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**BEFORE THE ARIZONA CORPORATION COMMISSION**


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Arizona Corporation Commission

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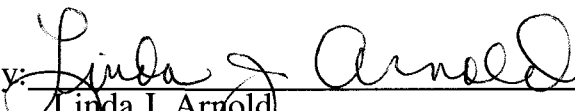
12 IN THE MATTER OF THE APPLICATION  
 13 OF ARIZONA PUBLIC SERVICE  
 14 COMPANY FOR APPROVAL OF THE  
 15 COMPANY'S 2012 DEMAND SIDE  
 MANAGEMENT IMPLEMENTATION  
 PLAN

DOCKET NO. E-01345A-11-0232

**NOTICE OF REVISION**

16 Arizona Public Service Company ("APS" or "Company") filed its 2012 Demand  
 17 Side Management Implementation Plan ("2012 Plan") as required by R14-2-2405(A) and  
 18 its request to reset the Demand Side Management Adjustment Charge ("DSMAC") rates  
 19 as required by R14-2-2406(C) on June 1, 2011. The June 1, 2011 filing contained a  
 20 discrepancy in lifetime megawatt-hour savings calculations and other related information.  
 21 APS now files a Revised 2012 Plan attached hereto as Exhibit A, which is to replace, in  
 22 its entirety, the Company's prior filing. Revisions correcting the discrepancies have been  
 23 made to pages 3, 4, 32, 33, 34, and 37 of Exhibit A.

RESPECTFULLY SUBMITTED this 24th day of June, 2011.

24  
 25  
 26 By:   
 Linda J. Arnold  
 Thomas L. Mumaw  
 Attorneys for Arizona Public Service Company  
 27  
 28

1 ORIGINAL and thirteen (13) copies  
2 of the foregoing filed this 24th day of  
3 June, 2011, with:

4 Docket Control  
5 ARIZONA CORPORATION COMMISSION  
6 1200 West Washington Street  
7 Phoenix, Arizona 85007

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# EXHIBIT A



**Arizona Public Service  
Company**

**Demand Side Management  
Implementation Plan for  
2012**

**Revised  
June 24, 2011**

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## I. Introduction

### Background

Arizona Public Service Company (“APS” or “Company”) makes this filing in compliance with the Arizona Corporation Commission’s (“Commission”) Electric Energy Efficiency - Rules<sup>1</sup> (“EE Rules”) and the Demand Side Management (“DSM”) terms in the 2009 Settlement Agreement (“2009 Settlement”) of the Company’s last rate case. Pursuant to the 2009 Settlement, among other things, APS is required to file an annual Energy Efficiency Implementation Plan for 2010, 2011, and 2012. This 2012 Demand Side Management Implementation Plan (“2012 Plan”) meets the 2012 energy efficiency (“EE”) implementation plan requirements of both the EE Rules and the 2009 Settlement.

The EE Rules require that the Company’s 2012 Plan include a description of APS’s compliance with the requirements of the EE Rules for the previous calendar year.<sup>2</sup> APS’s EE program results for 2010 are fully described and documented in the Company’s Demand Side Management Semi-Annual Progress Report (“Semi-Annual Report”), which APS filed with the Commission on March 1, 2011.

This 2012 Plan was developed and enhanced with input from the DSM Collaborative group whose members include EE experts and stakeholder representatives. Members include Commission Staff, the Residential Utility Consumer Office (“RUCO”), Southwest Energy Efficiency Project (“SWEEP”), Western Resource Advocates (“WRA”), the Department of Commerce Energy Office, Arizonans for Electric Choice and Competition (“AECC”), and others. The DSM Collaborative group discussed this 2012 Plan prior to its filing.

Pursuant to the EE Rules, in 2012, APS must achieve energy savings of 1.75% of retail energy sales (or a cumulative of 3.0% from the prior year). This equates to an estimated annual energy savings goal of 533,000 megawatt hours (“MWh”) and an estimated EE and DR budget of \$89.5 million compared to \$79.8 million estimated budget in the 2011 Plan.

### 2012 Plan Overview

The 2012 Plan includes:

- Continuation of existing EE and Demand Response (“DR”) programs.
- Modifications to some of the Residential programs to reflect changes in baseline conditions, a proposed alternative rebate structure, and additional flexibility to meet multi-family new construction standards.
- Addition of new EE Non-Residential measures.
- New initiative to support energy savings through building codes and appliance standards and addition of a multi-family design incentive measure.
- Proposed new pilot program that integrates renewable energy (“RE”) and EE and explores savings gained from system-wide improvements.

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<sup>1</sup> R14-2-2405(B) (1).

<sup>2</sup> Decision No. 71448 (December 30, 2009); Docket No. E-01345A-08-0172.

APS 2012 Revised Demand Side Management Implementation Plan

- Estimated budget for 2012 to be funded through the Demand Side Management Adjustment Charge (“DSMAC”).
- Estimates of EE program impacts including: demand savings, energy savings, and societal net benefits.

The proposed program changes are summarized on Table 1.

**Table 1**  
**2012 Proposed EE/DR Program Changes**

<b>Residential Consumer Products</b> <ul style="list-style-type: none"> <li>• Lighting</li> <li>• Swimming Pools</li> </ul>	<ul style="list-style-type: none"> <li>• Update savings on 100 Watt equivalent compact fluorescent lamps (“CFLs”) due to change in baseline from Energy Independence and Security Act standards</li> <li>• Update baseline from single speed pumps to dual speed pool pumps due to state legislation becoming effective</li> </ul>
<b>Residential Existing Homes</b> <ul style="list-style-type: none"> <li>• Home Performance with ENERGY STAR®</li> </ul>	<ul style="list-style-type: none"> <li>• Add a performance-based rebate measure as an alternative rebate structure</li> </ul>
<b>Residential New Construction</b> <ul style="list-style-type: none"> <li>• ENERGY STAR® Homes</li> </ul>	<ul style="list-style-type: none"> <li>• Update the builder and home rater incentives to move builders to new ENERGY STAR® Version 3 standard and higher 2<sup>nd</sup> tier level</li> </ul>
<b>Residential Multi-Family</b> <ul style="list-style-type: none"> <li>• New Construction/Major Renovation</li> </ul>	<ul style="list-style-type: none"> <li>• Redesign the Builder Option Packages (“BOP”) to allow builders flexibility in meeting the efficiency standards for new construction</li> <li>• Add a performance path to BOPs</li> <li>• Add an energy study incentive</li> </ul>
<b>Non-Residential Solutions for Business</b> <ul style="list-style-type: none"> <li>• Add Prescriptive Measures</li> </ul>	<ul style="list-style-type: none"> <li>• Energy Management Systems (“EMS”)</li> <li>• Six LED lighting measures</li> </ul>
<b>Other</b> <ul style="list-style-type: none"> <li>• Codes and Standards</li> <li>• EE/RE Pilot</li> <li>• ev-Ready</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage energy savings through adherence to local building codes and support energy codes and standards updates</li> <li>• Introduce a new pilot program that integrates EE, renewables, and smart grid initiatives</li> <li>• Implement APS’s Electric Vehicle Readiness Demonstration Project<sup>3</sup> including the use of DR strategies</li> </ul>

APS found all of the proposed new and modified measures to be cost effective (as measured by the Societal Cost Test).

**Estimated Savings**

Under the terms of the 2009 Settlement,<sup>4</sup> if higher goals are adopted by the Commission for 2012 in another docket, then those higher savings goals supersede the goals in the 2009

<sup>3</sup> Application is being considered in a separate docket (Docket No. E-01345A-10-0123).

Settlement. In 2012, the EE Rules standard is a higher standard than the 2009 Settlement goal; hence, the EE Rules will determine the EE savings goal for APS in 2012.

APS's estimated 2012 energy savings goal is provided in Table 2 below:

**Table 2**  
**2012 DSM Energy Savings Goal Calculation**  
**(Annual MWh)**

	<b>EE Rule Standard</b>	<b>2009 Settlement Agreement</b>
Annual MWh Sales/Resources	28,480,522	29,854,758
Basis Year	Prior Year (2011)	Current Year (2012)
Losses @ 7%	1,993,637	2,089,833
MWh Sales/Resources w/Losses	30,474,159	31,944,591
DSM % Goal	1.75%	1.5%
DSM MWh Goal	533,298	479,169

The 2012 Plan is targeted to save an estimated annual 533,000 MWh of energy (rounded to the nearest 1,000 MWh), which is equivalent to 1.75% of retail sales forecasted for 2011 (the 2012 EE Rule standard<sup>4</sup>). APS expects to achieve 480,000 MWh of energy savings from EE programs plus 53,000 MWh credited from DR programs. The actual goal to be achieved will be different than calculated above because it will be based on the actual retail sales in 2011, which can only be determined once the year is over.

By meeting the 2012 EE Rule standard, APS estimates peak demand saving of about 86 megawatts ("MW") from EE and 209 MW from DR, while saving an estimated 4,995,000 MWh over the lifetime of the measures installed in 2012.

**Funding Requirement**

The funding for the 2012 Plan allows APS to meet the 2012 EE Standard. The annual increases in the program budgets are driven mainly by the annual increase in the EE Rules standard, and increased participation in APS's programs to meet the increased savings goal of 533,000 MWh (compared to 391,000 MWh for 2011). To fully implement the 2012 Plan, a total of \$89.5 million will be required, of which \$78.1 million is allocated for EE programs and \$11.4 million is allocated for DR programs.

**Commission Approval Timelines**

APS is requesting Commission approval of this 2012 Plan no later than early December 2011. However, approval of this 2012 Plan before December (between August and November) would position APS to have new program elements ready for deployment at the beginning of 2012. The participation levels, savings estimates, and 2012 program budgets are premised on complete program availability on January 1, 2012.

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<sup>4</sup> 1.5% of total current year energy resources needed to meet retail load.

<sup>5</sup> R14-2-2404(B).



## II. Energy Efficiency Portfolio

APS proposes to continue implementation of its current EE programs and to expand its current DSM portfolio of EE programs that reduce the use of electricity by means of energy efficient products, services and practices. The programs are designed to influence energy decisions by Residential and Non-Residential customers and other market players through a combination of rebates and incentives, technical assistance and training, and consumer education.

The EE programs in this 2012 Plan are expected to produce cost effective long-term energy consumption and demand savings. For programs implemented in 2012, the program cost is estimated to be 1.6 cents per lifetime kWh saved (total estimated program dollars divided by the total estimated kWh saved over the expected lifetime of all measures installed in 2012). Table 3 summarizes the estimated energy and demand savings and total program net benefits resulting from proposed program activities in 2012. These net benefits are in addition to the net benefits accrued from APS's earlier DSM activities that were placed into service from 2005 through 2011. These savings from earlier DSM activities are not included in the estimated impacts in Table 3. For more detail on the savings and net benefits achieved prior to 2011, see the Company's Semi-Annual Report filings.

**Table 3**  
**Estimated 2012 Energy Efficiency Impacts**

<b>Program Budget</b>	<b>Annual Savings MWh</b>	<b>Lifetime MWh Savings<sup>1</sup></b>	<b>Peak Demand Savings MW</b>	<b>Total Net Benefits<sup>2</sup></b>
<b>\$78,136,000</b>	<b>480,000</b>	<b>4,995,000</b>	<b>85.5</b>	<b>\$194.6 Million</b>

<sup>1</sup>Savings are over the expected lifetime of all program measures installed in 2012.

<sup>2</sup>The Total Net Benefits estimate incorporates savings over the expected lifetime of all program measures installed in 2012 and all program costs including the cost of Measurement, Evaluation & Research and the Performance Incentive. Total Net Benefits are the difference between the present value of the societal benefits and the present value of the societal costs.

APS's EE program portfolio continues to include a balanced mix of programs targeted to address APS's diverse customer segments and market opportunities including: 1) Residential Consumer Products; 2) Residential Existing Homes; 3) Residential New Construction; 4) Appliance Recycling; 5) Residential Low Income; 6) Residential Conservation Behavior; 7) Multi-Family; 8) Residential Shade Trees; 9) Non-Residential Large Existing Facilities; 10) Non-Residential New Construction and Renovation; 11) Small Businesses; 12) Schools; and 13) Non-Residential Energy Information Services.

## ***A. RESIDENTIAL PROGRAMS***

### **1. Consumer Products Program**

#### **a. Existing Program Description**

The primary target market for the Consumer Products program is APS residential customers who are contemplating purchase of lighting and other energy using products for their homes. This program is being implemented through participating retailers within the APS service territory.

**Lighting:** This current program promotes high-efficiency Environmental Protection Agency (“EPA”)/Department of Energy (“DOE”) ENERGY STAR<sup>®</sup> approved lighting. The program solicits discount pricing from CFL manufacturers and distribution of CFLs through local retailers. Customers are referred to participating retailers to purchase qualifying products. Discount pricing is passed on to consumers through a negotiated agreement with lighting manufacturers and retailers. The program provides sales training for participating retailers and consumer education, including in-store point-of-sale displays.

**Swimming Pools:** In January 2010, the Commission approved three new measures for the Consumer Products program that are designed to improve the energy efficiency of residential swimming pools. Variable speed and dual speed pool pumps with energy efficient motors can provide significant cost effective savings while maintaining or improving pool cleanliness. The efficient pool pump measures provide incentives to consumers, retailers, and installers to help overcome the higher initial cost of these pumps and to promote their increased adoption in the market place. In addition, a new type of smart digital pool pump timer is now available. It works with existing pool pumps as a replacement for mechanical timers and it provides significant savings by automatically adjusting pool pump run times monthly to automatically reduce use in cooler months, while maintaining pool cleanliness. APS provides consumers an instant rebate to encourage purchase and use of these energy saving timers.

