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August 30, 2007

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Arizona Corporation Commission  
1200 West Washington  
Phoenix, Arizona 85007

RE: DOCKET NO. E-01345A-03-0437 + ~~E01345A-05-0526~~  
DECISION No. 67744

Dear Sir or Madam:

Pursuant to Arizona Corporation Commission Decision No. 67744, provided is the DSM Semi-Annual Report covering the period of January 1, 2007 through June 30, 2007.

If you have any questions, please feel free to call Jeff Johnson at 602-250-2661.

Sincerely,

Barbara Klemstine

BK/dst

Attachments

cc: Brian Bozzo  
Docket Control (Original + 13 copies)

Arizona Corporation Commission  
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EK NR

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

Arizona Public Service Company ("APS" or "Company") is filing this Demand Side Management (DSM) Semi-Annual Report ("Report") pursuant to Decision No. 67744. This progress report includes the following information for all APS DSM programs that were in place during this reporting period, including programs for residential, non-residential and low income customers:

- A brief description of the program.
- Program modifications.
- Program goals, objectives, and savings targets.
- Programs terminated.
- The levels of participation.
- A description of evaluation and monitoring activities and results.
- kW and kWh savings.
- Benefits and net benefits, both in dollars, as well as Performance Incentive calculation.
- Problems encountered and proposed solutions.
- Costs incurred during the reporting period disaggregated by type of cost, such as administrative costs, rebates, and monitoring costs.
- Findings from all research projects.
- Other significant information.

Summary pages detailing the program expenses and DSM Electric Savings Benefits are provided in Tables 1 and 2. The Performance Incentive Calculation is shown in Table 3.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2007**

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# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

**Table 1**  
**DSM Program Expenses: January – June 2007**

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation <sup>1</sup>	Program Marketing	Planning & Admin	Program Total Cost	
<b>Residential</b>								
Low Income	\$673,462	\$1,168	\$3,696	\$28,257	\$4,557	\$30,251	\$741,392	
Res Existing Homes HVAC	\$533,750	\$32,457	\$70,223	\$90,855	\$95,186	\$20,661	\$843,131	
Res New Home Construction	\$140,000	\$818	\$2,699	\$85,516	\$137,340	\$36,232	\$402,605	
Consumer Products	\$1,002,402	\$586	\$750	\$237,511	\$29,680	\$55,004	\$1,325,933	
<b>Totals for Residential</b>	<b>\$2,349,614</b>	<b>\$35,029</b>	<b>\$77,369</b>	<b>\$442,139</b>	<b>\$266,763</b>	<b>\$142,148</b>	<b>\$3,313,061</b>	
<b>Non-Residential</b>								
Large Existing Facilities	\$1,157,414	\$15,420	\$8,000	\$719,656	\$5,847	\$90,346	\$1,996,683	
Large Non Res New Const	\$51,381	\$13,403	\$55	\$373,235	\$2,611	\$52,859	\$493,544	
Small Business	\$19,670	\$390	\$5,447	\$240,257	\$1,859	\$31,958	\$299,582	
Bldg Operator Training	\$0	\$12,688	\$0	\$6,758	\$7,162	\$0	\$26,607	
Energy Information Svcs	\$0	\$0	\$583	\$23,100	\$0	\$2,266	\$25,949	
Schools <sup>2</sup>	\$39,220	\$2,193	\$837	\$95,000	\$644	\$13,620	\$151,514	
<b>Total for Non-Residential</b>	<b>\$1,267,686</b>	<b>\$44,093</b>	<b>\$14,923</b>	<b>\$1,458,005</b>	<b>\$18,123</b>	<b>\$191,049</b>	<b>\$2,993,879</b>	
<b>Segment Totals</b>	<b>\$3,617,300</b>	<b>\$79,122</b>	<b>\$92,291</b>	<b>\$1,900,144</b>	<b>\$284,886</b>	<b>\$333,197</b>	<b>\$6,306,940</b>	
							<b>Program Costs</b>	<b>\$6,306,940</b>
							<b>Measurement, Evaluation, &amp; Research (MER)</b>	<b>\$537,918</b>
							<b>Performance Incentive<sup>3</sup></b>	<b>\$0 *</b>
							<b>TOTAL</b>	<b>\$6,844,859</b>

### Definitions

**Rebates & Incentives** - Includes dollars for customer rebates and incentives, installation of low income weatherization and low income bill assistance.

**Training & Technical Assistance** - Includes all dollars that are used for energy efficiency training and technical assistance.

