austin Energy and AWU also negotiated terms of an interconnection agreement so AWU would be adequately compensated for the power produced. The bio gas project is part of a larger plan

renovation being undertaken by low interest loans provided through the Texas Water Development Board. When on-line the generators will offset the plant's current electrical consumption as well as provide waste heat for heating of the digesters.

Activity #4 – Interior Lighting Improvements

This activity was the first to get started in FY 2010, and began with ordering lamps for a group re-lamping project. AE worked with several city departments who agreed to install new high efficiency 28 watt lamps using existing in-house labor resources. Austin Energy's Town Lake Center was one of the first buildings to undergo a group re-lamping. In total, approximately 70,000 lamps were ordered to begin the project; in addition to replacing the lamps the old lamps were recycled. There were other more comprehensive retrofits also completed during FY 2010, these included lamp and ballast replacement at Kramer Lane Service Center as well as a complete High Bay Retrofit at the Palmer Events center. Other notable retrofits include the Millennium Youth Center, the Library Department's Zaragoza Warehouse, Fire Station #33, as well as Austin Water Utility's North Service Center.

This activity also included adding two electrical staff to assist with project management as well as install occupancy sensors. The two positions were filled at the end of the FY and training had begun. Retrofit of building with occupancy sensors will begin in FY 2011.

Activity #5– Building Commissioning

During FY 2010, several building commissioning projects were planned to be implemented through an existing Interlocal agreement. As part of completing the work, AE increased the contract authority with Texas A&M and added ARRA requirements to the existing agreement. Approximately 15 buildings and campuses were identified for Continuous Commissioning. During the summer of 2010 a Notice Proceed was given for the first 8 sites. These buildings encompass several departments and an initial list of repair and maintenance items were received. During FY 2011 deficiencies that have been identified will be repaired and we will begin the commissioning process on an additional 6 sites bringing the total number to 14 sites to be commissioned during the 3 year EECBG grant.

Activity #6 – Weatherization Improvements

The intent of this activity is to weatherize numerous City of Austin facilities that have residential style construction. The facilities include older fire stations, smaller recreation centers, as well as park care-takers residence. The specific facilities and the measures taken will be developed in the 2nd quarter of 2011. The anticipated activities include HVAC tune ups, duct sealing, insulation, solar screens, and other traditional weatherization activities.

In addition to the ARRA funded EECBG projects, two large LoanSTAR projects were finishing up using two Performance Contractors. These included energy and water upgrades in the Parks and Recreation Department implemented through Chevron Energy Solutions, as well as energy upgrades implemented through Ameresco for the Aviation Department. The total amount of the upgrades is about \$4.3 million and was funded through low interest loans through the State Energy Conservation Office.

During the summer of 2010 one of the major water conservation projects was completed. The project included re-piping Kreig field's irrigation systems to utilize reclaimed water. Austin Water Utility offered the Parks and Recreation Department reclaimed water rates if PARD re-piped the irrigation and potable water systems to be reclaim water compliant. This irrigation system will be converted to reclaimed water when AWU builds out the infrastructure to provide reclaimed water. In the meantime, PARD enjoys irrigation cost savings.

The Loan STAR project also upgraded Energy management systems in several Recreation Centers as well as replaced an older chiller in the Old Bakery and Emporium facility.

The Aviation Department's retrofits included adding a small, right sized, natural gas boiler to operate at times of low heating demand, in addition to a chiller replacement, building weatherization improvements, lighting retrofits, controls upgrades, and implementation of a Continuous Commissioning Program throughout the Airport Terminal, Central Utility Plant, and several outbuildings on the campus.

The LoanSTAR project is expected to be completed in the first quarter of FY 2011 and at that time loan repayment to SECO will begin.

Commercial Power Partner

In FY 2009, the multiplier was reduced from 1.0 to 0.81 kW/stat.

*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) in 2003 was completed 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 first 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 available to accommodate additional chiller capacity as chilled water demand grows.

In FY 2010, two customers were added, resulting in an additional 2.0 MW of peak load reduction. There are no rebates or incentives provided to chilled water loop customers (and no kW claimed in this report).

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 rebate 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 2009, one thermal energy storage study was completed and one had a preliminary assessments. The one system was installed in 2008, and rebated in 2009 after operation problems

were resolved. Several customers are considering the implementation of these systems in the future. No TES projects were added in FY 2010.

Smart Vendor

The Smart Vendor Program started in 2002 by 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) Rebates and Incentives

Solar is considered a generation resource. Therefore, it is not subject to standard DSM tracking and cost benefit analysis. Solar data is separately compiled at the end of this report.

AE's *Solar Rebate Programs* are designed to help customers implement photovoltaic (PV) technology and solar hot water 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 and solar hot water technologies, 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.

- At the beginning of FY 2008-2009, the rebate level was \$4.50/watt. In March 2009, the rebate was reduced to \$3.75/watt. The annual limit and life time maximum is \$50,000.
- Solar Hot Water rebates are \$1,500 for new construction and \$2,000 for existing homes.
- The total installations were 1,600 kW of PV and 25 solar hot water systems.
- Solar is not included in Performance Measures tables because it is classified as generation.
- In 2010, the residential rebate level was lowered to \$2.50/watt and for the first time required efficiency. Customers must either go through the HPwES program or be a 3 star rated Green Building home to prequalify for the rebate. Commercial incentives went from an up-front incentive to a Performance Based Incentive (PBI). The PBI level for commercial PV projects rated 20 kW or less is 14 cents per kWh. The term of the PBI is 10 years.

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
- Use material resources efficiently
- Provide a healthier indoor environment
- Reduce water consumption and lessen 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 of 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* ratings evaluate 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.

AEGB uses these rating tools to advance City policy in all areas of sustainability. The energy measures in the tools are often used to smooth the way for local amendments to the energy codes. For example, the Commercial Rating System has required basic commissioning for several years. In that time a professional infrastructure has developed to meet the needs of projects seeking a Commercial Green Building Rating and contractors and design teams have gotten used to including commissioning in their green projects. This professional foundation for commissioning made it relatively easy for *AEGB* to include mechanical commissioning as a local amendment to the 2009 International Energy Conservation Code when that code was being considered for adoption by the City. Commissioning was included in the code when it was adopted for City use on Oct. 1, 2010

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 2010 the Single Family Program rated 722 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 2010, Multifamily Green Building rated projects containing 971 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 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 2010, Commercial Green Building rated 23 projects containing approximately 2.65 million square feet.