#### **b. Proposed Program Modifications, Enhancements, and New Measures**

**Lighting:** Pursuant to Decision No. 72032 (December 10, 2010) APS has updated the energy savings and cost effectiveness analyses for compact fluorescent lamps (CFLs) to address the Energy Independence and Security Act (“EISA”) national lighting efficiency standards<sup>6</sup>, which will take effect in January 2012. The EISA standards are being phased in over a three-year time period as follows: standards apply to 100 watt incandescent bulbs in 2012, 75 watt bulbs will be addressed in 2013, and 60 watt bulbs will be addressed in 2014. APS has updated the estimates for savings and cost effectiveness for 100 watt equivalent CFL bulbs expected to be incentivized through the program in 2012. The savings analysis for 100 watt equivalent CFLs now uses an updated baseline, which is an incandescent bulb that will meet the new more efficient 2012 EISA standards. An EISA compliant bulb will produce close to the equivalent light output of today’s 100 watt incandescent bulbs, while using only 75 watts of energy. By comparison, a CFL uses only 23-26 watts (depending on the type of CFL bulb) to produce the same amount of light, so CFLs continue to be a significant energy saving measure when compared to EISA compliant incandescent bulbs. CFLs are still highly

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<sup>6</sup> HR6 Energy Independence and Security Act of 2007 (December 19, 2007).

cost effective - the updated benefit-cost analysis of the lighting measures within the Consumer Products program indicates a societal cost test ratio of 4.5.

**Swimming Pools:** Due to the recent passage of Arizona legislation<sup>7</sup>, pool pumps sold in the State of Arizona after January 1, 2012 that are greater than or equal to one horsepower must have a minimum of two-speeds. APS is proposing three program modifications to address the legislative change:

- 1) Discontinue the current APS rebate of \$100 for customers who purchase dual speed pumps. Since dual speed pumps will be required by statute, it is unnecessary to offer rebates for these pumps.
- 2) Continue offering rebates for variable speed pumps, since these pumps still offer significantly improved savings compared to dual speed pumps. APS has submitted an updated analysis for variable speed pool pumps that looks at customer incremental cost and savings compared against a new baseline – a dual speed pump instead of single speed. This is appropriate given that the two-speed pumps are now statutorily required.
- 3) APS will research the actual savings impact from the legislation in 2012 with the intention of including the savings in the Semi-Annual Report filing. APS believes that this will meet the standard for claiming energy savings from energy codes in the EE Rules<sup>8</sup>.

No new measures are being proposed for the Consumer Products program.

## **2. Existing Homes Program – Heating Ventilating Air Conditioning (“HVAC”) and Home Performance**

The Existing Homes program is divided into two distinct components, 1) HVAC measures and 2) Home Performance with ENERGY STAR<sup>®</sup> (“HPES”) measures.

The Residential Existing Homes program Heating, Ventilation, and Air Conditioning (“Residential HVAC”) component uses a combination of financial incentives, contractor training and consumer education to promote the proper installation and maintenance of energy efficient HVAC systems. The Air Conditioner (“AC”) Rebate, Duct Test and Repair and HVAC Diagnostics portions of the program include measures supporting energy efficient residential air conditioning and heating systems along with the proper installation, maintenance and repair of these systems.

The HPES component of the program promotes a whole house approach to energy efficiency by offering incentives and financing for improvements to the building envelope of existing residential homes within the APS service territory. It includes measures to improve the EE of the home such as air sealing, insulation, shade screens, faucet aerators, and low flow showerheads. Both components of the Existing Homes program also provide APS customers

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<sup>7</sup> A.R.S. § 44.1375 *et seq.* (2011).

<sup>8</sup> An affected utility may count toward meeting the standard up to one third of the energy savings, resulting from energy efficiency building codes that are quantified and reported through a measurement and evaluation study undertaken by the affected utility. R14-2-2404(E).

with referrals to contractors who meet strict program requirements for professional standards, technician training, and customer satisfaction.

The two components of the Residential Existing Homes program are discussed individually below:

**a. Existing Program Description**

**HVAC:** The APS Air Conditioner (“AC”) Rebate measures offer financial incentives to homeowners for buying EE equipment ( $\geq 13$  SEER/10.8 EER) that is installed in accordance with the program requirements for air flow, refrigerant charge and sizing.

The Duct Test and Repair measure provides financial incentives to customers for having their HVAC system’s duct work tested for leakage and repaired.

The Residential HVAC Diagnostics measure provides customers a financial incentive to have their existing AC unit or heat pump tuned-up so that it runs more efficiently. The tune-up includes a correction of the refrigerant charge, leak repair if necessary, condenser coil cleaning, and airflow correction. These activities are verified on-site during the tune-up with a diagnostic system that records the equipment status before and after the work is done. This new measure began on March 31, 2011 and APS and its MER Contractor, Navigant Consulting, have begun the field research that was described when the program was approved as a pilot by Decision No. 72060 (January 6, 2011). The results of this research should be compiled in the latter part of 2011. This data will allow APS to evaluate what changes, if any, are needed for the program. As of the time of this filing APS plans to continue with the Residential HVAC Diagnostics measure at a conservative level in 2012 pending the results of field research. The results of the research will be included in the APS Semi-Annual Report.

**Home Performance with ENERGY STAR®:** The HPES component of the Residential Existing Homes program utilizes certified contractors to perform a detailed checkup on a customer’s home to diagnose energy inefficiencies. The HPES checkup provides the customer with a comprehensive list of potential improvements that would make their home more energy efficient. The customer has the option of selecting the improvements, if any, in which the contractor is also qualified to install. The cost of the checkup to the customer is \$99 and it includes ten CFLs, three faucet aerators and one low flow showerhead in addition to the evaluation and EE recommendations for the home. The contractor that completes a HPES checkup receives a \$200 incentive from APS after they submit the checkup documentation and it is accepted by APS. Contractors normally charge customers about \$400 for similar in-home checkups.

The HPES program also provides several incentives that comprise the main components of this program:

1. Duct Test and Repair, 75% of job cost up to a maximum of \$250
2. Air Sealing, 75% of job cost up to a maximum of \$250
3. Shade Screens, 75% of job cost up to a maximum of \$250
4. Insulation with Air Sealing, 75% of job cost up to a maximum of \$500

Customers participating in HPES also gain access to APS's Residential Energy Efficiency Financing ("REEF"). The REEF program offers customers financing for EE improvements at below market rates. This further reduces the upfront cost barrier for whole house energy retrofits.

Customers also have access to other APS Residential incentive measures such as Consumer Products or Appliance Recycling, and these measures are also recommended when appropriate as part of the checkup.

**b. Proposed Program Modifications, Enhancements, and New Measures**

APS is not proposing any enhancements or measures for the HVAC component of its Residential Existing Homes program at this time.

APS is proposing a Performance Based Rebate structure as a new measure for the current APS Home Performance with ENERGY STAR<sup>®</sup> program. APS believes that performance based rebates hold the potential to yield higher savings per home and better integrate HVAC and baseload measures into the Home Performance process. See Attachment 1 for details.

**3. New Construction Program**

**a. Existing Program Description**

The Residential New Construction program promotes high efficiency construction practices for new homes. It offers incentives to builders that meet program EE standards in order to increase the penetration of high efficiency new homes. The program emphasizes the "whole building" approach to improving EE and includes field testing of homes to ensure compliance with APS performance standards. Participating builders are trained to apply building science principles to assure that high-efficiency homes also have superior comfort and performance. The program also provides education for prospective homebuyers about the benefits of choosing an energy efficient new home and the features to consider.

In 2010, APS added a new higher performance program measure that offers builders a higher incentive to meet significantly higher efficiency levels, with homes required to be at least 30% more efficient than current code. When combined with APS incentives for RE, this program measure is designed to move the new homes market toward net zero energy consumption.

**b. Proposed Program Modifications, Enhancements, and New Measures**

The APS Residential New Construction program is based on the program requirements of the United States Environmental Protection Agency (“USEPA”) ENERGY STAR<sup>®</sup> Homes program. In 2012, the EPA is releasing “Version 3” EE requirements for the ENERGY STAR<sup>®</sup> Homes program.<sup>9</sup> Version 3 requirements are significantly more stringent than the Version 2 requirements. For example, a new home in Arizona which meets the Version 3 ENERGY STAR<sup>®</sup> requirements will save an average of 5,300 kWh per year while a home which meets the Version 2 requirements will save an average of 2,900 kWh per year as compared to a typical new code-built home. Due to the updated ENERGY STAR<sup>®</sup> Version 3 requirements, APS proposes to update the APS Residential New Construction program builder incentive structure to account for higher incremental costs that builders incur to meet Version 3 requirements and achieve significantly higher savings per participating home. APS believes it is important to continue to include a higher “second tier” program savings level to encourage advanced builders to exceed the ENERGY STAR<sup>®</sup> requirements and achieve even higher savings levels. APS proposes that this level is set at a Home Energy Rating System (“HERS”) score of 60, which represents an average savings of over 6,500 kWh per year compared to a typical new home in Arizona.

In addition, APS believes that in order to ensure that the stringent EE levels of the new program requirements are being met, program quality control is essential. This will require APS to acquire more data on the home inspection process from the independent home energy raters who certify homes ENERGY STAR<sup>®</sup>, including digital photos of key construction details. This additional field data will require home energy raters to spend added time collecting and uploading data to APS. The data will help ensure program consistency and field compliance while saving APS staff time in data collection. In exchange, APS proposes to provide an incentive for home energy raters who provide this additional field data.

The proposed APS Residential New Construction program incentive structure for 2012 is as follows:

**Tier 1:**

- Requirement = ENERGY STAR<sup>®</sup> Version 3 Compliance
- Builder Incentive = \$1,000/home
- Home Energy Rater Incentive = \$50/home (only paid when data is provided)

**Tier 2:**

- Requirements = ENERGY STAR<sup>®</sup> Version 3 Compliance, HERS score  $\leq$  60
- Builder Incentive = \$1,500/home
- Home Energy Rater Incentive = \$50/home (only paid when data is provided)

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<sup>9</sup> The Version 3 EPA ENERGY STAR<sup>®</sup> Homes program requirements can be found at [http://www.energystar.gov/index.cfm?c=bldrs\\_lenders\\_raters.nh\\_v3\\_guidelines](http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_v3_guidelines).

APS is not proposing any new measures for the Residential New Construction program at this time.

#### **4. Appliance Recycling Program**

##### **a. Existing Program Description**

The Appliance Recycling program targets the removal of functional second refrigerators and freezers in residential households and small businesses. The average household replaces a refrigerator every ten (10) years. However, many of the refrigerators and freezers being replaced are still functioning and often remain in the home as underutilized energy-consuming backup appliances in garages and basements. APS offers a \$30 rebate with free pick-up and recycling of operable second refrigerators or freezers to encourage removal of these older, inefficient appliances from the grid. In 2012, APS estimates the volume of recycled units will be 10,000.

In 2011, the Appliance Recycling program added the ability to pick up smaller non-residential units that meet existing eligibility requirements and comply with the size parameters of the program. Additionally, a retail partnership with Sears allows APS the opportunity to offer APS customers added value and convenience when a customer purchases a new refrigerator or freezer. At the point of sale, the customer will receive a special sticker to place on their old unit identifying it as an APS recycled unit.

Upon delivery of a customer's new unit, Sears will pick up the customer's old (now secondary) appliance, saving them the inconvenience of scheduling yet another appointment for their refrigerator recycling pickup. This ensures that the old unit does not enter into the secondary market, a garage, or laundry room. These units are taken to a Sears containment facility where the refrigerators and freezers will be picked up for recycling and processing. APS customers will receive their \$30 rebate through normal operating procedures.

##### **b. Proposed Program Modifications, Enhancements, and New Measures**

APS is not proposing any modifications, enhancements or new measures for the Appliance Recycling program at this time.

#### **5. Low Income Weatherization Program**

##### **a. Existing Program Description**

APS's Energy Wise Low Income Weatherization program is designed to improve the energy efficiency, safety, and health attributes of homes occupied by customers whose income falls within 200% of the Federal Poverty Guidelines ("FPG"). The weatherization component of this program serves low income customers with various home improvement measures, including cooling system repair and replacement, insulation, sunscreens, water heaters, window repairs and improvements, as well as other general household repairs. Non-profit agencies and municipal entities owning and operating low income multifamily housing are also able to benefit from funds set-aside to weatherize their complexes. In addition, there is a Crisis Bill Assistance component serving customers whose income falls below 150% of the FPG. These program elements are administered by various community action agencies throughout APS's service territory.

**b. Proposed Program Modifications, Enhancements, and New Measures**

APS is not proposing modifications, enhancements or new measures for the Low Income Weatherization program.

**6. Conservation Behavior Pilot Program**

**a. Existing Program Description**

The Residential Conservation Behavior Pilot program provides participating residential customers with periodic reports containing information designed to help motivate them to adopt energy conservation behaviors.

To drive conservation behavior, the program provides direct-mailed reports to participants that show how the energy usage in their home compares with energy efficient and other similar homes. In addition to providing these benchmarks, the reports will also highlight efficient measures and actions others have taken to improve efficiency. These tips will serve as an energy conservation idea list and education tool to encourage changes in the customer's home.

Participants are also encouraged to visit a program web portal for additional information and engagement.

**b. Proposed Program Modifications, Enhancements, and New Measures**

APS plans to maintain the 80,000 program participant level in 2012. As ordered in Decision No. 71950 (November 1, 2010), APS intends to file a report in 2012 that will provide estimated savings and recommended future action regarding the program.

APS is not proposing any modifications, enhancements, or new measures for the Residential Conservation Behavior Pilot program.

**7. Multifamily Energy Efficiency Program**

**a. Existing Program Description**

The Multifamily Energy Efficiency program ("MEEP") is a program that targets multifamily properties and dormitories with EE measures and solutions designed to promote energy savings.

The MEEP takes a two track approach to address the challenges of reaching the multifamily market. The first track provides energy efficient CFL light bulbs, showerheads, and faucet aerators to retrofit each dwelling in a community. These measures are provided at no cost to the multifamily community. In addition, this track works through the Non-Residential APS Solutions for Business programs to provide energy assessments to assist communities in identifying additional energy saving opportunities and available APS rebates.

The second track provides a per dwelling unit incentive for new construction and major renovation projects that meet or exceed the EE guidelines outlined in one of four Builder Option Packages ("BOP"). The BOPs include a prescriptive list of measures that guide builders or developers to build or renovate to achieve higher levels of energy efficiency.



The desired outcome in the implementation of the multifamily program is to realize long-term energy savings for the multifamily market segment and to improve the standard by which multifamily structures are built and maintained.