**Consumer Education** - Includes dollars that are used to support general consumer education about energy-efficient improvements.

**Program Implementation** - Program delivery costs associated with implementing the program - includes implementation contractor labor and overhead costs, as well as other direct program delivery costs.

**Program Marketing** - Includes all expenses related to marketing the program and increasing DSM consumer awareness (direct program marketing costs as opposed to general consumer education).

**Planning and Administration** - APS costs to plan, develop and administer programs-includes management of program budgets, oversight of the RFP process and implementation contractor, program development, program coordination and general overhead expenses.

**Measurement, Evaluation, & Research (MER)** -These activities will identify current baseline efficiency levels and the market potential of DSM measures, perform process evaluations, verify that energy-efficient measures are installed, track savings, and identify additional energy efficiency research.

**Performance Incentive** - Share (%) of DSM net economic benefits (benefits minus cost), capped at 10% of total DSM expenditures, inclusive of the Performance Incentive.

1. Includes costs for Implementation Contractor (IC) for the Small Non-Residential, Non-Residential Existing Facilities, New Construction & Major Renovation and Schools Programs.

2. Schools are allowed to receive funding from other non-residential programs as well. Refer to the subsection on the Schools Program for additional information on total funds allocated to school districts to date.

3. The Performance Incentive is calculated in Table 3.

\* Maximum Performance Incentive allowed is 10% of the spending level as ordered in Decision No. 67744. DSM spending to date is \$20,586,385, therefore the maximum Performance Incentive is \$2,058,639.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

**Table 2  
DSM Electric Savings Benefits**

DSM Program	Capacity Savings MW	Lifetime <sup>1</sup> MWh Savings	Program Cost	Societal Benefits	Societal Costs	Net Benefits
<b>Residential</b>						
Low Income <sup>2</sup>	0.06	401	\$741,392	\$572,265	\$572,265	\$0 <sup>4</sup>
Res Existing Homes HVAC <sup>3</sup>	2.16	78,948	\$843,131	\$3,119,223	\$1,950,841	\$1,168,383
Res New Home Construction <sup>3</sup>	0.52	24,426	\$402,605	\$914,239	\$472,605	\$441,634
Consumer Products	11.4	405,686	\$1,325,933	\$25,106,875	\$5,405,772	\$19,701,104
<b>Totals for Residential</b>	<b>14.14</b>	<b>509,461</b>	<b>\$3,313,061</b>	<b>\$29,712,602</b>	<b>\$8,401,482</b>	<b>\$21,311,120</b>
<b>Non-Residential</b>						
Large Existing Facilities	2.59	279,878	\$1,996,683	\$6,952,518	\$3,074,915	\$3,877,603
Large Non Res New Const	0.35	20,612	\$493,544	\$486,981	\$599,267	(\$112,286)
Small Business	0.14	10,712	\$299,582	\$208,344	\$326,225	(\$117,881)
Bldg Operator Training	0.02	2,545	\$26,607	\$86,864	\$38,069	\$48,795
Energy Information Svcs	0.00	0	\$25,949	\$0	\$25,949	(\$25,949)
Schools	0.11	9,604	\$151,514	\$215,115	\$190,524	\$24,591
<b>Total for Non-Residential</b>	<b>3.21</b>	<b>323,351</b>	<b>\$2,993,879</b>	<b>\$7,949,822</b>	<b>\$4,254,949</b>	<b>\$3,694,873</b>
<b>Subtotal</b>	<b>17.35</b>	<b>832,812</b>	<b>\$6,306,941</b>	<b>\$23,671,077</b>	<b>\$6,740,657</b>	<b>\$25,005,993</b>
Measurement, Evaluation & Research	-	-	\$537,918	-	-	(\$537,918)
Performance Incentive <sup>5</sup>			\$0 *			\$0 *
<b>TOTAL</b>	<b>17.35</b>	<b>832,812</b>	<b>\$6,844,859</b>	<b>\$23,671,077</b>	<b>6,740,657</b>	<b>\$24,468,075</b>

1. Refers to savings over the expected lifetime of all program measures.

2. Program Costs include weatherization and bill assistance. Societal Costs do not include bill assistance because it does not contribute to electric savings.

3. kW and kWh savings are not quantified for residential market transformation programs that were in place prior to April 2006.

4. Consistent with the ACC Staffs' analysis in Decision No. 68647, the societal benefits is equal to the societal costs, resulting in a benefit to cost ratio of 1.00.