Energy Code Enforcement

AE Green Building 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. A similar effort is underway for the commercial buildings with the goal being to reduce energy use by 75% by 2015. In FY 2009 and 2010, AEGB staff worked with other City staff and private sector stakeholders to develop local code amendments to the 2009 IECC which became City Code in Oct. 1, 2010.

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 2009-2010. 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 12.5% 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 2009-2010.

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 2009-2010.

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 2009-2010

Table 1: Annual Program Participation¹

	1982-'05	2006	2007	2008	2009	2010	Total
Residential Efficiency							
Appliance Efficiency Program	157,224	4,214	2,415	3,093	4,000	4,444	175,390
Home Performance ES - Rebate	18,994	1,381	1,712	2,223	2,463	2,941	29,714
H. P. Energy Star - Loan	14,436	350	248	213	191	109	15,547
Free Weatherization	11,840	720	632	505	538	456	14,691
Multi-Family Program	86,493	7,899	10,505	21,814	17,162	18,234	162,107
Clothes Washer Rebate	2,927	545	882	813	878	1,029	7,074
Duct Leaks Sealing/Diagnosis ²	1,415	232	147	231	0	0	2,025
Refrigerator Recycling	2,521	2,679	3,200	4,114	3,157	3,428	19,099
Power Partner	40,431	10,210	10,355	9,934	7,839	4,617	83,386
Cycle Saver	8,572	2,366	2,279	1,237	1,683	2,009	18,146
Discontinued Programs	103,518						103,518
Subtotal Residential	448,371	30,596	32,375	44,177	37,911	37,267	630,697
Commercial Energy Management							
Commercial Rebate	1,066	170	325	351	401	315	2,628
Small Business	529	362	349	264	202	384	2,090
Municipal	272	5	1	129	12	9	428
Municipal Power Partner	829	32	23	0	0	0	884
Commercial Power Partner	3,381	1,250	2,034	1,331	771	780	9,547
Load Coop	9	3	23	29	27	20	111
Engineering Support	21	4	3	3	4	1	36
Commercial Smart Vendor	5,563	368	572	420	155	120	7,198
Discontinued Programs	15,433	0	0	0	0	0	15,433
Subtotal Commercial	27,103	2,194	3,330	2,527	1,572	1,629	38,355
Green Building							
Residential Ratings	12,633	1,049	981	1,021	712	722	17,118
Residential Energy Code	15,596	4,994	5,270	2,941	1,738	1,909	32,448
Multi-Family	4	8	0	0	1,721	971	2,704
Multi-Family Energy Code	23,706	4,104	6,056	4,805	2,260	266	41,197
Commercial Ratings	1	5	0	0	0	0	6
Commercial Energy Code	2,452	0	0	0	0	0	2,452
Subtotal Green Building	54,392	10,160	12,307	8,767	6,431	3,868	95,925
Total DSM Programs							
	529,866	42,950	48,012	55,471	45,914	42,764	764,977

Notes:

¹ Fiscal year participation is based on inspection dates.

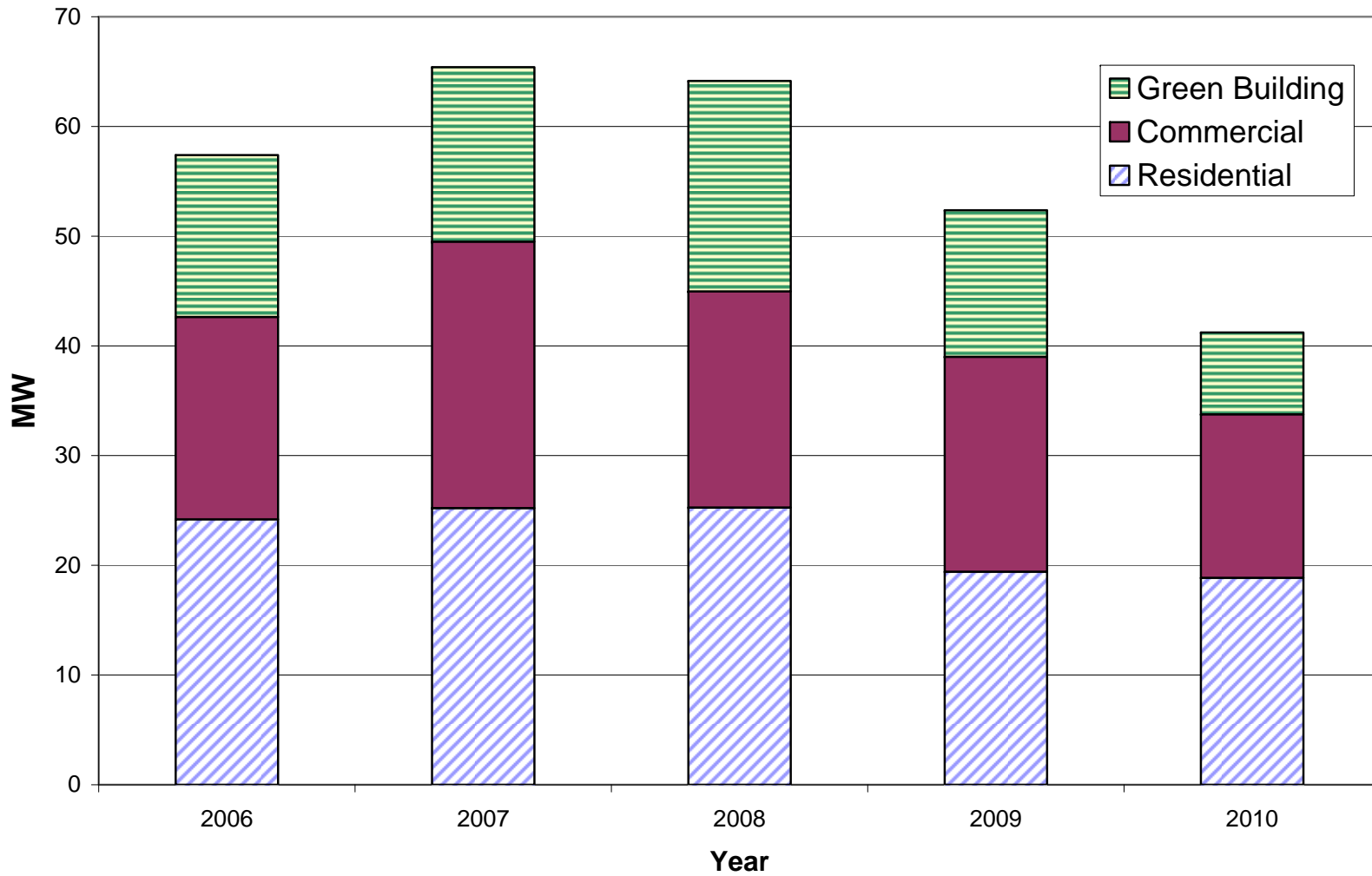
² Duct Diagnostic after 2008 is incorporated into Multi-Family.