**b. Proposed Program Modifications, Enhancements, and New Measures**

**New Construction Modifications**

Builders that work on multifamily projects have suggested that APS modify the new construction component of the multifamily program. Currently builders can choose from one of four BOPs and must achieve all prescriptive measures to be eligible to receive the corresponding BOP rebate. Some builders have expressed concern that the current prescriptive list of measures is restrictive and does not offer flexibility to accommodate projects that face unique challenges. APS proposes to modify the delivery of the MEEP new construction track to allow for the largest number of possible participants. Proposed BOP modifications include restructuring the delivery of the prescriptive component and adding a performance component.

**BOP Prescriptive Path**

APS is proposing to modify the design of the BOPs to mirror the ENERGY STAR<sup>®</sup> Qualified Homes National Attached Homes Builder Option Package. This modification further aligns the APS MEEP program with the ENERGY STAR<sup>®</sup> standard and provides builders additional flexibility to meet the BOP requirements. With this modification BOP requirements are met with a combination of mandatory measures plus a specific number of measures from the optional list. BOP 1 requires all the mandatory measures plus one from the optional section, BOP 2 requires all the mandatory measures plus two from the optional section, and BOP 3 requires all the mandatory measures plus three from the optional section. The new BOP structure that includes all available measures is outlined in Table 4.

**Performance Path**

To further streamline BOP delivery, APS is proposing to add a performance component to each BOP. If a builder is unable to meet the prescriptive requirements outlined in the prescriptive path they may choose a performance path. The Home Energy Rating System (“HERS”) is a system used throughout the country to measure, test, and rate building performance. Rated buildings are given a HERS index score that compares the performance of that building against a baseline building. Each BOP in the new construction program was assigned a minimum HERS index score that will deliver an equivalent level of building performance and energy savings. A builder may earn the BOP incentive by building the facility using any desired combination of measures as long as the buildings performance does not rate below the minimum acceptable score. These projects will require performance testing by a certified HERS rater. Table 5 outlines the minimum HERS index scores for each BOP.

All BOP incentives remain unchanged from those previously filed and approved.

**Table 4  
Builder Option Packages**

<b>Mandatory Measures</b>		
<b>All BOPs must incorporate All Requirements in this Section</b>		
Minimum HVAC Requirements	13 SEER <sup>1</sup> A/C <sup>2</sup> and 80 AFUE <sup>3</sup> gas furnace; <u>or</u> 13 SEER A/C and 80 AFUE boiler; <u>or</u> 13 SEER A/C and 80 AFUE oil furnace; <u>or</u> 13 SEER / 7.7 HSPF <sup>4</sup> heat pump.	
Thermostat	ENERGY STAR <sup>®</sup> qualified thermostat programmed with setbacks of 80 degrees cool, and 69 degrees heat.	
Ductwork	Leakage ≤ 4 CFM <sup>5</sup> to outdoors per 100 sq. ft. and R-6 minimum insulation on ducts in unconditioned spaces.	
Envelope	Infiltration (ACH <sup>6</sup> 50) 7 in CZ <sup>7</sup> 1-2, 6 in CZ 3-4, 5 in CZ 5-7, 4 in CZ 8 Insulation levels that meet or exceed the 2004 IRC.	
Windows	ENERGY STAR <sup>®</sup> qualified windows or better (additional requirements for CZ 2 and CZ4).	
Water Heater	Gas (EF <sup>8</sup> ): 40 Gal. = 0.61 Gas Gal. = 0.57 80 Gal. = 0.53 Electric (EF): 40 Gal. = 0.93 50 Gal. = 0.92 80 Gal. = 0.89	
Lighting and Appliances	Five or more ENERGY STAR <sup>®</sup> qualified appliances, light fixtures, ceiling fans equipped with light fixtures, <u>and/or</u> ventilation fans.	
<b>Optional Measures</b>		
<b>In addition to the mandatory requirements above</b>		
<b>BOP 1 = 1 optional measure BOP 2 = 2 optional measures BOP 3 = 3 optional measures</b>		
	<b>Hot Climates (2004 IRC<sup>9</sup> Climate Zones 1,2,3)</b>	<b>Mixed and Cold Climates (2004 IRC Climate Zones 4,5,6,7,8)</b>
Option 1: HVAC <sup>10</sup> Equipment	Right Sized: ENERGY STAR <sup>®</sup> qualified A/C (14 SEER/11.5 EER <sup>11</sup> ); <u>or</u> ENERGY STAR <sup>®</sup> qualified heat pump (14 SEER/11.5 EER/8.2 HSPF).	ENERGY STAR <sup>®</sup> qualified gas furnace. (90 AFUE) <u>or</u> ENERGY STAR <sup>®</sup> qualified heat pump <u>or</u> ENERGY STAR <sup>®</sup> qualified boiler (85 AFUE <u>or</u> ENERGY STAR <sup>®</sup> qualified oil furnace (85 AFUE).
Option 2: Lighting and/or Windows	75% ENERGY STAR <sup>®</sup> Lighting.	75% ENERGY STAR <sup>®</sup> Lighting; and Window U-value <sup>12</sup> : .30/SHGC <sup>13</sup> : 0.35.
Option 3: Lighting, Windows, and/or Fan Motor	50% ENERGY STAR <sup>®</sup> Lighting; and Homes with 1 detached wall: ≤ 10% WFA <sup>14</sup> . Homes with 2 detached walls: ≤ 12% WFA. Homes with 3 detached walls: ≤ 14% WFA.	50% ENERGY STAR <sup>®</sup> Lighting; and Furnace with two-stage burner and fan motor with at least two speeds; and Homes with 1 detached wall: ≤ 10% WFA. Homes with 2 detached walls: ≤ 14% WFA.
Option 4: Ductwork	All ducts and air handling equipment located in conditioned space.	All duct and air handling equipment located in conditioned space.
1 – SEER = Seasonal Energy Efficiency Ratio 2 - A/C = Air Conditioning 3 – AFUE = Annual Fuel Utilization Efficiency 4 – HSPF = Heating Seasonal Performance Factor 5 – CFM = Cubic Feet per Minute 6 - ACH = Air Changes per Hour 7 - CZ = Climate Zone		8 – EF = Energy Efficiency 9 – IRC = International Residential Code 10 – HVAC = Heating, Ventilating and A/C 11 – EER = Energy Efficiency Ratio 12 – U-Value = thermal transmittance or conductance 13 – SHGC = Solar Heat Gain Coefficient 14 – WFA = Window to Floor Area

**Table 5  
BOP HERS Index Scores**

<b>MEEP New Construction Performance Standards</b>	
	<b>HERS Score</b>
BOP 1	81
BOP 2	78
BOP 3	75
BOP Major Renovation	79

**New Design Incentive**

MEEP is a unique program that serves a market segment that can include either residential or commercial facilities. APS considers multifamily buildings commercial facilities if they are master metered and considers them residential if the units are individually metered. The primary objective of the new construction program is to encourage builders and developers to emphasize EE in their construction practices. This will often require energy studies to estimate building performance when varying combinations of measures are incorporated in the building’s design. The APS Solutions for Business programs offer a design incentive to offset the upfront costs of commercial building energy studies. Currently this incentive is offered to multifamily project developers if the proposed facility is to be master metered but is not offered to facilities with individually metered units. The current Solutions for Business incentive will pay 50% of the study costs up to \$10,000. Because this incentive was designed to be used in very large commercial buildings, APS believes it is excessive for what would be required for the multifamily market. For this reason, APS proposes to offer a design incentive of 50% of study costs up to \$5,000 for the multifamily market. If the participant qualifies as a commercial facility, the incentive will be paid out of the Solutions for Business program budgets. If the facility qualifies as a residential facility, the incentive will be paid out of the MEEP program budget.

**8. Shade Tree Pilot Program**

**a. Existing Program Description**

APS plans to continue the Residential Shade Tree Pilot program in 2012 and will maintain the 5,000 tree distribution level. The Shade Tree program is designed to provide free shade trees to APS customers that have attended an APS Shade Tree workshop. The tree planting workshop educates customers on successful tree planting and care techniques and provides a customer specific site map indicating the ideal tree planting location for energy efficiency. Customers can qualify to receive between two (homes built after 1980) and three (homes built prior to 1980) free shade trees per residence. This program is available to residential customers in Maricopa County.

The goal of this program is to encourage customers, through education and incentives, to plant shade trees in areas near their homes to reduce home cooling needs.

**b. Proposed Program Modifications, Enhancements, and New Measures**

APS is not proposing any modifications, enhancements, or new measures for the Shade Tree Pilot.

***B. NON-RESIDENTIAL PROGRAMS***

**1. Current Programs**

The five current Non-residential EE programs are marketed under the APS Solutions for Business program name. A description of each of the Non-Residential programs follows:

**a. Large Existing Facilities Program**

The primary targets for the Non-Residential Existing Facilities program are customers who have an aggregated monthly peak demand greater than 100 kW. This program provides prescriptive incentives to owners and operators of large Non-Residential facilities for EE improvements in lighting, HVAC, motors, building envelope, and refrigeration measures. Custom incentives are also provided for EE measures not covered by the prescriptive incentives. Incentives are also provided to customers who conduct qualifying energy studies. The largest customers (electric usage  $\geq 40,000$  MWh per year) may qualify to self direct the amount they pay toward DSM costs for their own EE projects. All customers may qualify to receive APS arranged financing for their EE projects. Customers may participate in the Direct Install (Direct Install can pay up to 90% of project cost) family of measures in the areas of lighting and refrigeration for any facilities with a peak monthly demand of 400 kW and less.

**b. New Construction Program**

The Non-Residential New Construction program includes three components: 1) design assistance; 2) prescriptive measures; and 3) custom efficiency measures. Design assistance involves efforts to integrate energy-efficiency into a customer's design process to influence equipment/systems selection and specification as early in the design process as possible. Prescriptive incentives are available for EE improvements in measures such as lighting, HVAC, motors, building envelope, and refrigeration applications. Whole Building Design is a component within the New Construction custom efficiency measures that influences customers, developers, and design professionals to design, build and invest in higher performing buildings through a stepped performance incentive structure with the financial incentives becoming larger as the building performance improves. The APS Whole Building Design incentives are designed to complement the Leadership in Energy and Environmental Design ("LEED") green building certification system which was developed by the United States Green Building Council.

**c. Small Business Program**

The primary targets for the Small Business program are customers that have a maximum peak aggregated demand of 100 kW or less. This program provides prescriptive incentives to small business owners for EE improvements in lighting, HVAC, motors, building envelope, and refrigeration applications through a simple and straightforward mechanism. In addition, a customer in the Small Business program may participate in the Direct Install (Direct Install can pay up to 90% of project cost) family of measures in the areas of lighting and

refrigeration and may also qualify to receive APS arranged program financing for their EE projects. Small Business customers are also eligible to receive incentives for energy studies and custom efficiency measures.

#### **d. Schools Program**

The Schools program is designed to set aside funding for K-12 school buildings, including public schools, private schools, and charter schools. If schools fully subscribe this program budget or if they reach their incentive cap of \$100,000 per year under this program, they can participate in other Non-Residential programs. EE incentives are the same as in the Large Existing Facilities (for existing school facilities) and New Construction (for new school construction and major renovations) programs. In addition, any size school may participate in the Direct Install measure incentives and may also qualify to receive APS arranged program financing for their EE projects. In addition, schools may qualify to receive federal funds for EE projects in coming years.

#### **e. Energy Information Services Program**

The Energy Information Services (“EIS”) program provides 15-minute interval electric usage data to large Non-Residential customers through a web-based energy information tool. This tool provides users with information that can be used to improve or monitor energy usage patterns, reduce energy use, reduce demands during on-peak periods, and to better manage their overall energy operations.

## **2. Proposed New Non-Residential Measures**

To help APS achieve energy savings for 2012, the Non-Residential programs will aggressively promote the existing EE measures through strategic marketing and outreach efforts and will add new prescriptive measures in the area of Energy Management (“EMS”) and light emitting diode (“LED”) lighting. All suggested measures have a benefit/cost ratio greater than 1.0.

#### **a. Energy Management Systems**

In the past, APS customers installing EMS were eligible to receive APS Solutions for Business incentives through the custom measures available within the program. With the addition of the new prescriptive EMS measures, APS offers a more streamlined incentive application process for its customers and trade allies. Additionally the EMS prescriptive measures help promote and market the technology as an approved EE solution that will ultimately increase customer participation.

EMS can help save electricity by providing a centralized control of HVAC systems and lighting circuits.

- EMS control of HVAC systems are typically applied to buildings cooled through a central chilled water plant. The HVAC controls provide temperature setback (raise thermostat set-points) during unoccupied periods. Raising thermostat set-points decreases operation of HVAC equipment, which ultimately decreases energy use.
- In addition to temperature setback, HVAC controls provide the ability to optimize the scheduling of equipment, ensuring HVAC equipment operates only when needed.

- EMS provides scheduling for lighting circuits to eliminate unneeded lighting loads during unoccupied periods.

Each of these control systems yield energy savings and are cost beneficial.

	HVAC Control Pneumatic Baseline	HVAC Control Digital Baseline	Lighting Control
Savings versus Standard	21%	16%	25%
Customer Incentive	\$0.35/sq Ft	\$0.25/sq Ft	\$0.10/sq Ft
Customer Payback	4.5 years	4.6 years	2.5 years
Societal Benefit to Cost	1.1	1.1	1.9

### b. LED Lighting

A new energy efficient lighting alternative is LED technology. In the past, the APS Solutions for Business program provided incentives for LED exit signs and green and red traffic signal lights. In 2012, APS proposes to add a number of additional LED technologies to the Solutions for Business schedule of prescriptive incentives

**Pedestrian Crossing Lights:** Traffic control at street intersections has traditionally used incandescent lighting technology. LED traffic control lights provide substantial energy and maintenance savings and last four to five times longer than incandescent lights. Last year the program added energy efficient LED red and green traffic light incentives. Yellow caution lights did not prove to be cost beneficial due to low run hours. This year, APS proposes to include pedestrian crossing lights to the program.

**LED Replacement of Incandescent Bulbs:** Replacing standard incandescent bulbs with LED lamps yields significant energy savings. In fact, these savings are typically greater than incandescent to CFL conversions (85% for LED conversions versus 75% for CFL conversions). In addition to a longer life, LED lamps emit less heat, which translates to reduced cooling load benefits. This proposed new measure will have two incentive levels to accommodate situations where there is or is not a reflector within the lamp. Both scenarios yield significant savings and are cost beneficial.