5. As calculated in Table 3.

\* Maximum Performance Incentive allowed is 10% of the spending level as ordered in Decision No. 67744. DSM spending to date is \$20,586,385, therefore the maximum Performance Incentive is \$2,058,639.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2007**

**Table 3  
Performance Incentive Calculation**

DSM Program	Jan - Jun 2007	Program to Date	
	Net Benefit	Net Benefit	10% Share
<b>Residential</b>			
Res Existing Homes HVAC	\$ 1,168,383	\$ 1,490,743	\$ 149,074
Res New Home Construction	\$ 441,634	\$ (155,795)	\$ (15,580)
Consumer Products	\$ 19,701,104	\$ 45,742,013	\$ 4,574,201
<b>Non-Residential</b>			
Large Existing Facilities	\$ 3,877,603	\$ 5,698,890	\$ 569,889
Large Non Res New Construction	\$ (112,286)	\$ (754,230)	\$ (75,423)
Small Business	\$ (117,881)	\$ (668,591)	\$ (66,859)
Bldg Operator Training	\$ 48,795	\$ 148,193	\$ 14,819
Energy Information Svcs	\$ (25,949)	\$ (56,122)	\$ (5,612)
Schools	\$ 24,591	\$ 15,511	\$ 1,551
<b>Subtotal</b>	<b>\$ 25,005,994</b>	<b>\$ 51,460,612</b>	<b>\$ 5,146,061</b>
Measurement, Evaluation & Research	\$ (537,918)	\$ (1,429,009)	\$ (142,901)
<b>Total</b>	<b>\$ 24,468,075</b>	<b>\$ 50,031,603</b>	<b>\$ 5,003,160</b>
	Performance Incentive earned from Jan. 2005 thru December 2006		<b>\$ 2,556,353</b>
		Performance Incentive due to APS for this reporting period <sup>1</sup>	<b>\$0 *</b>

1. Performance incentive earned to date is subtracted from the total "program to date" 10% share of net benefits to arrive at the amount of performance incentive earned for this period.

\* Maximum Performance Incentive allowed is 10% of the spending level as ordered in Decision No. 67744. DSM spending to date is \$20,586,385, therefore the maximum Performance Incentive is \$2,058,639.

This calculation does not include the Low Income Program. As per Staff's analysis in Decision 68647, the net benefits for this program are \$0.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: ENERGY WISE LOW INCOME WEATHERIZATION**

#### **Description**

APS' Energy Wise Low Income Assistance Program is designed to improve the energy efficiency, safety and health attributes of homes for customers whose income falls within the defined federal poverty guidelines. This program serves low income customers with various home improvements including cooling system repair and replacement, insulation, sunscreens, water heaters, window repairs and improvements as well as other general repairs. In addition, low income families are provided crisis bill assistance. The program is administered by various community action agencies throughout APS' service territory.

#### **Program Modifications**

No modifications for this reporting period.

#### **Program Goals, Objectives, and Savings Targets**

- To improve the energy efficiency of homes for customers whose income falls within the defined poverty guidelines.
- To provide customers information on energy management and conservation.
- To provide assistance in paying the electric bill for qualified customers in crisis situations.
- Decision No. 68647 estimates that the Weatherization component of the Energy Wise Program serves 382 homes per year (based on APS' budget) and would result in reduced energy consumption of 763 MWh per year and a demand reduction of 115 kW per year.

#### **Programs Terminated**

No programs were terminated during this reporting period.

#### **Levels of Participation**

A total of 839 households received assistance during the reporting period, July through December 2005. Please note that a single household may have received more than one type of assistance.

Type of Assistance	Number of Households
Bill Assistance	690
Health and Safety	0
Repair and Replace	3
Weatherization	180
<b>Total</b>	<b>873</b>

#### **Evaluation and Monitoring Activities and Results**

Weatherization measures must pass the cost effectiveness test that is detailed in the federal government's Weatherization Assistance Program (WAP) rules. These rules allow certain prescriptive measures which vary with the climate zone and type of housing construction. Measures not on the prescriptive list must be assessed by a computer analysis to determine the economic feasibility.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

The Department of Commerce Energy Office with information from APS, is analyzing the electric energy used in weatherized homes before and after the weatherization measures are implemented. It takes a year of data before the weatherization and another year of data after the weatherization to get an accurate gauge of the impact of the measures. As the data base grows over time a more accurate picture of the impact of the weatherization activities will emerge.

### **kW and kWh Savings**

Of the 839 households participating in the program, a total of 183 homes received weatherization and/or repair & replace services that contributed to the energy savings.