Table 2: Annual Peak Demand Reduction (MW)

	1982-'05	2006	2007	2008	2009	2010	Total
Residential Efficiency							
Appliance Efficiency	131.2	3.7	2.3	2.9	3.36	4.15	148
H P Energy Star – Rebate	46.9	2.5	3.1	4.0	4.43	5.29	66
Home Performance ES – Loan	37.8	0.6	0.4	0.4	0.34	0.20	40
Free Weatherization	16.9	0.7	0.6	0.5	0.51	0.43	20
Multi-Family	43.8	3.8	5.1	4.6	3.11	4.48	65
Clothes Washer Rebates	0.4	0.1	0.1	0.0	0.04	0.05	0.7
Duct Leaks Sealing/Diagnosis	1.4	0.3	0.2	0.0	0.00	0.00	1.9
Refrigeration Recycling	0.6	0.6	0.7	1.2	0.72	0.66	4.6
Power Partner	47.3	10.1	10.2	9.8	3.60	2.30	83
Cycle Saver	5.9	1.5	1.5	0.8	1.09	1.31	12
CFL	0.4	0.3	0.9	1.0	2.20	0.00	4.8
Discontinued Programs	25.8						25.8
Subtotal Res.	358	24.2	25.2	25.3	19.4	18.9	471
Commercial Energy Management							
Commercial Rebate & ILA	44.0	10.1	14.1	12.8	11.8	10.0	102.7
Small Business Light&Bonus	3.4	3.0	2.8	1.8	1.20	1.94	14.1
Municipal	10.7	0.2	0.0	0.1	0.26	0.37	11.7
Power Partner	6.2	2.0	1.7	1.4	0.62	0.60	12.5
Load Coop	8.4	1.0	3.6	1.3	3.10	1.97	19.2
Engineering Support & TES	8.7	2.2	2.04	2.16	2.61	0.01	17.6
Commercial Smart Vendor	1.0	0.1	0.1	0.066	0.03	0.02	1.3
Discontinued Programs	141						141
Subtotal Comm.	223.7	18.5	24.3	19.7	19.6	14.9	321
Green Building							
Residential	13.3	0.9	0.8	0.9	0.59	0.60	17
Residential Energy Code	24.3	6.5	6.9	4.9	2.87	3.16	49
Multi-Family	2.4	0.6	0.8	1.3	0.95	0.50	6.5
Multi-Family Energy Code	10.2	1.9	2.7	2.2	1.02	0.13	18
Commercial	3.3	0.4	1.5	4.8	4.81	1.65	16
Commercial Energy Code	14.4	4.5	3.2	5.2	3.10	1.42	32
Subtotal GB	68.04	14.8	15.9	19.2	13.4	7.5	139
Total DSM	650	57.4	65.4	64.1	52.4	41.2	931

Note: The avoided demand includes the avoided utility Reserve Margin of 12.5% and Transmission & Distribution Losses of 7%.

Figure 1: Demand Reduction



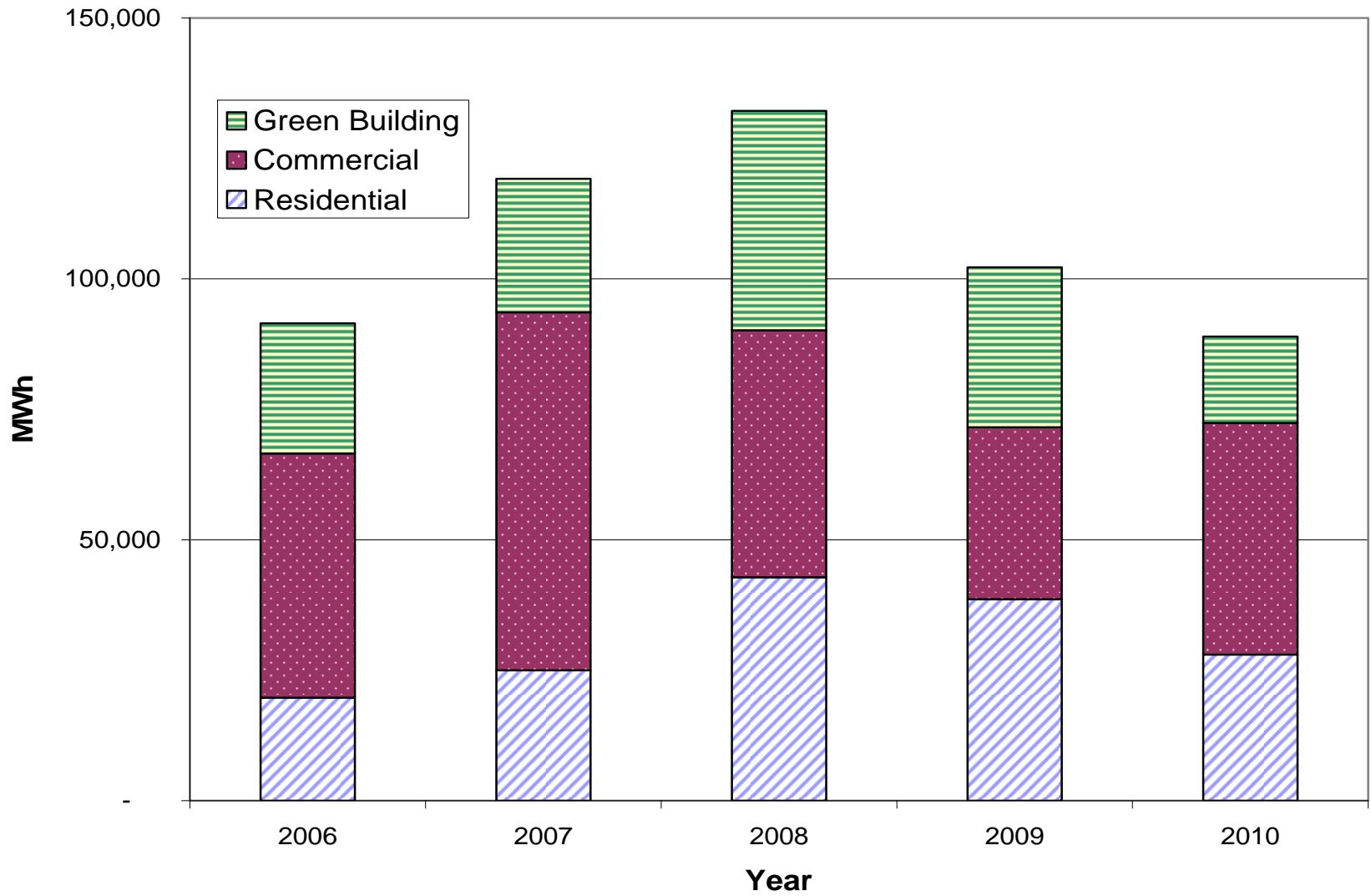
DSM Performance Measures –FY 2009-2010

Table 3: Annual Energy Savings (MWH)