**LED Replacement of MR-16 Halogen Lamps:** Multifaceted reflector ("MR")-16 halogen lamps are small bulbs, two inches in diameter. They are typically found in jewelry and retail display cases, in track lighting, or other accent lighting applications. Until recently, there was no satisfactory energy efficient alternative to these lamps. High efficient LED lamps can replace the old halogen technology and yield significant savings through lower power consumption and reduced cooling loads.

**Refrigeration Case Strip Lighting:** Traditional refrigeration-case strip lighting, as found in grocery and convenience stores, typically consist of T12 or T8 linear fluorescent lamps. LED lamps are approximately 65% to 80% more efficient than existing lighting, yielding significant energy savings. In addition LED lamps emit less heat, resulting in a reduced cooling load of approximately 25% within the refrigerated case. LED lamps also have a longer expected life, yielding replacement cost savings. This proposed measure will have

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two incentive levels for cases with and without motion sensors. Both scenarios yield savings and are cost beneficial.

	Pedestrian <u>Crossing</u>	Incandescent Replacement		MR 16 <u>Replacement</u>	Refrigeration Strip Lighting	
		<u>Without Reflector</u>	<u>With Reflector</u>		<u>W/O Motion Sensors</u>	<u>With Motion Sensors</u>
Savings versus Standard	93%	85%	80%	87%	70%	79%
Customer Incentive	\$25/Signal	\$10/Lamp	\$15/Lamp	\$10/Lamp	\$25/Lamp	\$30/Lamp
Customer Payback	3.9 years	0.8 years	1.4 years	2.4 years	3.1 years	2.8/ years
Societal Benefit to Cost	1.5	2.3	1.6	1.6	1.2	1.2

### ***C. OTHER NEW EE INITIATIVES***

#### **1. Codes & Standards Support Project**

APS is requesting budget approval for a new Codes & Standards Support project in 2012.

##### **a. Project Description**

The Energy Codes & Standards project (“ECSP”) will strive to encourage energy savings by adhering to local building energy codes and standards in various cities and towns throughout APS’s service area. The project will employ a variety of tactics aimed at: 1) improving levels of compliance with existing building energy codes and standards; and 2) supporting and informing periodic updates to energy codes and standards as warranted by changing market conditions. Specific ECSP activities will depend on the market needs expressed by local code officials and are likely to include a combination of efforts to:

- Better prepare code officials and building professionals to adhere to existing standards;
- Provide data and market insight to document the specific local benefits of code & standards enforcement, and inform energy code changes over time;
- Ensure utility incentive programs align well with local energy codes & standards;
- Provide codes & standards training to Non-Residential Trade Allies as part of the Solutions for Business training series;
- Collaborate with relevant stakeholders to build a more robust community working to advance strong and effective building energy codes and standards across the local jurisdictions within APS’s service territory; and
- Advocate for energy code and standards updates over time.

##### **b. Project Objectives and Rationale**

The objective of the ECSP is to increase energy savings in new construction and renovated buildings in both the residential and commercial sectors through efforts to: 1) improve levels of compliance with existing building energy codes & standards; and 2) support and inform periodic energy code & standards updates as warranted by changing market conditions.

**c. Delivery and Marketing Strategy**

Project activities will be selected based on research into effective approaches implemented in other jurisdictions, as well as feedback from local code officials, and municipal leaders in locations that currently lack building codes and standards. Activities might include: participation in energy code adoption committees, technical support (calculations, research, and information) to code adoption committees, public testimony in support of code and standards adoption before city councils, ensuring that ongoing DSM programs align well with energy code and standards requirements, and funding for local code agencies to enforce and improve energy code and standards over time.

Outreach and education strategy will likely include website promotion, direct outreach to local code officials and networks of municipal leaders who are members of committees conducting activities related to building code & standards enhancement. Training will also be offered to APS Solutions for Business Trade Allies.

**d. Measurement, Evaluation, and Research Plan**

All evaluation activities will be conducted by Navigant Consulting, APS's MER contractor. An integrated evaluation approach will be undertaken.

The overall goal of the impact evaluation will be to develop savings methodologies for estimating savings from more stringent code and standards adoption and increased code and standards compliance rates in both the residential and commercial sectors. Process related evaluation activities will review utility code promotion implementation strategies and seek to identify ways to improve program delivery and market adoption of more aggressive residential and commercial codes.

**e. Project Costs and Benefits**

APS is proposing an overall budget of \$100,000 in 2012, for the ECSP that will be allocated on an as needed basis, between the Residential and Non-Residential programs.

**2. Integrated Energy Pilot Project**

APS proposes a project to pilot new delivery methods for better integration of EE, RE, DR and smart grid customer offerings. This project is being proposed in compliance with Commission Decision No. 72060 (January 6, 2011). A project description of the proposed Pilot is included in Attachment 2. It will also be supplemented with information in APS's 2012 Renewable Energy Implementation Plan due to be filed on July 1, 2011.

**3. Implications of EE Rules Becoming Effective**

The EE Rules became effective on January 1, 2011. Pursuant to R14-2-2409(D) an affected utility may request within its implementation plan that these reporting requirements supersede specific existing DSM reporting requirements. In order to avoid multiple requirements for similar information or information no longer deemed relevant results in inefficient reporting processes. APS is therefore making the following requests:

- APS requests clarification that the EE Rules requirement (R14-2-2409) supersedes similar requirements of R14-2-213, which requires APS to file an updated Energy Conservation Plan.



- APS requests clarification that the EE Rules reporting requirements (R14-2-2409) supersede similar DSM semi-annual reporting requirements contained in other Commission Orders outlined in the table below.

**Table 6**  
**Commission Decisions Containing DSM Reporting Requirements**

<b>Decision No.</b>	<b>Decision Date</b>	<b>Application Type</b>	<b>Reporting Requirement</b>
59601	December 5, 1995	Request for a Rate Reduction	File detailed Semi-Annual Reports with Staff
67744	April 7, 2005	Rate Case Settlement Agreement	File mid-year and year-end reports on each DSM program
68648	April 12, 2006	DSM Portfolio Plan – Residential and MER components	Specific changes and additions to the DSM Semi-Annual Reports
70637	December 11, 2008	13- Month DSM Filing – Non-Residential	Specific changes and additions to the DSM Semi-Annual Reports
71444	December 23, 2009	2010 EE Implementation Plan	Specific changes and additions to the DSM Semi-Annual Reports
71866	September 1, 2010	2010 EE Implementation Plan - Residential EE Financing Program	Report on the REEF program including specific loan information in Semi-Annual Reports
72032	December 10, 2010	2011 Implementation Plan - CFLs	Include Status of all programs in Semi-Annual Reports or succeeding form of reports
72060	January 6, 2011	2011 Implementation Plan – Multi-Family, Shade Tree,	Include detailed budget information Semi-Annual Reports or succeeding form
72088	January 20, 2011	2011 Implementation Plan – Non-Residential/Bid for Efficiency	Include MER information in Semi-Annual Reports or succeeding form of reports. Report status of Non - Residential programs

**4. Website Enhancement**

At the Open Meeting held on November 23, 2010, APS committed to provide additional program-related information on the aps.com website that would make it easier for customers

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and contractors to monitor the status of the programs and to obtain information about similar programs across utilities.

APS currently has information about its DSM programs available to customers on the [aps.com](http://aps.com) website. This information includes: the list of programs available, a description of each program, the amount of incentives available for each program, how to participate in the program, and the list of qualified contractors eligible to offer the incentives. Based on the discussion at the Commission, there was a desire to have information added to the program pages on the website to include: a description of the Arizona Energy Efficiency Standard and what APS is doing to meet the Standard, information on available federal and state tax credits for EE projects, the annual budget for EE programs, and the amount of money spent on these programs.

APS plans to make this additional information available on the modified program web pages by the end of 2011 in conjunction with an ongoing effort to re-design the entire [aps.com](http://aps.com) website. Information on EE program budgets, spending levels and savings achieved will be updated twice per year in conjunction with APS's Semi-Annual Reports to the Commission. APS also plans to investigate the possibility of providing links on its website to EE programs offered by Tucson Electric Power, Unisource Electric, Unisource Gas, and Southwest Gas. This will make it easier for customers and contractors to compare information about similar programs from one utility to another.

### **III. Demand Response and Load Management Programs**

APS is seeking continued funding of the APS Peak Solutions<sup>®</sup> program, Home Energy Information Pilot and marketing/measurement of DR rates. Furthermore, APS is seeking recovery of certain costs for the Electric Vehicle Readiness Demonstration Project (the “ev-Ready Project”)<sup>10</sup>.

APS plans to meet 10% of the 2012 DSM EE Standard kWh savings with the following DR programs and rates: APS Peak Solutions<sup>®</sup>, Residential Super Peak rate, and Time of Use rates. Due to the availability uncertainty of the following DR programs and rates in 2012, kWh savings will not be considered in the DSM EE calculation for the Critical Peak Pricing rate, Interruptible rate, Peak Time Rebate program, and Home Energy Information Pilot.

#### ***A. APS PEAK SOLUTIONS<sup>®</sup> PROGRAM***

The APS Peak Solutions<sup>®</sup> program was outlined in APS’s Commercial and Industrial Load Management program application. APS Peak Solutions<sup>®</sup> is a Commercial and Industrial DR program for APS’s Yuma and Phoenix metropolitan customers utilizing direct load control and manual load reduction.

The program began on June 1, 2010, and is available for the summer months (June through September) between 12:00 noon and 8:00 p.m. daily (Sunday – Saturday). Customers will have an option to be notified of an event either ten minutes or two hours prior to starting the Peak Solutions<sup>®</sup> event. The customer is limited to being controlled for 80 event-hours during the season with four to six hours of testing. The program anticipates a 2012 weekday load reduction of approximately 100 MW at the meter.

#### ***B. SUPER PEAK RATE***

The residential Super-Peak Pricing (“SPP”) rate went into effect on January 1, 2010.<sup>11</sup> The SPP periods are pre-determined and set forth in the rate schedule rather than communicated to the customer on a day-ahead basis as with Critical Peak Pricing. Participating customers will pay higher charges during the “Super-Peak” periods, but will pay lower charges during off-peak periods. The “Super-Peak” period is 3:00 p.m. to 6:00 p.m., Monday thru Friday during June, July, and August (excluding holidays). APS estimates the 2012 SPP load reduction to be approximately 0.2 MW.

#### ***C. TIME OF USE RATES***

Time of Use (“TOU”) rates are designed (1) to reflect the time variation in the cost of producing electricity to more accurately match those costs with the service being provided to

<sup>10</sup> Application is being considered in a separate docket (Docket No. E-01345A-10-0123).

<sup>11</sup> Approved by the Commission in Decision No. 71448 (December 30, 2009).

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the customer, thereby encouraging efficient use of energy and (2) to encourage customers to reduce consumption during peak hours or to shift energy usage to off-peak periods.

APS currently offers four residential TOU rates in addition to the Super Peak rate discussed above. The “Series 1” rates, which have on-peak hours from 9:00 a.m. to 9:00 p.m., have been offered since 1982. In July 2006, APS introduced the “Series 2” TOU rates with a shorter on-peak period (12:00 noon to 7:00 p.m.) which offers five additional off-peak hours. The Company’s objective is to emphasize the Series 2 rates because they offer customers a better opportunity and incentive to reduce usage during peak hours. Toward that end, the Series 1 rates were frozen to new customers on January 1, 2010.

Furthermore, APS has nine business TOU rates: a) E-32 extra small, small, medium and large usage rates; b) two school medium and large usage rates; c) E-35 extra large usage rate; d) E-20 for houses of worship; and e) E-221-8T rate for water pumping customers. Each of these rates provides peak and off-peak charges for both energy and demand.

APS estimates the 2012 TOU load reduction to be approximately 109 MW from the residential rates only.

### ***D. CRITICAL PEAK PRICING RATES***

The Critical Peak Pricing (“CPP”)<sup>12</sup> rates for APS general service and residential customers went into effect on January 1, 2010 and will last through January 2012. APS markets these rates to our customers as Peak Event Pricing.

### ***E. INTERRUPTIBLE RATE and PEAK TIME REBATE PROGRAM***

APS is planning to file an Interruptible Rate and Peak Time Rebate program in the 2011 General rate case filing. Therefore, the specific details of these two items will be discussed in future filings.

### ***F. HOME ENERGY INFORMATION PILOT PROGRAM***

On March 3, 2011, the Commission approved the Company’s Home Energy Information (“HEI”) Pilot.<sup>13</sup> APS’s HEI Pilot is designed to test available home area network technologies and determine communication devices, DR strategies, and the mix of “smart” home applications that can be most effectively employed in a residential setting. In addition, the HEI Pilot will assess customer acceptance, value, and frequency of usage of in-home energy displays or other communication devices designed to assist customers in managing their daily energy usage. The Pilot is planned to be conducted over two summer seasons (2011 and 2012) allowing the Company time to choose technology vendors, solicit residential participants, install devices and communications systems, and determine measurement and evaluation techniques. If APS is unable to complete the required integration efforts prior to the end of the third quarter 2011, the Company may extend the

<sup>12</sup> Approved by the Commission in Decision No. 71448 (December 30, 2009).

<sup>13</sup> Decision No. 72214 (March 3, 2011).

Pilot by one year (2013) to ensure ample customer data exists to make solid conclusions on the Pilot. If such an extension is necessary APS will inform the Commission of any budget impact.

APS is deploying the following five technology assessment programs as part of the HEI Pilot: 1) Critical Peak Pricing with Customer Control Device, 2) In-Home Energy Information Display, 3) Direct Load Control, 4) “Smart” Communication devices and 5) Pre-Pay Energy Service.

The data collected and analyzed in the HEI Pilot will allow APS to better design and implement future DR, EE, and smart grid applications. The HEI Pilot was part of a broader plan to increase APS’s DR portfolio by at least 250 MW.

## ***G. ELECTRIC VEHICLE READINESS DEMONSTRATION PROJECT***

On September 30, 2010, APS filed its proposed ev-Ready Project.<sup>14</sup> This effort will provide participating customers with several options designed to minimize lifestyle impacts and concerns that may arise due to the purchase of an Electric Vehicle (“EV”). The ev-Ready Project will also allow APS to streamline and coordinate the EV installation and integration process for the participating customer, which will in turn allow the Company to anticipate and minimize any localized distribution system impacts related to the introduction of EVs. The ev-Ready Project will provide an opportunity for APS to leverage the ongoing installation of smart grid technologies by introducing DR programs aimed specifically at managing the sharp increase in individual residential customer peak load experienced as a result of at-home EV charging. Components of the Project include both a residential and commercial/public program (see the ev-Ready Project filing for further details).