No. of Homes	kW Savings	kWh Savings
183	60.00	401,466

The final savings are adjusted for line losses (9.8%).

The kW and kWh factors used to calculate the savings are based on data from the Department of Commerce Energy Office study of 150 weatherized homes. The study normalized electric and gas savings into dollars with gas savings being about 10% of the total. The present value of the dollar savings was converted to "equivalent kWh" at 8 cents per kWh. The annual energy and demand savings per home in this study are estimated to be 1,998 "equivalent kWh" and 0.3 kW.

### **Benefits and Net Benefits/Performance Incentive Calculation**

The benefits and net benefits are provided in Table 2. The Performance Incentive calculation does not include the Energy Wise Program because, as indicated in Decision No. 68647, this program has a zero net benefit. APS has performed well on this program and should not be penalized for the program. Consequently, the net benefits for the Energy Wise Program for this reporting period as shown in Table 2 are \$0.

### **Problems Encountered and Proposed Solutions**

No problems were encountered during this reporting period.

### **Costs Incurred**

Costs incurred for this program during the current reporting period are listed below:

Activity	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Bill Assistance	\$169,128	-	-	-	-	-	\$169,128
Health & Safety	\$0	-	-	-	-	-	\$0
Repair and Replace	\$4,680	-	-	-	-	-	\$4,680
Weatherization	\$499,655	-	\$390	-	-	-	\$500,045
3rd Party Manager Arizona Community Action Association	-	-	-	\$20,830	-	-	\$20,830
APS Program Support	-	\$1,168	\$3,306	\$7,427	\$4,557	\$30,251	\$46,709
<b>Total</b>	<b>\$673,463</b>	<b>\$1,168</b>	<b>\$3,696</b>	<b>\$28,257</b>	<b>\$4,557</b>	<b>\$30,251</b>	<b>\$741,392</b>

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **Findings From All Research Projects**

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

### **Other Significant Information**

A contract to fund weatherization activities on the Navajo reservation in areas served by APS was signed in May 2007. Meetings to address the program implementation on the Navajo reservation are on-going and included a Navajo Nation Low Income Weatherization Summit on July 13, 2007 in Flagstaff with several representatives from the Navajo Nation and APS. A second meeting was held in Window Rock on July 27, 2007 to follow-up on action items from the Flagstaff summit.

In support of the Inter Tribal Council of Arizona (ITCA), meetings were held to discuss the implementation of the APS Energy Wise program with the Yavapai Apache Weatherization Department. Contacts with the Hopi Housing Authority were also initiated and included a joint meeting with ITCA at the Hopi Chapter House Community Services Administrator meeting in January.

In conjunction with the Western Arizona Council of Governments (WACOG), APS funded 1,000 Energy Conservation kits for distribution to Low Income APS customers residing in areas served by WACOG.

Information about the Energy Wise Low Income Weatherization Program was also presented to a variety of local agencies at the following APS Low Income Summits:

- January 22<sup>nd</sup>, Prescott and Cottonwood
- January 29<sup>th</sup>, Flagstaff and Winslow
- January 30<sup>th</sup>, Payson
- April 18<sup>th</sup>, Yuma
- April 19<sup>th</sup>, Parker

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: RESIDENTIAL EXISTING HOMES HVAC**

#### **Description**

The residential existing home HVAC program promotes energy-efficient equipment and proper installation and maintenance of residential heating and air conditioning systems. The program provides training and technical assistance for HVAC contractors and education for consumers about the benefits of energy-efficient heating and cooling systems. Through the APS Qualified Contractor program, APS provides customer referrals to contractors who meet strict program requirements for professional standards, technician training and customer satisfaction.

The AC Rebate program builds on the existing APS Qualified Contractor program, and offers financial incentives to encourage upgrades to high-efficiency equipment ( $\geq 14$  SEER/12 EER) that exceeds US EPA/DOE Energy Star® energy-efficiency standards.

#### **Program Modifications**

During this reporting period, APS filed a request with the ACC to modify the program's energy efficiency requirements by adjusting the program EER levels to better match the availability of AC units and heat pumps. See the Problems Encountered and Proposed Solutions section for a detailed description.

#### **Program Goals, Objectives and Savings Targets**

This program uses a combination of financial incentives, contractor training and consumer education to promote high efficiency HVAC systems in existing residential homes within the APS service territory.