Program	'82-'05	2006	2007	2008	2009	2010	Total
Residential Efficiency							
Appliance Efficiency Program	124,494	4,290	2,768	3,782	4,542	5,353	145,229
H P with Energy Star - Rebate	56,537	3,610	3,382	4,390	4,864	5,808	78,592
Home Performance ES - Loan	47,337	819	496	421	377	215	49,665
Free Weatherization	14,030	789	691	552	588	498	17,149
Multi-Family	63,598	5,055	7,198	23,847	11,359	13,231	124,289
Clothes Washer Rebates	1,469	270	254	234	253	296	2,777
Duct Leaks Seal/Diagnosis	1,987	457	1,954	- - -	0	0	4,398
Refrigeration Recycling	2,427	2,446	2,706	3,235	2,668	2,530	16,011
Power Partner Program	558	107	102	97	77	45	986
Cycle Saver Program	591	15	14	7	10	12	649
CFL Program	2,279	1,898	5,440	6,244	13,890	0	29,751
Previous Programs	11,575						11,575
Subtotal Residential	326,883	19,756	25,004	42,810	38,628	27,990	481,071
Commercial Energy Management							
Commercial Rebate & ILA	142,666	38,373	59,166	42,783	29,998	37,126	350,111
Commercial AEP	29,177	0	0	0	0	0	29,177
Small Business Lighting&Bonus	6,500	7,543	7,449	3,652	2,033	5,311	32,488
Municipal	44,757	428	0	383	646	1,802	48,016
Power Partner	121	15	1,285	14	8	8	1,453
Load Coop	33	30	129	19	57	5	273
Commercial Smart Vendor	5,976	383	566	492	182	137	7,735
Engineering Support & TES	34	0	0	0	0	0	34
Previous Programs	323,493						323,493
Subtotal Commercial	552,758	46,771	68,595	47,343	32,923	44,390	792,781
Green Building							
Residential	18,973	1,469	1,470	1,529	1,067	1,082	25,589
Residential Energy Code	20,927	4,994	5,639	7,914	4,677	5,137	49,289
Multi-Family	3,751	0	0	0	1,812	641	6,204
Multi-Family Energy Code	21,874	3,694	5,832	4,627	2,176	281	38,484
Commercial	11,532	1,596	3,716	13,377	11,934	5,299	47,455
Commercial Energy Code	44,338	13,222	8,923	14,590	9,011	4,138	94,221
Subtotal Green Building	121,394	24,974	25,580	42,039	30,677	16,577	261,241
Total DSM	1,001,035	91,502	119,178	132,192	102,228	88,957	1,535,093

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

Figure 2: Energy Savings



DSM Performance Measures – FY 2009-2010

Table 4: Goals for Participation, MW, and MWh

	Participants	MW			MWh		
	Actual	Goal	Actual	%Goal	Goal	Actual	%Goal
Residential Efficiency							
Appliance Efficiency	4,357	2.97	4.14	139%	3,833	5,342	139%
Home Perform. ES - Rebate	2,941	4.22	5.29	125%	4,630	5,808	125%
H P Energy Star - Loan	109	0.38	0.20	52%	417	215	52%
Free Weatherization	456	0.97	0.43	45%	1,116	498	45%
Multi-Family	18,234	2.68	4.48	167%	16,168	13,231	82%
Clothes Washer Rebates	1,029	0.02	0.05	257%	115	296	257%
Refrigeration Recycling	3,428	0.72	0.66	91%	2,668	2,530	95%
Power Partner	4,617	3.82	2.30	60%	74	45	61%
Cycle Saver	2,009	1.50	1.31	87%	13	12	94%
Subtotal Res.	37,180	17.28	18.85	109%	29,035	27,979	96%
Commercial Energy Management							
Commercial Rebate	315	8.92	10.00	112%	29,791	37,126	125%
Small Business Light&Bonus	384	2.50	1.94	77%	5,497	5,311	97%
Municipal	9	1.20	0.37	31%	11	1,802	High
Power Partner	780	0.72	0.60	84%	10	8	88%
Load Coop	20	0.75	1.97	262%	3	5	178%
Engineering Support & TES	1	5.20	0.01	0%	-	-	NA
Commercial Smart Vendor	120	0.05	0.02	40%	343	137	40%
Subtotal Comm.	1,629	19.34	14.90	77%	35,654	44,390	125%
Green Building							
Residential	722	0.58	0.60	103%	1,049	1,082	103%
Residential Energy Code	1,909	3.31	3.16	95%	5,382	5,137	95%
Multi-Family Energy Code	266	0.72	0.13	18%	1,541	281	18%
Multi-Family	971	2.38	0.50	21%	3,570	641	18%
Commercial	0	4.76	1.65	35%	14,042	5,299	38%
Commercial Energy Code	1	4.40	1.42	32%	6,384	4,138	65%
Subtotal GB	3,869	16.16	7.47	46%	31,968	16,577	52%
Total DSM	42,678	52.8	41.2	78%	96,657	88,946	92%

Note:

1. Commercial AEP savings are claimed in residential AEP.

DSM Performance Measures – FY 2009-2010

Table 5: Emission Reductions (Metric Tons or Tonnes)