### **1. Residential Program**

- Option 1 – incentive towards purchase and installation of a home charging station
- Option 2 – installation of an APS-owned home charging station for a fixed monthly fee
- Super Off Peak TOU “whole house” rate for EV owners (11:00 p.m. – 5:00 a.m.)

### **2. Commercial/Public Program**

- Option 1 – APS-owned charging station behind the host site’s meter for a fixed monthly fee
- Option 2 – Separately metered, publicly available APS-owned chargers for use via a Point-of-Sale rate
- Vehicle-to-Building and Vehicle-to-Grid Testing
- Smart Charging Program
- Remote utility control of charging stations to limit/curtail charging at certain peak times on the system
- Customer Outreach & Education

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<sup>14</sup> Docket E-01345A-10-0123.

## **IV. Budget**

The budget is based on the 2012 EE Rules standard, which results in a DSM savings goal of 533,000 MWh. The budget projections are also based on recent experience in the APS market place, expected customer program participation growth, contractors' experience in similar markets, and Commission approval of all program modifications in this 2012 Plan.

### ***A. ENERGY EFFICIENCY BUDGET***

Table 7 shows a summary of the anticipated 2012 EE spending by program. This budget represents the estimated spending required to meet the 2012 EE savings goal of 480,000 MWh. These projections are based on APS's best estimates of market penetration for each program measure. To the extent that certain programs achieve greater or less success and market penetration than others, it is important to be able to adjust budgets between measures accordingly to maximize the effectiveness of the overall portfolio. Table 7 also includes the budget for program MER, and the estimated program performance incentive for 2012.

Large customers with annual usage greater than 40,000 MWh continue to qualify to self direct their funds for their own EE projects. To date, one customer has applied for Self Direction, and APS anticipates that same customer will apply in 2012. This budget assumes this one customer will continue to self direct its funds in 2012.

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**Table 7**  
**APS Energy Efficiency Programs**  
**2012 Estimated Budget**  
**(Dollars)**

Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Administration	Financing	Program Total Cost
<b>Residential</b>								
Consumer Products	\$4,126,000	\$2,000	\$2,000	\$2,150,000	\$850,000	\$475,000	\$ 0	\$7,605,000
Existing Homes	\$10,191,000	\$434,000	\$355,000	\$2,564,000	\$1,058,000	\$772,000	\$255,000	\$15,629,000
New Construction	\$2,225,000	\$120,000	\$15,000	\$295,000	\$550,000	\$403,000	\$ 0	\$3,608,000
Appliance Recycling	\$300,000	\$ 0	\$21,000	\$889,000	\$359,000	\$165,000	\$ 0	\$1,734,000
Low Income	\$2,594,000	\$10,000	\$20,000	\$50,000	\$30,000	\$75,000	\$ 0	\$2,779,000
Conservation Behavior	\$ 0	\$6,000	\$10,000	\$952,000	\$ 0	\$85,000	\$ 0	\$1,053,000
Multi-Family	\$822,000	\$5,000	\$15,000	\$808,000	\$45,000	\$163,000	\$ 0	\$1,858,000
Shade Trees	\$50,000	\$40,000	\$13,000	\$237,000	\$65,000	\$42,000	\$ 0	\$447,000
<b>Totals for Residential</b>	<b>\$20,308,000</b>	<b>\$617,000</b>	<b>\$451,000</b>	<b>\$7,945,000</b>	<b>\$2,957,000</b>	<b>\$2,180,000</b>	<b>\$255,000</b>	<b>\$34,713,000</b>
<b>Non-Residential</b>								
Large Existing	\$11,803,000	\$485,000	\$ 134,000	\$4,195,000	\$1,017,000	\$420,000	\$ 70,000	\$18,124,000
New Construction	\$2,065,000	\$122,000	\$ 33,000	\$902,000	\$203,000	\$173,000	\$ 0	\$3,498,000
Small Business	\$3,355,000	\$111,000	\$ 23,000	\$744,000	\$229,000	\$182,000	\$10,000	\$4,654,000
Schools	\$2,294,000	\$120,000	\$ 25,000	\$842,000	\$246,000	\$87,000	\$ 0	\$3,614,000
Energy Info. Services	\$29,000	\$10,000	\$ 5,000	\$20,000	\$10,000	\$4,000	\$ 0	\$78,000
<b>Totals for Non-Residential</b>	<b>\$19,546,000</b>	<b>\$ 848,000</b>	<b>\$ 220,000</b>	<b>\$6,703,000</b>	<b>\$1,705,000</b>	<b>\$866,000</b>	<b>\$ 80,000</b>	<b>\$29,968,000</b>
<b>Segment Totals</b>	<b>\$39,854,000</b>	<b>\$1,465,000</b>	<b>\$671,000</b>	<b>\$14,648,000</b>	<b>\$4,662,000</b>	<b>\$3,046,000</b>	<b>\$335,000</b>	<b>\$64,681,000</b>
<b>% of Cost By Category</b>	<b>61.6%</b>	<b>2.3%</b>	<b>1.0%</b>	<b>22.6%</b>	<b>7.2%</b>	<b>4.7%</b>	<b>0.5%</b>	

<b>Program Costs</b>	<b>\$64,681,000</b>
<b>Codes and Standards</b>	<b>\$100,000</b>
<b>EE/RE Integrated Pilot</b>	<b>\$1,305,000</b>
<b>Measurement, Evaluation &amp; Research</b>	<b>\$2,500,000</b>
<b>Performance Incentive</b>	<b>\$9,550,000</b>
<b>TOTAL</b>	<b>\$78,136,000</b>

*This EE budget is an estimate of the spending needed to meet the 2012 energy efficiency portion of APS's annual MWh savings goal. If this target is not met or is exceeded, then the spending and performance incentive will vary accordingly. Additionally, even if the target is met, the cost per kWh of savings may vary. For these reasons, the actual spending in 2012 will vary from the point estimate provided.*

A total of 65% of the projected program costs will benefit customers directly in the form of incentives, training, technical assistance, or education. The other 35% of program costs is earmarked for program implementation, marketing, and administration expenses. These other expenses are necessary to deliver the EE programs to customers.

## ***B. BUDGET SHIFTING***

APS has provided its best estimates of the required budget amounts for each program. Flexibility in managing the DSM programs has allowed APS to maximize program effectiveness by reallocating budget funds from a lower performing program to one that is experiencing more customer participation. As the energy savings requirements increase each year, APS believes that such flexibility will be even more important.

APS has seen some significant changes in the market in the last few years, such as the dramatic slowdown in home building to the increase in EE activity in the commercial sector from the Federal Government grants. These types of market changes make it difficult to predict which of the APS programs will exceed the budget expectations and those that will be under budget. For example, in 2010, the AC Rebate portion of the Existing Homes program experienced significant growth despite a down economy. That growth necessitated a filing with the Commission for an increase to the budget which was approved by Decision No. 71960, November 8, 2010. At the same time the Non-Residential New Construction program was significantly under budget. APS took advantage of the ability to shift program funds within the residential customer class to mitigate the amount of additional Existing Homes budget that was required. The need to file a request for additional funding could have been eliminated if APS had the ability to shift approved budget funds from a Non-Residential program to a Residential program.

APS is requesting the ability to shift EE funds between the Residential and Non-Residential classes. To ensure that the approved balance of funding between the customer classes remains largely intact, APS is also proposing to limit the total amount that could be shifted between customer classes to 10% of that class's total annual budget. No budget funding will be shifted out of the Low Income or Schools programs.

## ***C. DEMAND RESPONSE BUDGET***

Table 8 shows a summary roll-up of the anticipated 2012 DR spending by program or initiative. The budget projections are based on an aggregation of individual estimates for the various DR programs.



**Table 8  
2012 Estimated Budget for  
APS Demand Response Programs/Initiatives  
(Dollars)**

Program /Initiatives	2012
APS Peak Solutions <sup>(1)</sup>	\$8,665,000
Demand Response Marketing and MER of Rate Options <sup>(2)</sup>	\$200,000
Home Energy Information Pilot Program <sup>(3)</sup>	\$899,000
ev-Ready Project <sup>(4)</sup>	\$1,648,000
<b>Total</b>	<b>\$11,412,000</b>

**Notes:**

1. The 2012 APS Peak Solutions<sup>®</sup> costs include program administration, Comverge contract capacity and energy payments, and customer metering.
2. Demand Response Marketing and Measurement, Evaluation and Research (“MER”) of rate options will include Time of Use rates (ET-2, ECT-2, GS-Schools and Super Peak) and may include Peak Event Pricing, Peak Time Rebate and Interruptible rate that are currently not collected through rates.
3. This represents the 2012 carrying costs for the HEI Pilot.
4. The estimated budget for the ev-Ready Project is \$5,000,000. \$1,648,000 is the estimated total O&M expenses and associated carrying costs for capital expenditures.

***D. TOTAL DSM BUDGET***

In summary, the total DSM budget for implementation of programs in 2012 is as follows:

Energy Efficiency Programs	\$78,136,000
Demand Response Programs	<u>\$11,412,000</u>
TOTAL DSM Budget for 2012	\$89,548,000

***E. DEMAND SIDE MANAGEMENT ADJUSTMENT CHARGE***

The DSMAC mechanism structure agreed to by the parties in the 2009 Settlement allows for more concurrent recovery of DSM program costs and incentives than was allowed previously. Because of the transition from a lagging DSMAC to a forward-looking DSMAC in 2009, the old DSMAC recovered costs through 2008 and the new DSMAC began recovering 2010 costs leaving 2009 costs unrecovered. Decision No. 71460 (January 26,

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2010) authorized APS to recover one-third of all unrecovered 2009 costs each year over the three years of 2010, 2011, and 2012 without interest.

Because 2012 will be the third of three transition years to the new forward-looking DSMAC, the DSMAC charges for 2012 will recover the projected costs for 2012 (less \$10 million recovered in base rates), the final third of 2009 costs, and the true-up of 2010 costs. There is no credit taken for gains on the sale of APS property this year.

Decision No. 71104 (June 5, 2009) authorized the projected costs from the approved Commercial and Industrial Customer Load Management DR program to also be recovered through the DSMAC beginning in 2010. In addition, the Company is requesting Commission approval for recovery of incremental costs for marketing, customer acquisition, and MER for DR rates, which includes time-of-use rates, through the DSMAC.

Attachment 3 contains the schedules supporting APS's proposed DSMAC rates and the corresponding customer charges necessary to recover the projected EE and DR costs.

The estimated 2012 DSMAC charges of \$0.003098 per kWh and \$1.178 per kW are comparable to the present charges of \$0.002717 per kWh and \$0.9685 per kW. The bill impact of the DSMAC increase to the typical residential customer using 1,100 kWh per month is anticipated to be 42 cents per month of which 37 cents is for EE and five cents is for DR.

Table 9 is a summary of the DSM program costs used to calculate APS's proposed 2012 DSMAC. With Commission approval, the 2012 DSMAC will be effective with billing cycle 1 of March 2012.

**Table 9**  
**Estimated DSM Program Costs for 2012 DSMAC**

<b>2012 DSM Budget</b>	
Energy Efficiency Program Costs	\$64,681,000
Codes & Standards	\$100,000
EE/RE Integrated Pilot	\$1,305,000
Measurement Evaluation and Research	<u>\$2,500,000</u>
Total Energy Efficiency (before incentive)	\$68,586,000
Performance Incentive	<u>\$9,550,000</u>
Total Energy Efficiency (with incentive)	\$78,136,000
Demand Response	<u>\$11,412,000</u>
Total 2012 DSM Budget	\$89,548,000

<b>2012 Revenue Requirements for DSMAC</b>	
Total 2012 DSM Budget	\$89,548,000
2009 Budget Carryover to 2012	\$4,875,000
Amount Recovered in Base Rates	<u>(\$10,000,000)</u>
Subtotal	\$84,423,000
Credit for Gains from Asset Sales	\$0
Recovery of True-up Balance	<u>429,000</u>
Total Revenue Requirement for DSMAC - 2012	\$84,852,000

## V. DSM Energy Savings and Benefits

The DSM energy savings and other benefits result from both EE and DR programs.

### A. ENERGY EFFICIENCY PROGRAMS

Under the terms of the 2009 Settlement,<sup>15</sup> if higher goals are adopted by the Commission for 2012 in another docket, then those higher goals will supersede the goals in the 2009 Settlement, as will any higher performance incentives. In 2012, the EE Rule is a higher standard than the 2009 Settlement goal; hence, the EE Rules will determine the EE savings goal for APS in 2012.

In 2012 the EE Rules standard requires annual energy savings to be 1.75% of the retail energy sales in the prior calendar year. The EE Rules standard is higher than the 1.5% required by the 2009 Settlement; thus the EE Rule calculation is used in the 2012 Plan. The calculation for APS's estimated 2012 energy savings goal is provided in Table 10 below:

**Table 10**  
**2012 Estimated Energy Saving Goal**  
**(Annual MWh)**

Projected Retail Sales w/losses for 2011	30,474,000 MWh
DSM Goal as a Percent of Retail Sales in Prior Year	1.75%
DSM Goal as required MWh savings	533,000 MWh

Note: Projected Retail Sales based on 2010 Quarter 2 Long-Range Forecast, including 7.0% losses.

The savings goal is estimated at 533,000 MWh based on the current forecast of retail sales and is rounded to the nearest 1,000 MWh. The actual goal to be achieved will be different because it will be based on the actual measurement of retail sales for 2011, which can only be determined once the year is over.

The Company has projected the estimated energy savings, costs and net benefits associated with the EE programs. For the analysis of net program benefits, the Company uses the utility system avoided cost savings (including capacity value, fuel and operations/maintenance savings, and transmission and distribution savings) that will result from the expected lifetime energy savings and peak demand reductions generated by each EE program. These base avoided costs are consistent with the values that were used in the 2011 Plan. However, per Decision No. 72032 (December 10, 2010), APS monetized externalities which are included in the avoided costs in this 2012 Plan.