The ACC Staff's analysis of the initial three year's of the program shows that the energy-efficiency savings from the HVAC Efficiency Program could provide approximately \$1.4 million in net benefits, reduce annual peak demand by 4.2 MW and energy consumption by 173,000 MWh over the life of the measures.

#### **Programs Terminated**

No programs were terminated during this reporting period.

#### **Levels of Participation**

In the first half of 2007:

- A total of 1,394 rebates were paid in the High Efficiency AC Rebate program, including 872 of the \$250 rebates for 14 SEER/12 EER equipment and 522 of the \$400 rebates for 16 SEER/14 EER equipment.
- There are currently 59 contractors participating in the APS Qualified Contractor program. In March 2007, a special intensive 2-day training and testing session was held to allow contractors from outside the Phoenix metro area to achieve APS Qualified Contractor status. The training was a success, with 14 contractors from outside the metro area completing the requirements, including contractors from the following areas throughout the APS service territory: Casa Grande, Congress, Douglas, Flagstaff, Payson, Prescott Valley, Snowflake, Yuma and Wickenburg.

**ARIZONA PUBLIC SERVICE COMPANY.**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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- Including both metro and non-metro training classes, 264 HVAC technicians participated in APS sponsored training courses in order to meet APS Qualified Contractor program training requirements.
- APS provided over 5,300 referrals to customers seeking HVAC service, repair or replacement of their home HVAC system.
- There were 9,987 unique user visits to the APS Energy Survey home energy audit at aps.com.

**Evaluation and Monitoring Activities and Results**

During the current reporting period the Residential Existing Home HVAC program MER research plan was refined. This was submitted to the ACC on August 16, 2007. As this plan was being developed, various components were approved to begin data collection and analysis activities.

MER activities undertaken from the draft research plan include:

- Reviewing and enhancing the engineering savings estimates used by the program, including an analysis of equipment EER ratings and recommending adjustments to the criteria used by the program to define acceptable equipment efficiency ratings.
- The MER contractor has conducted onsite field inspections that included a general population survey of 450 residential customers that investigated HVAC program relevant topics, and surveys of customers and contractors who had participated in the program.

**kW and kWh Savings**

Type Of Unit	Number of Units	Annual kWh Savings per Ton	Avg Tons/Unit	TOTAL Annual MWh Savings	Est Measure Life	Total Lifetime MWh	kW Demand Savings Per Ton	Total MW Savings
14 SEER/12 EER	872	804	4	3,078	15	46,173	0.339	1.30
16 SEER/14 EER	522	953	4	2,185	15	32,775	0.376	0.86
<b>TOTAL</b>	<b>1,394</b>			<b>5,263</b>		<b>78,948</b>		<b>2.16</b>

The final savings are adjusted for line losses (9.8%).

In addition to the savings shown above, the Residential Existing Homes HVAC program includes a number of market transformation efforts such as contractor training and customer education activities designed to transform the market for energy efficiency. These elements of the program produce additional energy savings and benefits that are not quantified.

**Benefits and Net Benefits/Performance Incentive Calculation**

The benefits and net benefits are provided in Table 2. The details for the Performance Incentive Calculation are provided in Table 3.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### Problems Encountered and Proposed Solutions

APS, contractors and customers have all had more difficulty than expected with obtaining EER efficiency levels from AC manufacturers and refrigeration industry data sources. In late spring the availability of the EER data improved with the inclusion of the EER data into the ARI Directory of Certified Product Performance.

Unfortunately, the number of available units that currently meet the minimum EER requirements is limited. Many Arizona homes that were constructed before the mid-1980s are ranch style homes with shingle roofs that have rooftop packaged heat pump or air-conditioning units (HVAC unit on a stand on the roof). The packaged air conditioning replacement equipment used to retrofit these homes typically has somewhat lower EER efficiency levels than corresponding split system design equipment that is utilized in homes with tile roofs or two-story construction (compressor on the side of the home on the ground and air handler in the attic). Under the APS AC Rebate program's existing efficiency requirements, it is difficult to find qualifying equipment that meets the needs for the rooftop applications. As a result, a portion of the market is unserved, which limits potential energy savings under this program, and frustrates customers and contractors.

APS has encountered instances where property owners installed energy efficient equipment on their properties but it would not qualify for APS DSM incentives due to a gap in the program description. For example, a landlord installs a new AC unit that qualifies for the \$250 rebate on a home that they are renting out. The tenant of this house is the person that gets the bill from APS for that house. Currently, APS may only provide a rebate to the person who is getting the APS bill for a given address. So, in this example the landlord who paid for the AC unit would have to make an arrangement with their tenant to get the \$250 rebate. APS believes this situation is a limitation to the growth of the program due to the additional burden it places on the landlord and tenant to work out an arrangement to transfer the rebate.