	Carbon Dioxide	Nitrogen Oxides	Sulfur Dioxide	Carbon Monoxide	Suspended Particulates	NMOC / VOC	Total
Residential Efficiency							
Appliance Efficiency Program	3,214	2.24	2.03	1.56	0.28	0.08	3,220
H P Energy Star - Rebate	3,488	2.43	2.20	1.69	0.30	0.08	3,494
Home Perform. ES - Loan	129	0.09	0.08	0.06	0.01	0.00	130
Free Weatherization	299	0.21	0.19	0.15	0.03	0.01	300
Multi-Family	7,945	5.54	5.01	3.85	0.68	0.19	7,960
Clothes Washer Rebates	178	0.12	0.11	0.09	0.02	0.00	178
Duct Leaks Seal/Diagnosis	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration Recycling	1,519	1.06	0.96	0.74	0.13	0.04	1,522
Power Partner Program	27	0.02	0.02	0.01	0.00	0.00	27
Cycle Saver Program	7	0.01	0.00	0.00	0.00	0.00	7
CFL Program	0	0.00	0.00	0.00	0.00	0.00	0
Subtotal Residential	16,807	11.7	10.6	8.1	1.4	0.40	16,839
Commercial Energy Management							
Commercial Rebate & ILA	22,293	15.54	14.05	10.80	1.91	0.54	22,336
Small Bus Lighting&Bonus	3,189	2.22	2.01	1.55	0.27	0.08	3,195
Municipal	1,082	0.75	0.68	0.52	0.09	0.03	1,084
Power Partner	5	0.00	0.00	0.00	0.00	0.00	5
Load Coop	3	0.00	0.00	0.00	0.00	0.00	3
Commercial Smart Vendor	82	0.06	0.05	0.04	0.01	0.00	82
Engineering Support & TES	-	-	0.00	-	-	-	0
Sub-total Commercial	26,655	18.58	16.80	12.91	2.28	0.64	26,706
Green Building							
Residential	649	0.45	0.41	0.31	0.06	0.02	651
Residential Energy Code	3,085	2.15	1.94	1.49	0.26	0.07	3,091
Multi-Family	385	0.27	0.24	0.19	0.03	0.01	385
Multi-Family Energy Code	169	0.12	0.11	0.08	0.01	0.00	169
Commercial	3,182	2.22	2.01	1.54	0.27	0.08	3,188
Commercial Energy Code	2,485	1.73	1.57	1.20	0.21	0.06	2,489
Sub-total Green Building	9,954	6.94	6.27	4.82	0.85	0.24	9,973
TOTAL DSM Tonnes	53,416	37.2	33.7	25.9	4.57	1.284	53,518
English Tons	58,881	41.0	37.1	28.5	5.04	1.42	58,994

Notes:

1. Metric ton is equal to 1,000 kilograms or 1.102 English tons (2,200 lbs).
2. DSM avoided incremental generation was 94% gas-fired, 6% coal-fired, and 0% nuclear.

DSM Performance Measures – FY 2009-2010

Section II - Exhibit A: Expenditures (\$)

	Operating	Op %	Oprt-65%	Incentives	Marketing	Total
Residential Efficiency						
Appliance Efficiency Program	\$ 190,300	2.9%	123,695	2,363,454	-	\$ 2,487,150
Home Perform. ES - Rebate	\$1,153,842	17.8%	749,998	3,103,138	143,883	\$ 3,997,019
Home Perform. ES - Loan	\$ 189,145	2.9%	122,945	86,029	-	\$ 208,974
Free Weatherization	\$ 410,649	6.3%	266,922	529,148	3,196	\$ 799,266
Multi-Family Program	\$ 230,317	3.6%	149,706	2,138,237	50,778	\$ 2,338,721
Clothes Washer Rebate	\$ 18,949	0.3%	12,317	56,600	-	\$ 68,917
Refrigerator Recycling	\$ 82,761	1.3%	53,795	508,294	-	\$ 562,089
Power Partner	\$ 591,346	9.1%	384,375	1,635,925	58,943	\$ 2,079,243
Cycle Saver	\$ 279,356	4.3%	181,582	312,004	1,331	\$ 494,917
Subtotal Residential	\$3,146,667	49%	2,045,333	10,732,830	258,132	\$ 13,036,295
Commercial Energy Management						
Commercial Rebate	\$ 673,517	10.4%	437,786	2,652,537	30,520	\$ 3,120,843
Small Business	\$ 106,719	1.6%	69,368	943,336	26,720	\$ 1,039,424
Municipal	\$ 281,069	4.3%	182,695	11,247	-	\$ 193,942
Power Partner (Comm & Muni)	\$ 201,185	3.1%	130,770	205,923	12,854	\$ 349,547
Load Coop	\$ 83,663	1.3%	54,381	9,289	-	\$ 63,670
Engineering Support & TES	\$ 58,565	0.9%	38,067	0	21,502	\$ 59,570
Commercial Smart Vendor	\$ 34,204	0.5%	22,232	1,496	-	\$ 23,728
Subtotal Commercial	\$1,438,922	22%	935,299	3,823,828	91,597	\$ 4,850,724
Green Building						
Residential	\$ 472,352	7.3%	307,029	0	79,697	\$ 386,726
Residential Energy Code	\$ 131,209	2.0%	85,286	0		\$ 85,286
Multi-Fam Tonnage Reduction	\$ 367,385	5.7%	238,800	0	8,623	\$ 247,423
Multi-Family Energy Code	\$ -	0.0%	0	0		\$ -
Commercial	\$ 787,253	12.2%	511,715	0	21,188	\$ 532,903
Commercial Energy Code	\$ 131,209	2.0%	85,286			\$ 85,286
Subtotal Green Building	\$1,889,408	29%	1,228,115	0	109,508	\$ 1,337,623
Total DSM Programs						
	\$6,474,996	100%	4,208,748	14,556,658	459,237	\$ 19,224,642

Notes:

1. The subtotal is the sum of incentives, marketing and 65% of operation expenses. In 2010, exactly 65% of operating cost was full time and temporary salaries. The other 35% was insurance, phone allowance, taxes, medical, sick leave, etc.
2. The total for all DSM Programs was \$19.2 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. Years prior to 2009, utilized 30 year financing at 5% for Gas Turbines. The last ten years have been cash purchase, while future may be financed. Therefore, this analysis is for 10 year financing at 5%. The \$760/kW GT results in \$100/kW-yr, same as PUC proposed. The \$100/kW makes DSM much more beneficial than the former \$54/kW.