<sup>15</sup> 1.5% of total current year energy resources needed to meet retail load.

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Table 11 provides details of the expected annual and lifetime energy savings and peak demand savings from each EE program and a summary of the net benefits generated for 2012. These are in addition to energy savings, costs and net benefits associated with APS DSM activities undertaken during the 2005 through 2011 timeframe, which are reported in APS's Semi-Annual DSM Report filings. The lifetime energy savings are the estimated savings that will result over the expected lifetime of all program measures installed in 2012. It is anticipated that over the expected lifetime of all 2012 measures, the portfolio will produce net benefits of \$194.6 million, with a total societal benefit/cost ratio of 2.58 (societal benefits / societal costs = \$318.1 million / \$123.5 million).

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**Table 11**  
**Energy Efficiency**  
**Electric Savings Benefits<sup>1</sup>**  
**2012 Programs**

	Capacity Savings MW	Annual MWh Savings	Lifetime <sup>2</sup> MWh Savings	Societal Benefits	Societal Costs	Net Benefits
<b>Residential</b>						
Consumer Products	13.4	135,000	731,000	\$37,056,000	\$8,161,000	\$28,895,000
Existing Homes	21.4	34,000	365,000	\$36,020,000	\$29,289,000	\$6,731,000
New Construction	6.0	11,000	219,000	\$21,619,000	\$9,570,000	\$12,049,000
Appliance Recycling	2.2	15,000	91,000	\$4,804,000	\$1,426,000	\$3,378,000
Low Income <sup>3</sup>	0.3	2,000	35,000	\$2,527,000	\$2,527,000	\$ 0
Conservation Behavior	4.3	31,000	31,000	\$1,240,000	\$1,048,000	\$192,000
Multi-Family	0.9	6,000	52,000	\$2,959,000	\$1,929,000	\$1,030,000
Shade Trees	0.5	1,000	20,000	\$2,102,000	\$980,000	\$1,122,000
<b>Totals for Residential</b>	<b>48.9</b>	<b>235,000</b>	<b>1,544,000</b>	<b>\$108,327,000</b>	<b>\$54,930,000</b>	<b>\$53,397,000</b>
<b>Non-Residential</b>						
Large Existing Facilities	21.0	152,000	2,046,000	\$ 120,958,000	\$ 35,329,000	\$ 85,629,000
New Construction	3.9	27,000	410,000	\$ 25,109,000	\$ 6,706,000	\$ 18,403,000
Small Business	7.2	32,000	521,000	\$ 35,741,000	\$ 5,756,000	\$ 29,985,000
Schools	4.4	33,000	464,000	\$ 27,316,000	\$ 7,235,000	\$ 20,081,000
Energy Information System	0.1	1,000	10,000	\$ 645,000	\$ 103,000	\$ 542,000
<b>Totals for Non-Residential</b>	<b>36.6</b>	<b>245,000</b>	<b>3,451,000</b>	<b>\$209,769,000</b>	<b>\$55,129,000</b>	<b>\$154,640,000</b>
<b>Subtotal</b>	<b>85.5</b>	<b>480,000</b>	<b>4,995,000</b>	<b>\$318,096,000</b>	<b>\$110,059,000</b>	<b>\$208,037,000</b>
Codes and Standards					\$100,000	\$(100,000)
EE/RE Integrated Pilot					\$1,305,000	\$(1,305,000)
Measurement, Evaluation & Research					\$2,500,000	\$(2,500,000)
Performance Incentive					\$9,550,000	\$(9,550,000)
<b>Total</b>	<b>85.5</b>	<b>480,000</b>	<b>4,995,000</b>	<b>\$318,096,000</b>	<b>\$123,514,000</b>	<b>\$194,581,000</b>
<p>1. All saving values are net of free riders and include system line losses.                  2. Refers to savings over the expected lifetime of all program measures.                  3. Program costs include weatherization and bill assistance. Societal Costs do not include Bill Assistance because it does not contribute to electric savings. Consistent with Commission Staff's analysis in Decision No. 68647, the societal benefits of the Low Income program are equal to the societal costs.</p>						

**Avoided Cost Scenarios used in this 2012 Plan**

As required in Decision No. 72032 (December 10, 2010) APS will “work with stakeholders to develop appropriate metrics and monetize costs for water, SO<sub>x</sub>, PM<sub>10</sub>, and NO<sub>x</sub> emissions savings as part of the societal costs test as supplement to its 2012 Energy Efficiency Implementation Plan no later than July 1, 2011.”

In compliance with the above Decision, APS held a stakeholder meeting on February 24, 2011, to present and discuss ideas and concepts related to the monetization of externalities as listed in Decision No. 72032. In general, all stakeholders supported the methodology APS described to monetize water, SO<sub>x</sub>, PM<sub>10</sub>, and NO<sub>x</sub> emissions. Therefore, APS monetized these emissions and included them in various avoided costs scenarios that were utilized in this 2012 Plan. Although not required in Decision No. 72032, PM<sub>2.5</sub> was also discussed, and studies were cited with widely varying externality values depending on the source of the data and assumptions used.

The avoided cost scenarios used in this 2012 Plan are:

- With carbon, water, SO<sub>x</sub>, PM<sub>10</sub>, and NO<sub>x</sub> (Table 11)
- Without carbon, water, SO<sub>x</sub>, PM<sub>10</sub>, and NO<sub>x</sub> (per ACC Staff's request)

The avoided cost scenario without carbon, water, SO<sub>x</sub>, PM<sub>10</sub>, and NO<sub>x</sub> would result in net benefits for APS's DSM portfolio of approximately \$139 million which is \$56 million lower than that shown in Table 11, when these monetized emissions are removed from avoided costs. There is no effect on APS's DSM performance incentive between these two scenarios as both are capped at program spending.

APS utilized the avoided cost scenario without externalities to screen all new measures that are submitted for approval in this 2012 Plan. This represents a conservative approach to valuing new measures in the societal cost test (SCT).

**Reporting Energy Efficiency Savings**

APS has reported both gross and net MWh savings in the Company's DSM Semi-Annual Reports since 2008. Gross savings represent all of the energy savings resulting from actions taken through the Company's EE programs, regardless of whether or not the programs actually influenced those actions. Gross savings, however, does not count savings from actions taken outside of the programs that were influenced by the programs. By contrast, net savings represent only those savings that were influenced by the programs, whether the actions were taken through the programs or not. Net savings adjusts for the impacts from free riders, spillover, and market influence factors. The ratio of net savings to gross savings is defined as the net-to-gross ratio.

In this filing, APS is assuming a net-to-gross ratio of 1.0 for all programs and measures. This assumption is based on extensive research conducted by Navigant Consulting, APS's independent program evaluation contractor, in which Navigant found that some programs have a net-to-gross ratio above 1.0 (i.e., where spillover and market influence factors have a larger impact than free riders) while other programs had a net-to-gross ratio less than 1.0 (i.e., where free riders have a larger impact than spillover and market influence factors). Across the entire portfolio of programs for which all components of net savings were

researched and estimated, the various program net-to-gross ratios were largely offsetting producing an overall net-to-gross ratio very near 1.0. In other words, using a net-to-gross ratio of 1.0 for the entire portfolio supports the notion that, in the aggregate for APS's DSM portfolio, free-ridership is at least off-set by spillover and market effects. Therefore, the net-to-gross ratio will be set at 1.0 for all programs and measures, and savings will be reported this way in 2012.

**B. DEMAND RESPONSE PROGRAMS**

Pursuant to the EE Rules<sup>16</sup>, DR programs may comprise up to 2% of the 22% EE Standard by 2020. Furthermore, the DR peak demand reduction contribution shall not exceed 10% of the EE Rules standard for any year. APS's 2012 DR programs and rates that apply toward the EE Rules standard are shown in Table 12 below.

The DR energy savings formula in the EE Rules is:

$$\text{DR Energy Savings (MWh)} = 2012 \text{ DR MW load reduction} \times 8760 \text{ annual hours} \times 50\% \text{ load factor}$$

**Table 12  
2012 DR MW Load Reduction**

<b>DR Programs and Rates</b>	<b>Load Reduction (MW) at Customer's Meter</b>
APS Peak Solutions®	100
Time of Use Rates (including Super Peak)	109
CPP/Interruptible Rate/PTR	0
<b>Total</b>	<b>209</b>

Substituting the 209 MW DR load reduction in Table 12 into the DR energy savings formula yields 915,420 MWh of potential energy savings from DR programs and rates. Since the EE Rules cap the DR contribution at 10% of the energy savings goal (10% of 533,000 MWh), 53,000 MWh will be attributed to the 2012 DSM energy savings in lieu of the higher calculated value of 915,420 MWh.

<sup>16</sup> R14-2-2404(C).



## **VI. Environmental Benefits**

Table 13 shows the expected savings in water consumption and air emissions that will result from energy saved in this 2012 Plan over the lifetime of the measures installed in 2012.

Consistent with the Commission's EE Rule R14-2-2412(D), the Company has made a good faith effort to quantify the physical units of air emissions and water savings that occur as a result of DSM energy efficiency.

In calculating these environmental benefits, APS believes that the most appropriate values to associate with EE measures are those from the newest combined cycle plants. These values are meant to reasonably approximate newer combined cycle plants and the air emissions and water consumption savings that may be avoided through EE measures. These natural gas fired plants represent APS's last significant dispatch group and a large portion of the market for power purchased by APS. Any load reduction due to EE measures will most likely displace generation from this type of plant.

APS did not conduct a detailed study of EE measures, power supply or regional emissions for purposes of developing these emissions values. APS's approach is based on general experience related to power dispatch, reported emissions, the current electricity market, and EE measures. APS believes this approach is a reasonable and cost-effective method of addressing environmental externalities associated with energy efficiency.

The values APS used to calculate the EE Environmental Benefits are as follows:

SOx	0.00445 lbs/MWh
NOx	0.08455 lbs/MWh
CO <sub>2</sub>	899 lbs/MWh
PM10	0.0247 lbs/MWh
Water	317 gallons/MWh (utility water savings only)

**Table 13**  
**Energy Efficiency Environmental Benefits**  
**2012 Programs**

	<b>Water Mil Gal</b>	<b>SOx Lbs</b>	<b>NOx Lbs</b>	<b>CO<sup>2</sup> Mil Lbs</b>	<b>PM10 Lbs</b>
<b>Residential</b>					
Consumer Products	232	3,252	61,787	657	18,050
Existing Homes	116	1,625	30,880	328	9,021
New Construction	69	975	18,253	197	5,411
Appliance Recycling	29	406	7,719	82	2,255
Low Income	11	156	2,957	31	864
Conservation Behavior	10	139	2,632	28	769
Multi-Family	17	232	4,407	47	1,287
Shade Trees	6	90	1,714	18	501
<b>Totals for Residential</b>	<b>490</b>	<b>6,875</b>	<b>130,619</b>	<b>1,389</b>	<b>38,158</b>
<b>Non-Residential</b>					
Large Existing Facilities	649	9,104	172,985	1,839	50,535
New Construction	130	1,825	34,680	369	10,131
Small Business	165	2,318	44,033	468	12,863
Schools	147	2,063	39,205	417	11,453
Energy Information System	3	44	844	9	247
<b>Totals for Non-Residential</b>	<b>1,094</b>	<b>15,355</b>	<b>291,747</b>	<b>3,102</b>	<b>85,229</b>
<b>Total</b>	<b>1,584</b>	<b>22,230</b>	<b>422,366</b>	<b>4,491</b>	<b>123,388</b>

*The environmental benefits listed above occur over the expected lifetime of EE measures installed in 2012.*

## **VII. Measurement, Evaluation, and Research**

The MER process verifies the impact and cost effectiveness of the EE programs. Navigant Consulting, a nationally renowned, independent third-party, energy consulting company, provides the EE program measurement and evaluation services. These measurement and evaluation activities include, but are not limited to:

- Performing process evaluation to indicate how well programs are working to achieve objectives; and
- Performing impact evaluation to verify that EE measures are installed as expected; measuring of savings on installed projects to monitor the actual program savings that are achieved; and research activities to refine savings and cost benefit models and identify additional opportunities for energy efficiency.

The approach for measurement and evaluation of the EE programs is to integrate data collection and tracking activities directly into the program implementation process. In fact, Commission Decision No. 69663 (June 28, 2007) requires APS to:

Use measured savings obtained from APS customers by the MER contractor beginning no later than July 1, 2007; and that the averages of actual measured usage, for both standard and upgraded equipment, should be recalculated by the MER from usage samples for each prescriptive measure based on new measurements from the field no less frequently than every two years.

APS integrates the most recent annual MER adjustments and process and impact findings into its annual Implementation Plan.

APS proposes to maintain a MER budget of \$2.5 million for 2012 to cover ongoing MER activities associated with the EE programs. APS will perform measurement and verification of the DR programs peak load reduction with detailed modeling and statistical techniques.

## **ATTACHMENTS**

Residential Existing Homes Program  
Performance Based Rebate Measure

Attachment 1

Integrated Energy Pilot

Attachment 2

DSMAC Schedules and Adjustor Rate

Attachment 3

## **Attachment 1**

# **Residential Existing Homes Program Home Performance with ENERGY STAR<sup>®</sup>**

## **Performance Based Rebate Measure**

**Attachment 1**  
**Home Performance with ENERGY STAR®**  
**Performance Based Rebates**

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**Attachment 1**  
**Home Performance with ENERGY STAR®**  
**Performance Based Rebates**

**Home Performance with ENERGY STAR® - Performance Based Rebate**

**Program Concept and Description**

APS is proposing a Performance Based Rebate structure as a new measure for the Home Performance with ENERGY STAR® component of its Residential Existing Homes program. It is designed specifically to better integrate multiple energy savings measures and ultimately seeks to achieve more savings per participating home. The performance based rebate is intended to be offered alongside current prescriptive rebates as an alternative rebate structure.

The current APS Home Performance with ENERGY STAR® program offers customers prescriptive rebates and financing for whole house energy retrofits. Under the existing program, participating customers can receive a \$99 home energy checkup from a specially training Home Performance with ENERGY STAR® contractor. Of the customers who have received audits to date, approximately 40% have installed at least one additional energy efficiency measure. While many of the participating Home Performance with ENERGY STAR® contractors are also participating in the APS Residential HVAC program, very few HVAC replacements are taking place as a part of the Home Performance with ENERGY STAR® program.