Installing energy efficiency equipment is clearly the behavior that the APS DSM programs are attempting to encourage. As a solution to this situation, APS is proposing that if a landlord pays for improvements to their property that qualify for a rebate then the rebate can be sent to the landlord directly. In these situations, APS will verify that the request the landlord submits is correct before the incentive is paid and will also ensure that no additional incentives be paid to the APS customer (tenant) for the same energy efficient measure installation.

For these reasons, the Company proposed minor modifications to the program's Energy Efficiency Ratio ("EER) requirements, as set forth in the chart below. These are designed to better align the program with current market conditions and availability of equipment that meets program standards.

Incentive Amount	Current SEER/EER Minimum Level	Proposed SEER/EER Minimum Level
\$250	14 SEER and 12 EER	14 SEER and 11.5 EER
\$400	16 SEER and 14 EER	16 SEER and 12.25 EER

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

Although these modifications yield slightly lower savings per unit, they produce a number of important benefits to the program, which includes permitting more customers to participate in energy efficiency programs; providing the ability for packaged equipment to qualify; encouraging more contractor participation as more units qualify; and better aligning the program with HVAC equipment that is currently available and with current EPA/DOE Energy Star® requirements (14 SEER/11.5 EER). The Company conducted a revised cost benefit analysis for the proposed modifications, which produced a slightly higher value than the current A/C Rebate Program requirements, thus maintaining the cost-effectiveness of this program.

Although it is difficult to predict customer behavior, APS anticipates that increased customer participation as a result of the program modifications will produce higher net benefits for the program. It will also produce a more equitable program by allowing broader opportunities for customer participation, with greater contractor and customer satisfaction. This should result in overall increased program savings and net benefits.

### Costs Incurred

Costs incurred for this program during the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Res Existing HVAC	\$533,750	\$32,457	\$70,223	\$90,855	\$95,186	\$20,661	\$843,131

### Findings from all Research Projects

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

### Other Significant Information

Due to the volume of the program's participation and the requirements for further program development and implementation additional resources were needed. An HVAC program manager was hired in May 2007 to address these issues.

APS is working with key partners on infrastructure needed for the quality installation program and diagnostics measures.

To support state-wide availability for the quality installation measure, APS conducted a special 2-day intensive training seminar and qualification exams to allow contractors from outside the metro area to achieve the training required to participate in the Qualified Contractor program. The training seminar was held March 1-2, 2007. APS worked with KEMA to complete the program technical details and information for contractors and customers. After the reporting period considerable work was completed for this program. The APS Quality Installation rebate was made available to customers starting on August 1, 2007. It is an additional \$100 rebate on high efficiency HVAC installations that can only be offered by APS Qualified Contractors who have met the program training requirements. APS held a contractor orientation meeting to inform HVAC contractors about the Quality Installation rebate on July 26, 2007.

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For diagnostic testing and repair, APS is currently working with the EPA Energy Star® program, the Arizona Department of Commerce Energy Office, the Building Performance Institute ("BPI") and the non-profit FSL Home Improvements to offer BPI certification for contractors who offer home performance testing and repair. APS is working with the EPA to be able to market the program to customers as "Home Performance with Energy Star®". The "Home Performance with Energy Star®" program is a new EPA program being used to promote diagnostic testing and efficiency improvements to existing homes.

During this reporting period, APS worked extensively with FSL Home Improvements and the Arizona Energy Office to develop a detailed program implementation plan that was submitted to the EPA to gain approval as a Home Performance with Energy Star® program sponsor. This is an EPA requirement due to the complexities of this program's implementation process. The program will provide a framework for contractors to conduct comprehensive home energy efficiency assessments, where they can use building science tools and tests to assess a home's performance and recommend where improvements can be made to improve efficiency. The program will leverage the APS diagnostic testing and repair rebates as well as the high efficiency AC rebates and Quality Installation rebates where possible. APS received EPA approval of the program implementation plan. APS anticipates that this program measure will be rolled out to customers by the end of 2007.