PROGRAMS	Load	Societal	Utility	Participant	Utility Life Cycle ¢/kWh	RIM
RESIDENTIAL PROGRAMS						
Appliance Efficiency Program	Passive	1.55	4.29	1.15	4.48	1.25
Home Performance - ES Rebate	Passive	1.23	3.16	0.96	6.63	1.19
Home Performance - ES Loan	Passive	1.22	2.24	1.17	9.35	1.03
Free Weatherization	Passive	0.98	0.98	1.73	20.77	0.65
Multi-Family Program	Passive	1.39	3.97	1.40	3.48	0.97
Clothes Washer Rebate	Passive	1.55	3.85	1.81	3.01	0.84
Refrigerator Recycling	Passive	1.17	3.33	1.30	2.88	0.87
Power Partner	DLC:Active	1.02	1.02	Very High	794	1.00
Cycle Saver Program	LC:Passive	2.41	2.41	Very High	532	2.36
COMMERCIAL PROGRAMS						
Commercial Rebate	Passive	4.32	11.77	1.31	1.09	1.31
Small Business	Passive	1.95	5.53	1.64	2.53	1.13
Municipal	Passive	8.12	8.60	45.77	1.39	1.29
Power Partner (Comm & Muni)	DLC:Active	1.18	1.18	Very High	717	1.17
Load Coop	DLC:Active	5.23	6.78	Very High	642	6.72
Engineering Support & TES	LC:Passive	No participation			N.A.	-
Commercial Smart Vendor	Passive	3.35	3.78	12.18	2.99	1.12
GREEN BUILDING PROGRAMS						
Total Green Building	Passive	3.45	38.73	2.52	1.04	1.34
All Programs (Weighted)	Mix	2.19	5.78	1.91	2.10	1.11

- 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:** Passive Load is 24 hr savings. Load Control:Passive is 4-8 pm M-F summer. Direct Load Control: Active is the NERC definition of Direct Load Control as Demand-Side Management that is under the direct control of the system operator. DLC was cycled by DSM operator for 13 sessions during 3-6 pm 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 a small amount of energy.
 7. **Municipal** incentives pay full technology cost as well as education, databases, etc.

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.

PROGRAMS	Societal	Utility	Participant
RESIDENTIAL PROGRAMS			
Appliance Efficiency Program	\$ 3,798,854	\$ 8,188,127	\$ 1,041,579
Home Performance - ES Rebate	\$ 2,333,921	\$ 8,634,231	\$ (407,211)
Home Performance - ES Loan	\$ 84,503	\$ 259,168	\$ 43,746
Free Weatherization	\$ (12,894)	\$ (12,894)	\$ 387,363
Multi-Family Program	\$ 2,597,839	\$ 6,939,108	\$ 2,580,991
Clothes Washer Rebate	\$ 94,531	\$ 196,411	\$ 128,445
Refrigerator Recycling	\$ 274,937	\$ 1,306,928	\$ 468,556
Power Partner	\$ 35,034	\$ 35,034	\$ 35,166
Cycle Saver Program	\$ 698,558	\$ 698,558	\$ 9,368
Subtotal Residential	\$ 9,905,283	\$ 26,244,670	\$ 4,288,004
COMMERCIAL PROGRAMS			
Commercial Rebate	\$ 28,218,594	\$ 33,604,047	\$ 17,708,477
Small Business	\$ 2,794,540	\$ 4,709,799	\$ 1,827,978
Municipal	\$ 1,461,799	\$ 1,473,046	\$ 1,007,132
Power Partner (Comm & Muni)	\$ 63,317	\$ 63,317	\$ 2,491
Load Coop	\$ 348,896	\$ 367,755	\$ (18,334)
Engineering Support & TES	\$ (59,570)	\$ (59,570)	\$ -
Commercial Smart Vendor	\$ 62,855	\$ 65,892	\$ 50,699
Subtotal Commercial	\$ 32,890,431	\$ 40,224,287	\$ 20,578,443
GREEN BUILDING PROGRAMS			
Total Green Building	\$ 25,049,753	\$ 34,364,974	\$ 14,200,180
TOTAL	\$ 57,021,366	\$ 86,775,898	\$ 40,613,598

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

	Financial Incentives (\$/kW)					Total Allocated Expenses (\$/kW)				
	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
Residential Efficiency										
Appliance Efficiency Program	447	403	460	535	570	543	536	526	575	600
Home Performance ES - Rebate	411	410	460	535	586	482	515	526	671	755
Home Performance ES - Loan	475	598	609	665	438	580	730	675	,026	,065
Free Weatherization	1,165	824	1,579	1,472	1,221	1362	1,057	1,645	1,940	1,845
Multi-Family Program	349	234	336	532	477	399	290	402	603	522
Clothes Washer Rebate	400	400	1,242	1,139	1,100	443	453	1,308	1,471	1,339
Duct Leaks Sealing/Diag. (S.Fam)	598	922				658	1,008			
Refrigerator Recycling	750	537	426	719	772	809	602	492	836	854
Power Partner	267	324	256	681	713	286	347	322	731	906
Cycle Saver	234	299	274	500	239	256	325	340	577	379
Compact Fluorescent Lighting	220	207	102	194		259	247	169	207	
Subtotal (Weighted Average)	367	349	362	556	569	417	404	428	645	691
Comm. Energy Management										
Commercial Rebate (no ILA-03)	188	244	236	240	265	258	287	302	273	312
Small Business	234	174	365	207	487	265	210	431	281	537
Municipal	473	NA	1,675	1,756	31	1823	NA	1,741	2,418	528
Power Partner (Comm & Muni)	273	561	215	482	343	275	636	281	635	583
Load Coop			4	2	5			70	20	32
Engineering Support	3	15	0	0	0	15	25	66	16	4,964
Commercial Smart Vendor	980	-	1,311	288	75	1886	319	1,377	1,346	1,193
Subtotal (Weighted Average)	185	218	219	196	257	403	264	285	241	326
Green Building										
Subtotal	193	0	0	0	0.0	48	58	65	68	179
Total DSM Programs		216	210	280	353	319	268	276	347	466