A performance based rebate would offer customers an alternative to the prescriptive approach, in which the incentive is based on the modeled estimated savings of the project. Under this incentive structure, customers would receive a greater reward for projects that achieve deeper energy savings. Typically, these projects are more expensive and include multiple envelope improvements combined with properly sized high efficiency HVAC equipment. However, when installed all at the same time the project cost is reduced and the contractor can more efficiently execute the combination of measures.

**Target Market**

This program is designed for APS residential homes including single family detached homes, townhomes, attached homes of four or fewer units, and manufactured homes. This program specifically targets customers who are considering home maintenance, repair, remodeling, or are experiencing high energy bills or comfort issues in their existing homes.

**Attachment 1**  
**Home Performance with ENERGY STAR®**  
**Performance Based Rebates**

**Current Baseline Conditions**

Baseline conditions for the Home Performance with ENERGY STAR® program remain unchanged since originally filed in APS's 2010 Energy Efficiency Implementation Plan.<sup>1</sup>

**Program Eligibility**

- Program participants must be existing residential customers currently served by APS. Eligible housing types include single family detached, townhomes, attached homes of four or fewer units, and manufactured homes.
- Rental property may be eligible.
- Participant must purchase a \$99 home energy checkup conducted by a participating APS Home Performance with ENERGY STAR® contractor.
- Measures must be installed and results verified by a participating APS Home Performance with ENERGY STAR® contractor.

**Program Rationale**

After an initial evaluation of the program, APS has identified three key opportunities for improvement that the proposed performance based rebate structure could help address:

- While 40% of participating customers have adopted one or more measures, the upfront cost of projects still remains a barrier for some. This barrier has prevented adoption of measures entirely, or caused customers to adopt a reduced-scope project when other improvements were warranted.
- The majority of projects to date consist of envelope measures and very few HVAC measures. Improving the envelope and leaving an old, inefficient HVAC unit on the house can reduce the overall success of the improvements and may prove to be more costly in the long run. For example, measures like duct sealing may need to be redone when the unit is replaced.
- In the territory shared by both UNS Gas and APS, a performance based incentive may ultimately prove more customer friendly and equitable as the APS incentive calculation would be based purely on electric savings.

Performance based rebates hold the potential to yield higher savings per home as customers would be able to receive a larger incentive to pursue whole house energy

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<sup>1</sup> APS 2010 Energy Efficiency Implementation Plan (Docket No. E-01345A-08-0172, July 15, 2009).



**Attachment 1**  
**Home Performance with ENERGY STAR®**  
**Performance Based Rebates**

retrofits. APS believes this would not only increase the overall number of homes that adopt measures, but would also increase the number of measures per home. Additionally, APS models show that higher tier incentives only become obtainable when proper execution of envelope measures and HVAC equipment are combined. These effects not only further the overall program intention of promoting a whole house approach to energy efficiency, but also help APS do so more equitably across the entire service territory.

The performance based rebate approach has been adopted by other utilities and jurisdictions around the country. Examples include Southern California Edison, Energize Delaware, and the New Jersey Home Performance with ENERGY STAR® program. These programs offer similar incentives and delivery options to this program proposed by APS, and APS's approach is well aligned with objectives of the U.S. Department of Energy ("DOE") and other national initiatives.

### **Program Objectives**

The objectives of the program are to:

- Reduce peak demand and overall energy consumption through whole house energy retrofitting of residential existing homes.
- Promote comprehensive home energy solutions that combine envelope, HVAC and baseload measures.
- Contribute to meeting the energy savings goals in the APS energy efficiency program portfolio.

### **Products and Services**

Products and Services would be the same as those currently being offered by the existing APS Home Performance with ENERGY STAR® program.

### **Incentive Design**

APS's proposed incentive structure would provide tiered incentives based on modeled whole house energy savings calculated on dollars per first-year annual kWh saved. The tiered approach is designed to promote more comprehensive projects and to further reduce barriers to true whole house energy retrofits. APS's proposed incentive structure is presented in Table 1 below.

Attachment 1  
Home Performance with ENERGY STAR®  
Performance Based Rebates

**Table 1 - 2012 Performance Based Rebate Program Incentive Structure**

<b>Proposed Incentives Based on Percent of Whole House Energy Savings</b>	<b>Incentive \$/kWh</b>	<b>Total Incentive Cap</b>
Tier 1 - 10 - 15%	\$ 0.25	\$ 3,000
Tier 2 - 15 - 20%	\$ 0.30	\$ 3,000
Tier 3 - 20 - 30%	\$ 0.35	\$ 3,000
Tier 4 - > 30%	\$ 0.40	\$ 3,000

The total incentive paid would be capped at 75% of incremental cost or the total dollar amount as indicated above. Customers receiving a performance based incentive would not be eligible for any other incentives from APS that would apply to the measures being installed.

The measures that would be eligible for inclusion in the performance based incentive calculation are limited. As the program matures, APS would seek to add additional measures as long as total program cost effectiveness can be maintained. The measures currently proposed by APS include:

- Duct Sealing
- Air Sealing
- Insulation
- Shade Screens
- Pool Pumps
- Early Retirement HVAC with Quality Installation

Customers would be able to choose any combination of the above measures to achieve the percentage of saving requirement required by one of the four tiers offered.

**Delivery Strategy and Administration**

The delivery strategy for the Performance Based Rebates would not differ significantly from the existing Home Performance with ENERGY STAR® program. Customers must undergo a \$99 home energy checkup performed by a participating APS Home Performance with ENERGY STAR® contractor. As a part of this comprehensive evaluation, contractors are required to input the home data into energy modeling software provided by APS. This software models the estimated impact for each recommended

**Attachment 1**  
**Home Performance with ENERGY STAR®**  
**Performance Based Rebates**

measure, and provides the customers with accurate information on expected savings and payback periods.

The new performance based rebate amount would be automatically estimated by the software and reported to the customer on their energy savings report. The final incentives would be paid based on the post installation results as verified during test out protocols. The software being used is EM Home™ produced by Conservation Services Group. This software has met all DOE testing standards, and APS continually evaluates the output of the software for accuracy and climate-specific variables.

Like the existing prescriptive program, projects would be subject to a desk audits and random field evaluation conducted by FSL Home Improvements. During the first-year of this new measure, the percentage of field evaluations would be higher than normal at approximately 20%. The increased evaluation is to ensure quality control, customer satisfaction and data verification for both the initial audit and the measures being installed.

### **Marketing and Communications**

The Performance Based Rebates would rely on existing marketing and communications strategies for the current Home Performance with ENERGY STAR® program. This includes the following components:

- Promotions on the APS website;
- APS bill inserts;
- Direct mail campaigns;
- Advertising in major newspapers and other selected print media in the APS service territory to raise awareness of the availability of the program;
- Marketing pieces including brochures and other collateral pieces such as bill inserts;
- Referral of the program to customers with high bill inquiries;
- APS online energy audit referral to an on-site audit;
- Trade ally marketing efforts;
- Provision of assistance to customers making inquiries about the program; and
- Contractor recruitment, enrollment, and training.

### **Program Implementation Schedule**

APS would commence implementation activities upon Commission approval of this new measure. It is estimated that the program roll out would require a minimum of 60-90 days from program approval.

**Attachment 1**  
**Home Performance with ENERGY STAR®**  
**Performance Based Rebates**

**Monitoring and Evaluation Plan**

APS currently utilizes FSL Home Improvements, ENERGY STAR®'s local sponsor for Home Performance, to conduct quality assurance activities for the program. As a standard practice for the Home Performance with ENERGY STAR® program; all audits receive a desk review for completion, accuracy, and quality of scope. In addition, at least 10% of participating homes would receive on-site inspections to evaluate workmanship, and overall program delivery.

The APS Measurement, Evaluation and Research ("MER") contractor (Navigant Consulting) would be conducting program measurement and verification activities for this program. All MER results will be reported on an ongoing basis.

**Program Budget**

The Performance Based Rebate structure would add \$250,000 in incentives to the 2012 Home Performance with ENERGY STAR® budget. No additional program administration cost will be required as a result of this additional measure.

**Energy Savings**

**Table 2 - 2012 Performance Based Rebate Program Savings**

Number of expected participants	265 homes
Annual coincident peak demand savings (including line losses and reserve margin)	570 kW
Annual energy savings	856 MWh
Lifetime energy savings	12,269 MWh

In addition to the savings shown above, it is estimated that the program would produce the following environmental benefits from savings achieved in 2012.

**Attachment 1**  
**Home Performance with ENERGY STAR®**  
**Performance Based Rebates**

**Table 3 – 2012 Projected Environmental Benefits**

Water Savings	3,889,273 Gallons
Sox	55 Lbs.
NOx	1,037 Lbs.
CO <sub>2</sub>	11,029,831 Lbs.

**Program Cost Effectiveness**

The cost effectiveness of APS’s proposed new measure was assessed using the Societal Cost Test (“SCT”). Measure analysis worksheets showing all energy savings, cost and cost-effectiveness calculations are included in Appendix 1 and 2 of this attachment.

The cost effectiveness analysis requires estimation of:

- Net demand and energy savings attributable to the program
- Program implementation costs
- APS’s program administration costs
- The present value of program benefits including APS avoided costs over the life of the measures

The table below provides a summary of the benefit/cost analysis results for this program. A detailed benefit/cost analysis is presented in Appendix 2.

**Table 4 - Benefit-Cost Analysis Results**

<b>Cost Effectiveness Tests</b>	<b>SCT</b>
Benefit/Cost Ratio	1.6

In addition to estimating the savings from each measure, this analysis relies on a range of other assumptions and financial data provided in the table below.

**Table 5 - Other Financial Assumptions**

Conservation Life (yrs.)	11-16 years (depending on the tier)
Societal Discount Rate	2.53%

Attachment 1  
Home Performance with ENERGY STAR®  
Performance Based Rebates

Appendix 1 – Performance Based Rebate Program 2012 Net Savings

DSM Estimated Net Energy Savings 2012 – Performance Based Rebate Program

Program	Measure	Coincident Demand kW Savings per Unit	Annual Energy kWh Savings per Unit	Number Units 2012	Line Loss Factor (Energy)	Line Loss Factor (Demand)	Capacity Reserve Factor	NTG Adjust. Factor	TOTAL kW Savings	Measure Life (yrs.)	TOTAL Lifetime MWh Savings	Annual MWh Savings 2012
HPwES	Tier 1	1.08	1,926	90	7%	11.7%	15%	1.00	127	15	2,796	186
	Tier 2	1.70	2,957	120	7%	11.7%	15%	1.00	266	16	6,104	381
	Tier 3	2.20	4,400	40	7%	11.7%	15%	1.00	115	12	2,271	189
	Tier 4	3.15	6,191	15	7%	11.7%	15%	1.00	62	11	1,098	100
<b>Total</b>				<b>265</b>					<b>570</b>		<b>12,269</b>	<b>856</b>

Where:

"Measure" = DSM measure

"Coincident Demand kW Savings per Unit" = Coincident Peak kW savings

"Annual Energy" = kWh savings/home/year

"Number Units" = APS estimate of expected participation in 2012

"NTG Adjust Factor" = Net to Gross Ratio

"Total kW Savings" = Total estimated demand savings from participating customers attributed to this program

"Measure Life" - Expected lifetime of the measure - based on DEER database and other national sources

"Total Lifetime kWh Savings" = Estimated total energy savings over the expected life of measures

"Annual kWh Savings" = Estimated annual energy savings from participating homes in 2012

Attachment 1  
Home Performance with ENERGY STAR®  
Performance Based Rebates

Appendix 2 – Performance Based Rebate Program 2012 Net Benefits

Net Benefits 2012 – Performance Based Rebate Program

Measure	Avoided cost savings per Unit	Customer Increment Cost per Unit	PA Costs per Unit	SCT Costs per Unit	Number of Units	Total SCT Benefits	Total SCT Cost	SCT Net Benefits	SCT Benefit/Cost
Tier 1	\$2,944.14	\$1,086.38	\$560.33	\$1,646.71	90	\$264,973	\$148,204	\$116,769	1.8
Tier 2	\$4,940.75	\$1,968.84	\$860.13	\$2,828.97	120	\$592,890	\$339,476	\$253,414	1.7
Tier 3	\$4,805.37	\$2,799.08	\$1,280.17	\$4,079.25	40	\$192,215	\$163,170	\$29,045	1.2
Tier 4	\$6,140.42	\$3,869.52	\$1,801.10	\$5,670.62	15	\$92,106	\$85,059	\$7,047	1.1
<b>Total</b>					<b>265</b>	<b>\$1,142,184</b>	<b>\$735,909</b>	<b>\$406,275</b>	<b>1.6</b>

WHERE:

"PA Costs" = Program Administration Costs (also referred to as Non-Incentive costs)

"SCT" = Societal Cost Test

## **Attachment 2**

# **Integrated Energy Pilot**



# **Integrated Energy Pilot**

## **Introduction**

This proposed two year pilot program will explore the coordinated integration of utility smart grid technologies and customer offerings including; energy efficiency (“EE”), renewable energy (“RE”), and demand response (“DR”) programs. The Pilot seeks to offer customers opportunities for managing their energy costs by encouraging them to install complementary measures from different APS technologies. This would allow customers to realize more energy savings than would be available if the measures were implemented individually. Customers also would be able to compare the cost effectiveness and payback of the full range of options from multiple APS program areas in which they might invest to make their home more energy efficient and to manage their energy costs.

Customers may elect to participate in a variety of offerings including 1) public EE/RE demonstration events, 2) a personal Energy Advisor to help them choose the most beneficial energy upgrades for their individual homes, 3) an enhanced energy audit to provide them with cost and payback data to make those energy upgrade decisions, 4) incentives for installing grid-tied photovoltaic (“PV”) with an APS smart inverter, and 5) a suite of Smart Home technologies.

This filing complies with Arizona Corporation Commission Decision No. 72060 (January 6, 2011).

## **Project Site**

During the site selection process, APS identified a bounded area site where several utility smart grid technologies were planned for deployment in the North Phoenix area. This same site meets the criteria for the EE/RE Pilot and also offers the opportunity to complement these projects with smart grid technology. The proposed Pilot project area is served by APS’s Pioneer Substation and is located near I-17 and Carefree Highway. There are approximately 3,500 residential customers in the proposed project area, as well as a mix of approximately 600 commercial and industrial customers.