Marketing and consumer/contractor education efforts for this program during the reporting period include:

- Monthly ad placements in HVACR Today newspaper targeted to the HVAC industry. The ads promote the new APS High Efficiency AC Rebate program to contractor and manufacturer/distributor trade allies. In addition, APS advertised the statewide Qualified Contractor training seminar in the January and February issues.
- Articles in March and June 2007 APS Lifestyles residential customer newsletter and E News e-mail newsletter.
- Hot News on homepage of aps.com.
- Print ad placements to promote the AC Rebate program to APS customers in the Arizona Republic, Buckeye Valley News, and the Phoenix Business Journal.
- APS distributed a spring season issue of the Southwestern Home Journal, an 8-page insert in the Arizona Republic, with a total reach of more than 250,000 APS customers. The Journal included articles about home energy efficiency, including the benefits of AC system maintenance and why it is important to select a qualified professional contractor. Featured articles included information about the APS AC rebate program, spring AC pre-season tune-up promotion, APS Energy Star® Homes and list of participating builders, and information about the APS Energy Efficient Lighting (CFL) program.
- Developed/produced new series of advertising to promote energy efficiency and renewable energy (or "Green") programs. The series, called "A Better Tomorrow Starts Today" features a 30 second TV spot, a print ad, and radio ad that promote the APS AC Rebate Program.
- The homepage of aps.com has been updated to prominently feature APS energy efficiency and renewable energy programs. These programs are all now grouped in one section of the homepage entitled "Green Choice", which coordinates with the current advertising campaign and makes these programs easier to find for customers.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM:** RESIDENTIAL NEW HOME CONSTRUCTION

#### **Description**

This program promotes high efficiency construction practices for new homes. It offers incentives to builders who meet program energy efficiency standards. The program emphasizes the whole building approach to improving energy efficiency and includes field testing of homes to ensure performance. 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 home and the features to consider.

The program takes advantage of the national Energy Star® brand name, and promotes the EPA/DOE Energy Star® label to prospective homebuyers. To encourage builders to meet the program's high efficiency standards, APS provides builder incentives of \$400 per home.

#### **Program Modifications**

No modifications for this reporting period.

#### **Program Goals, Objectives and Savings Targets**

The program objective is to increase the penetration of homes built to high efficiency standards. The rationale for this program is that residential new construction in the APS service territory, particularly the Phoenix metro area, is one of the biggest drivers of APS' system load growth. It is more cost-effective to work with builders to implement energy efficiency at the time of construction rather than attempt to retrofit efficiency after a home has been built. For many new home measures such as building envelope improvements, the benefits of energy efficiency upgrades will be sustained for the life of the home to produce very cost-effective savings.

According to ACC Staff's analysis of the new program for three years, the energy-efficiency savings expected to result from the New Construction Program could provide about \$9.0 million in net benefits and could reduce annual peak demand by about 13.4 MW and energy consumption by about 380,000 MWh over the life of the measures.

#### **Programs Terminated**

No programs were terminated during this reporting period.

#### **Levels of Participation**

During this reporting period, APS signed up 1,443 homes that are committed to being built to program standards. At the end of the reporting period, there were 18 homebuilders and 84 subdivisions with 18,383 lots signed up to participate in the program.

During the reporting period, APS paid homebuilder incentives for 350 APS Energy Star® homes that were completed and connected to the APS system during the period.

APS sponsored a one-day building science training for northern Arizona homebuilders that was conducted by the Energy and Environmental Building Association ("EEBA") in Flagstaff in June 2007. The training was attended by over 50 building industry professionals.

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The contract with Advanced Energy to conduct training for participating homebuilders was completed. Called "Success with Energy Star®" it trains builders and their subcontractors about techniques for improving construction details that impact efficiency and that allow the home to pass Energy Star® inspections. The training includes customized construction detail drawings and process checklists to ensure that the process is put into place at the job site. APS is currently working with builders to schedule the first training sessions.

### Evaluation and Monitoring Activities and Results

During the current reporting period the Residential New Home Construction program MER research plan was refined. This was submitted to the ACC on August 16, 2007. As this plan was being developed, various components were approved to begin development of data collection instruments and analysis activities.

MER activities undertaken from the draft research plan include;

- The development of telephone and onsite survey instruments used collect feedback from participating home builders, construction superintendents, and Home Energy Rating System (HERs) raters who are responsible for assessing the compliance of homes with program standards. Deployment of these surveys, and on-site field activities on a sample of completed homes began in July of 2007.
- Preliminary design of the Residential New Construction Program tracking database.

### kW and kWh Savings

Measure	Number of Homes Completed	Annual kWh Savings per Home	TOTAL Annual MWh Savings	Est Measure Life (yrs)	TOTAL Lifetime MWh	kW Demand Savings Per Home	TOTAL MW Savings
APS Energy Star Homes	350	3,178	1,221	20	24,426	1.3	0.52

The final savings are adjusted for line losses (9.8%).