Figure 3: Life Cycle versus Capital Cost

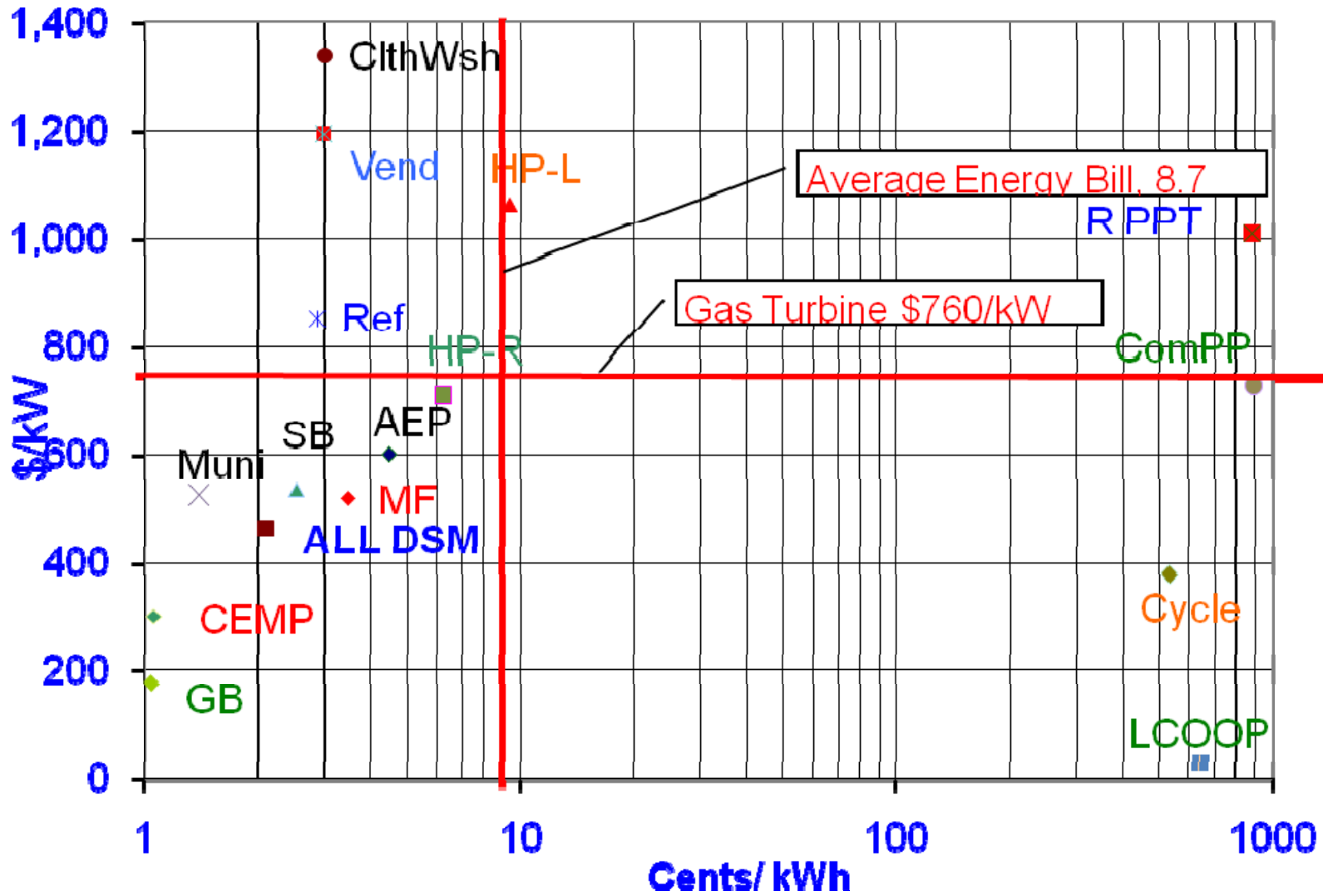


Figure 4: Ranked Utility Levelized Life Cycle ϕ /kWh

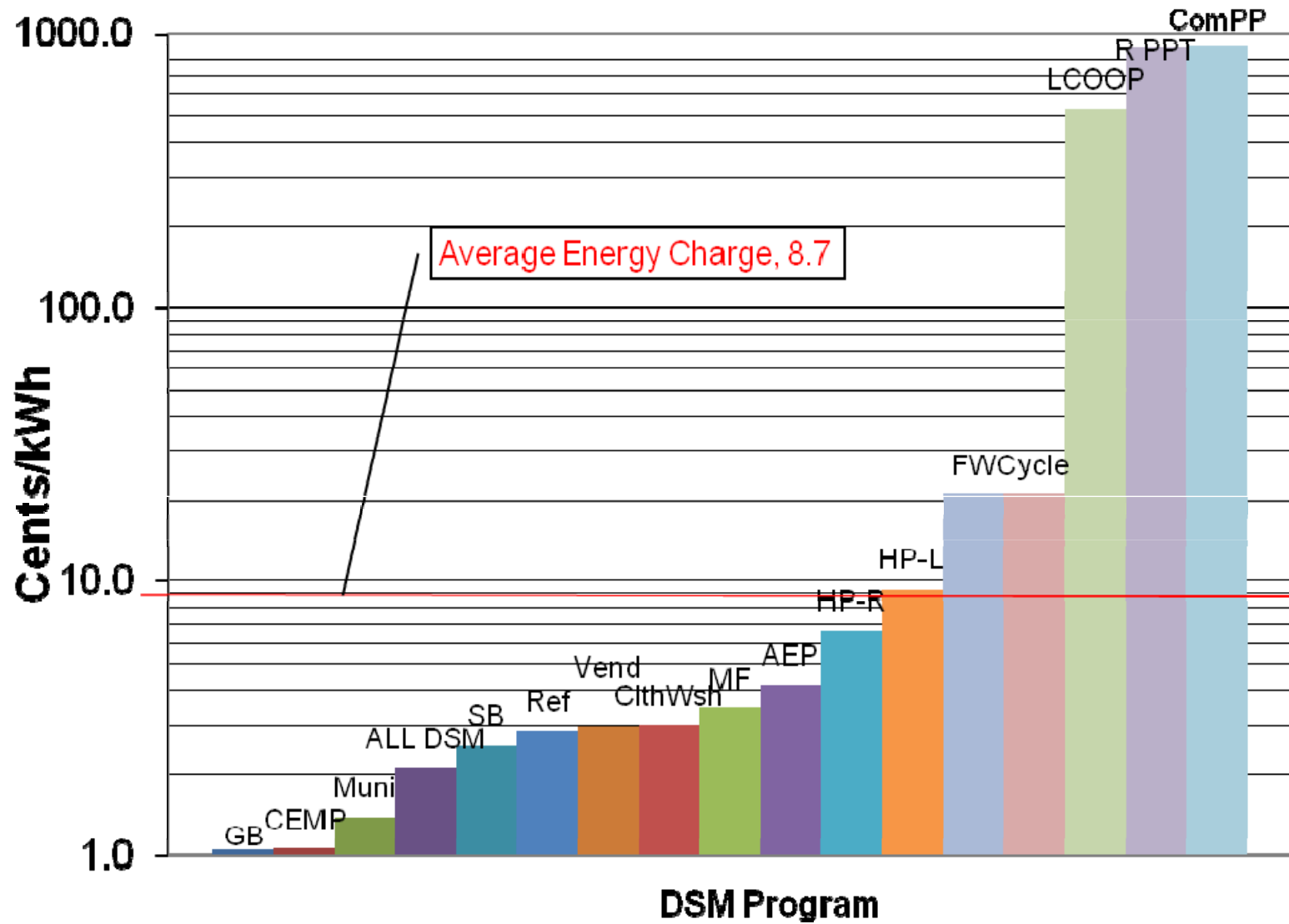
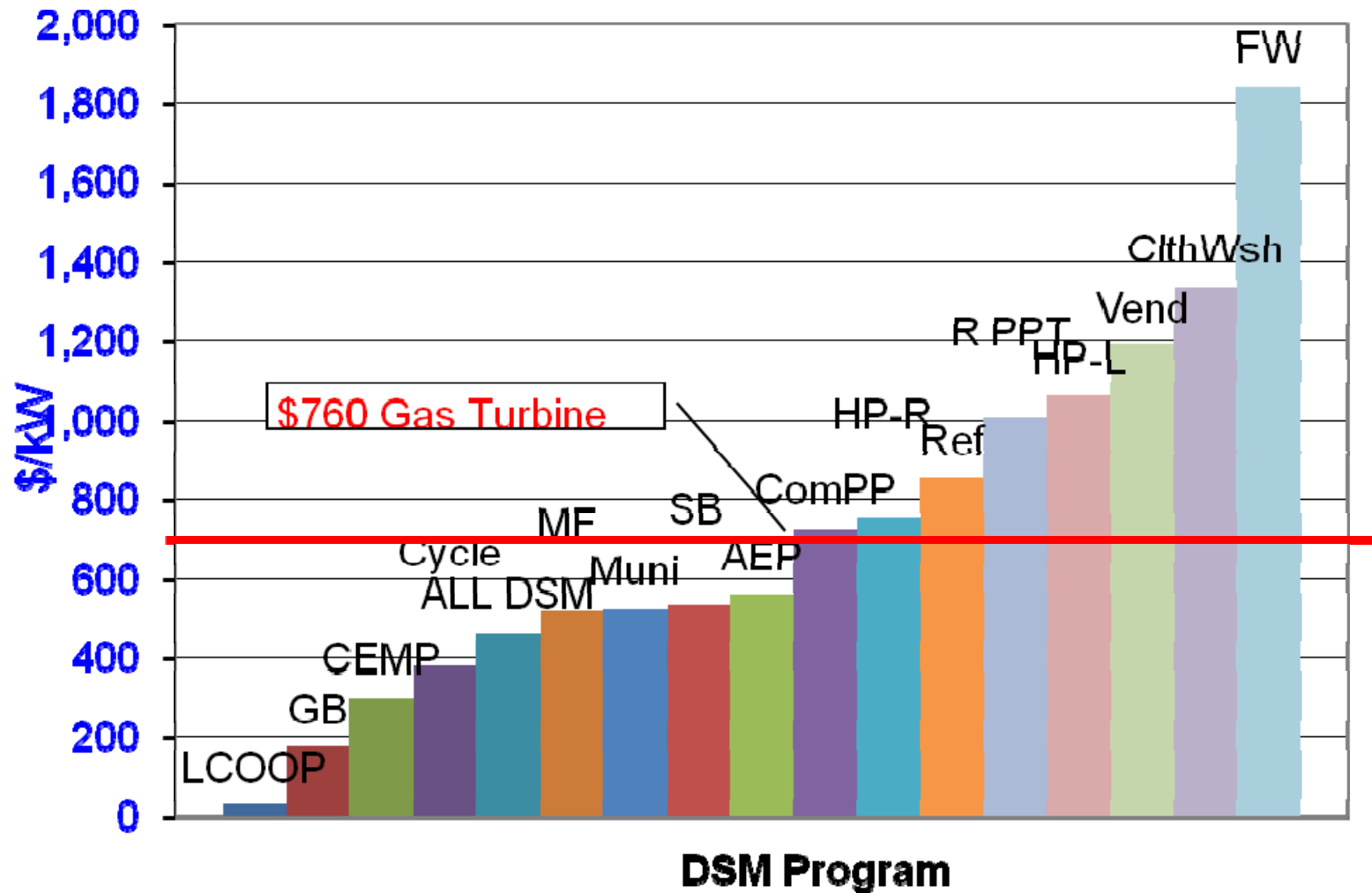


Figure 5: Ranked Capital Cost



DSM Performance Measures – FY 2009-2010

Exhibit E: Solar Photovoltaic Program

Solar	2004	2005	2006	2007	2008	2009	2010	Total
Photovoltaic								
Table 1: Participation	11	177	182	147	210	325	234	1,052
Table 2: Demand (MW)	0.03	0.62	0.55	0.60	0.94	1.77	1.34	4.51
Table 3: Energy (MWh)	45	925	738	765	1,279	2,288	1,720	6,040
Table 4: Goals				100%	94%	174%	100%	
Table 5: Emissions	27	544	434	450	770	1,377	1,035	3,602
Exhibit A: Expenditures	227,000	3,221,281	3,131,703	2,776,027	3,767,866	8,277,028	3,671,327	\$ 21,400,905

Note:

- Solar Program commenced in FY 2004. Photovoltaic is categorized as generation and, therefore, not included in DSM Performance Measures Report.
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	2004	2005	2006	2007	2008	2009	2010	Total
Solar Hot Water								
Table 1: Participation			3	4	17	29	38	91
Table 2: Demand (kW)			2.0	2.6	11.1	0	0	16