## **Project Description**

Within the bounded Pilot area, APS would conduct targeted marketing and outreach to educate customers about all current APS customer offerings including EE, RE, and DR programs. Outreach would also include direct mail educational flyers, public EE/RE demonstration events, and a designated Energy Advisor who would assist customers in assessing APS programs to make cost effective upgrade and improvement decisions.

In addition to these targeted outreach efforts, APS also proposes to provide 1) enhanced integrated residential energy audits, 2) enhanced customer offerings for distributed energy participants, and 3) integration with APS's Smart Grid Project as part of the Pilot.

### ***Enhanced Integrated Residential Energy Audits***

APS would offer an enhanced energy audit for up to 1,000 residential customers within the Pilot area. The enhanced audit would use an updated audit software tool which fully integrates residential EE measures with RE options such as solar PV and solar water heating, to provide customers with a single comprehensive overview of their EE/RE options. In addition, customers will benefit from a personalized on-line web tool that will help them analyze their audit results, choose preferred energy upgrades, and schedule follow up work to be done. The tool would provide estimated project costs, savings, and payback periods for all EE and RE program offerings. The audits would be offered to customers for \$99 each, the same price as the current APS Home Performance with ENERGY STAR® program home assessments.

### ***Enhanced Customer Offerings for Distributed Energy Participants***

APS is proposing to offer up to 100 residential customers interested in installing grid-tied PV the option to accept the grid-tied incentive and an APS smart inverter. Additionally, APS would provide Smart Home technologies that integrate a customer's home consumption and solar production into an analytics tool on their smart phone or personal computer. Having access to technology, such as a smart thermostat that can be remotely controlled from the smart phone or personal computer, allows a customer to react in near real-time to fluctuations from their solar production and immediately modify energy consumption from their largest end-use appliance, the air conditioner.

### ***Integration with Smart Grid Project***

By leveraging the same location APS had selected for a utility smart grid project, the proposed Pilot would provide an opportunity to learn about the integration of APS customer offerings with the smart grid technologies. Along with the deployment of several technologies that increase the overall reliability in this area, APS is also installing a smart grid technology on utility assets known as Integrated Volt Var Control ("IVVC"). Through the use of IVVC, APS will be able to optimize system voltage, thereby reducing system losses and thus lowering costs to all APS customers and creating real energy savings. An additional benefit of this technology is the ability to reduce energy and demand consumption during peak times. APS plans to study the effectiveness of this technology and to document the energy savings and conservation aspects of this practice.

### **Project Evaluation**

To evaluate the project, APS would employ a third party contractor to conduct a thorough process evaluation and an impact evaluation of the Pilot. For the process evaluation,

researchers would conduct surveys and focus groups with a sample of program participants. For the impact evaluation, the pilot project would track participants in the Pilot area versus a control group. The results of this Pilot would help inform APS program design decisions in its efforts to achieve both RE and EE Standard goals at the least possible cost, while achieving high levels of customer satisfaction.

### **Project Implementation and Timeline**

APS would begin targeted outreach efforts soon after Commission approval with enhanced audits being delivered to customers within 4-5 months. Information about the project would be reported in the APS Demand Side Management Semi-Annual Reports. Within 90 days after the end of the two-year Pilot, APS would file a project report with the Commission highlighting key findings of the Pilot and recommending future actions.

### **Estimated Project Cost**

APS believes the integration of EE, RE, and DR together will result in efficient program delivery and lower administrative costs. The table below shows estimated costs for only the EE and DR elements of the Pilot for 2012-2013. These costs would be recovered through the Demand Side Management Adjustment Charge ("DSMAC").

This filing will be supplemented in the APS 2012 Renewable Energy Standard Implementation Plan. Program costs for the renewable energy elements of this project will be detailed in that plan.

### Energy Efficiency and Demand Response Project Costs

Item	2012 Budget	2013 Budget	Description
Energy Audit Software Enhancements	\$335,000	\$100,000	Development and Customization Fee
Energy Advisors	\$200,000	\$200,000	Direct Customer Support
Software License/Use Fees and Hosting	\$75,000	\$135,000	Cost of Data Maintenance, Integration, Implementation, Hosting Services
Equipment & Installation	\$100,000		Installed Cost of In-Home Devices (Smart Thermostats and Related Communication Infrastructure)
Participant Incentives	\$150,000	\$150,000	Cost of Incentives for the Integrated Energy Audits
Evaluation and Reporting	\$100,000	\$200,000	Third Party Evaluation Contractor Costs
Contractor Training	\$50,000	\$25,000	Software Training, Contractor Education
Consumer Education and Outreach	\$120,000	\$100,000	Cost of Direct Mail Flyers, Demonstration Events and Other Outreach
Administration and Implementation, Third Party Call Center	\$175,000	\$175,000	Project Management and Oversight, Reporting, Call Center
<b>Totals</b>	<b>\$1,305,000</b>	<b>\$1,085,000</b>	

## **Attachment 3**

### **DSMAC Schedules and Adjustor Rate**

**ATTACHMENT 3**

Schedule 1  
DSMAC REVENUE

**ESTIMATED**

ARIZONA PUBLIC SERVICE COMPANY  
DEMAND SIDE MANAGEMENT PROGRAM  
JUNE 2011 FILING

Line No.	(A) True-Up Period DSMAC Revenue for March 2010 - February 2011	
1		48,115,000

1 Recovery period is March 2010-February 2011 for costs associated with the 2010 program year and 2009 cost carried over to 2010

**ATTACHMENT 3**  
**ESTIMATED**

ARIZONA PUBLIC SERVICE COMPANY  
DEMAND SIDE MANAGEMENT PROGRAM  
JUNE 2011 FILING

Line No.	Program	(A) True-Up Period 2010 and 2009 Carryover <sup>1</sup>	(B) Forecast Period 2012 and 2009 Carryover <sup>2</sup>
1	Energy Efficiency (EE) Program Costs (PC)	\$ 48,544,000	\$ 58,586,000
2	2009 Recoverable DSM Program Costs <sup>3</sup>		4,875,000
3	Performance Incentives (PI) <sup>4</sup>	\$ -	9,550,000
4	Sub Total	\$ 48,544,000	\$ 73,011,000
5	Demand Response (DR) PC	\$ -	11,412,000
6	Total	\$ 48,544,000	\$ 84,423,000

- 1 Total 2010 EE and DR costs of \$53,210,000 less \$10,000,000 recovered in base rates plus \$5,334,000 of 2009 DSMAC carryover expense
- 2 Projected costs of 2012 Implementation Plan less \$10,000,000 recovered in base rates plus remaining 2009 carryover costs
- 3 \$25,542,000 actual recoverable PC and PI in 2009 program year less \$10M in base rates less recovery of \$5,334,000 in 2010 and \$5,333,000 in 2011
- 4 EE PI is calculated on total PC including PI; PI is 14% in 2011 per the Settlement Agreement approved in Decision 71448

**ATTACHMENT 3**

Schedule 1  
DSMAC REVENUE

ESTIMATED

ARIZONA PUBLIC SERVICE COMPANY  
DEMAND SIDE MANAGEMENT PROGRAM  
JUNE 2011 FILING

Line No.	Date Period	Cost, Collection and Interest	Reference	Amount
1	March 2010 - February 2011	DSMAC Revenue - TU	Schedule 1, Line 1, Column A	\$ 48,115,000
2	January 2010 - December 2010 <sup>1</sup>	DSMAC Program Costs - TU	Schedule 2, Line 6, Column A	\$ 48,544,000
3a		Sub Total	(Line 1 - Line 2)	\$ (429,000)
3b	Treasury constant maturities rate January 2011	Interest Rate		0.29%
4		Interest Amount	(Line 3a * 3b)	\$ -
5		Total TU Balance Account	(Line 3a + Line 4)	\$ (429,000)



**ATTACHMENT 3**

Schedule 1  
DSMAC REVENUE

ESTIMATED

ARIZONA PUBLIC SERVICE COMPANY  
DEMAND SIDE MANAGEMENT PROGRAM  
JUNE 2011 FILING

Line No.	DSMAC Calculations	Reference	Amount	Units
1	Program forecast costs for adjutor period in 2011	Schedule 2, Line 6, Column B	\$ 84,423,000	
2A	Recovery of True-Up Account (over) under collection	Schedule 3, Line 5	\$ 429,000	
2B	Credit for Gains from Asset Sales (over) under collection		\$ -	
3	Total amount to be collected	(Line 1 + Line 2)	\$ 84,852,000	Total Revenue Requirements
4	Forecast retail kWh sales for adjutor period <sup>1</sup>		27,391,922,000	kWh
5	Proposed kWh adjutor charge for adjutor period <sup>2</sup>	(Line 3 / Line 4)	\$ 0.003098	per kWh
6	Forecast General Service kWh sales for adjutor period <sup>3</sup>		13,193,603,000	kWh
7	Amount to be collected from General Service demand metered customers for adjutor period	(Line 5 * Line 6)	\$ 40,873,782	
8	Forecast General Service demand billed customer kW		34,710,000	kW
9	Proposed kW adjutor charge for forecast period <sup>4</sup>	(Line 7 / Line 8)	\$ 1.178	per kW

- 1 Forecast retail kWh sales excludes E-3 and E-4 kWh
- 2 \$/kWh charge for all Residential customers and General Service customers with no demand charge
- 3 Forecast General Service kWh for customers with demand charges
- 4 \$/kW charge for General Service customers with demand charges



**ADJUSTMENT SCHEDULE DSMAC-1  
DEMAND SIDE MANAGEMENT COST ADJUSTMENT**

APPLICATION

The Demand Side Management Adjustment Charge ("DSMAC") shall be applied monthly to every metered and/or non-metered retail Standard Offer or Direct Access service with the exception of customers served on rate schedules E-3 and E-4, and Solar-2. All provisions of the customer's currently applicable rate schedule will apply in addition to this adjustment charge. The DSMAC is applied to Standard Offer or Direct Access customer's bills as monthly charge to recover the cost of Commission approved demand side management programs above those costs included in base rates. The DSMAC will be changed in billing cycle 1 of the March revenue month and will not be prorated. The DSMAC and the RES adjustors may be combined on the customer's bill and appear on the "Environmental Benefits Surcharge" line. Details of how the DSMAC is derived and administered can be found in the Demand Side Management Adjustment Charge Plan for Administration.

RATE

The charge shall be calculated at the following rate:

For all residential customers and general service customers whose billing does not include demand charges:

All kWh                      \$0.0027173098                      per kWh

For general service customers whose billing includes demand charges:

All metered kW              \$0.96851.178                      per kW

SELF DIRECTION

Self direction of DSM charges collected through base rates and Adjustment Schedule DSMAC-1 shall be available for customers who use more than 40 million kWh per year, based on an aggregation of the usage for all the customer's accounts for the January through December billing months in the year the request for self direction is made.

Qualifying customers who elect to self direct their DSM charges must notify APS on or before December 1st in each year that they wish to self direct. Upon such notification, and verification of eligibility by APS, 85% of the customer's DSM charges paid over the January through December billing months in the election year will be reserved for tracking purposes for the customer's eligible energy efficiency project(s) to be completed within two years. The remaining 15% will be retained to cover the self direction program administration, management and verification, measurement and evaluation, and low-income program costs.

Customers who elect to self direct must continue to pay the DSM charges in base rates and Adjustment Schedule DSMAC-1.

Self direction shall be provided in accordance with the Self Direction Provisions approved in Arizona Corporation Commission (Commission) Decision No. 71448, Attachment C to the Settlement Agreement as modified from time to time with Commission approval.

Self direction amounts shall be the DSMAC-1 charges billed over the election year plus the DSM charges recovered in base rates. The latter shall be calculated by multiplying the kWh billed for the System Benefits Charge in the customer's current applicable rate schedule multiplied by \$0.000359 per kWh.

ARIZONA PUBLIC SERVICE COMPANY  
Phoenix, Arizona  
Filed by: David J. Rumolo  
Title: Manager, Regulation and Pricing  
Original Effective Date: April 1, 2005

A.C.C. No. 5785XXXX  
Canceling A.C.C. No. 57745785  
Adjustment Schedule DSMAC-1  
Revision No. 56  
Effective: March 1, 2014



**ADJUSTMENT SCHEDULE DSMAC-1  
DEMAND SIDE MANAGEMENT COST ADJUSTMENT**

APPLICATION

The Demand Side Management Adjustment Charge ("DSMAC") shall be applied monthly to every metered and/or non-metered retail Standard Offer or Direct Access service with the exception of customers served on rate schedules E-3 and E-4, and Solar-2. All provisions of the customer's currently applicable rate schedule will apply in addition to this adjustment charge. The DSMAC is applied to Standard Offer or Direct Access customer's bills as monthly charge to recover the cost of Commission approved demand side management programs above those costs included in base rates. The DSMAC will be changed in billing cycle 1 of the March revenue month and will not be prorated. The DSMAC and the RES adjustors may be combined on the customer's bill and appear on the "Environmental Benefits Surcharge" line. Details of how the DSMAC is derived and administered can be found in the Demand Side Management Adjustment Charge Plan for Administration.

RATE

The charge shall be calculated at the following rate:

For all residential customers and general service customers whose billing does not include demand charges:

All kWh                      \$0.003098                      per kWh

For general service customers whose billing includes demand charges:

All metered kW              \$1.178                      per kW

SELF DIRECTION

Self direction of DSM charges collected through base rates and Adjustment Schedule DSMAC-1 shall be available for customers who use more than 40 million kWh per year, based on an aggregation of the usage for all the customer's accounts for the January through December billing months in the year the request for self direction is made.

Qualifying customers who elect to self direct their DSM charges must notify APS on or before December 1st in each year that they wish to self direct. Upon such notification, and verification of eligibility by APS, 85% of the customer's DSM charges paid over the January through December billing months in the election year will be reserved for tracking purposes for the customer's eligible energy efficiency project(s) to be completed within two years. The remaining 15% will be retained to cover the self direction program administration, management and verification, measurement and evaluation, and low-income program costs.

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Original Effective Date: April 1, 2005

A.C.C. No. XXXX  
Canceling A.C.C. No. 5785  
Adjustment Schedule DSMAC-1  
Revision No. 6  
Effective: March 1, 2012