Table 3: Energy (MWh)			7.6	10.1	47.1	75.8	104	245
Exhibit A: Expenditure			\$ 1,900	\$ 8,000	\$ 32,000	\$ 44,500	\$75,500	\$ 161,900

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DSM Performance Measures – FY 2009-2010

**Solar PV Rebate Program 9-30-10
FY09-FY10 Participation Report**

Total Participation	Current		Final Projected	% of Goal
	Month	YTD		
Requests Received:	18	166	240	69%
Site Surveys Completed:	18	155	240	65%
# of Residential - LOI Issued	3	244	215	113%
# of Commercial - LOI Issued	1	21	29	72%
Residential - LOI \$ Committed	\$44,861	\$3,386,808	\$3,225,000	105%
Commercial (August LOIs are total 10 year PBI)	\$20,146	\$708,935	\$600,000	118%
Final Inspections Completed				
Residential	1	210	215	98%
Commercial	0	11	29	38%
Rebates Paid				
Residential	\$11,926	\$3,111,279	\$3,225,000	96%
Commercial	\$0	\$560,048	\$600,000	93%
kW including T&D (AC kW @ PTC):				
Residential	3.3	985.0	1,000.0	99%
Commercial	0.0	138.2	530.0	26%
Total kW including T&D (AC kW @ PTC):	3.3	1,123.2	1,290.0	87%
Total annual kWh - Res	4,192	1,285,163	1,397,500	92%
Total annual kWh - Com	0	176,186	795,000	22%