In addition, program consumer education and homebuilder training efforts produce significant additional energy savings and benefits that are not quantified here.

### Benefits and Net Benefits/Performance Incentive Calculation

The benefits and net benefits are provided in Table 2. The details for the Performance Incentive calculation are provided in Table 3.

### Problems Encountered and Proposed Solutions

No problems encountered.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### Costs Incurred

Costs incurred for this program during the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Res New Home Construction	\$140,000	\$818	\$2,699	\$85,516	\$137,340	\$36,232	\$402,605

### Findings from all Research Projects

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

### Other Significant Information

Program marketing efforts during this reporting period include the following placements:

- Arizona New Homes and Lifestyles – (magazine targeted to prospective homebuyers).
- Homestore.com/Move.com – (website for Realtors and homebuyers).
- Developed APS Energy Star® Home program book for builder sales agents to use in selling the features of Energy Star® Homes to prospective homebuyers. The books are being distributed to model home sales offices of participating APS Energy Star® builders.
- Energy Cost Brochures – point of sale brochures that describe APS Energy Star® Homes features, currently being distributed to participating builders.
- New radio ad produced as part of the “Better Tomorrow Starts Today” ad campaign. Focuses on the energy savings and environmental benefits of APS Energy Star® Homes.
- Information on aps.com. Website homepage has been updated to highlight APS energy efficiency and renewable energy programs. APS Energy Star® Homes program is now featured prominently on aps.com.
- Article placements in the APS Lifestyles residential newsletter in January and June 2007.
- APS Bill insert in February 2007.
- Sponsorship of the “Rosie on the House” home improvement radio show on KTAR radio station. Included a partnership to build a Habitat for Humanity home that was built to APS Energy Star® program standards. This led to signing Habitat as an Energy Star® builder for all homes built in the APS service territory. As part of the sponsorship, a series of interviews was conducted that provided in-depth information into the construction features and benefits of Energy Star® homes.
- Article on APS Energy Star® Homes was featured in the company internal Newline e-mail newsletter.
- Article and list of participating builders was featured in the spring issue of the Southwestern Home Journal insert in the Arizona Republic.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: CONSUMER PRODUCTS PROGRAM**

#### **Description**

This program promotes high-efficiency EPA/DOE Energy Star® compact fluorescent lamps (CFLs). CFLs use an average of 75% less energy than standard incandescent bulbs and last up to ten times longer, typically saving consumers more than \$30 in energy costs over the life of each bulb. The program offers discounts on CFLs at local retail locations through cooperative agreements with retailers and lighting manufacturers. This provides consumers with reduced retail prices for CFLs at local lighting retailers, with prices typically at or below \$0.99 per bulb for standard 60 watt equivalent CFLs.

#### **Program Modifications**

No modifications for this reporting period.

#### **Program Goals, Objectives and Savings Targets**

The program goals, objectives, and savings targets are identified in the Consumer Products program plan. According to the Staff Recommended Decision issued on July 25, 2005, the lighting portion of the Consumer Products program "would result in about \$20.8 million net benefits to society" over the lifetime of the measures installed thru the current program planning period (2005-2007).

#### **Programs Terminated**

No programs were terminated during this reporting period.

#### **Levels of Participation**

During the January to June reporting period, the program resulted in sales of 1,251,589 CFLs through participating retail locations. During the period, there were over 280 retail outlets throughout the APS service territory where APS customers could purchase discounted CFLs. Participating retailers during this reporting period include: 99 Cents stores, Ace Hardware (select locations), AJs Fine Foods, AKA Green, Bashas, Big Lots, Costco, Food City, Home Depot, Lowe's, True Value Hardware (select locations). Bulbs were also sold through a local Arizona on-line retailer at BulbMe.com.

#### **Evaluation and Monitoring Activities and Results**

During the current reporting period the Consumer Products program (CPP) MER research plan was refined. This was submitted to the ACC on August 16, 2007. As this plan was being developed, various components were approved to begin development of data collection instruments and analysis activities.

MER activities undertaken plan include:

- Ongoing review of program datasets, reviewing planning documents and memorandums of understanding provided by the implementation contractor.
- The MER contractor conducted a general population survey of 450 residential customers that included CPP relevant topics, and a survey of customers who purchased program lamps that was completed in early 2007.

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2007**

**kW and kWh Savings**

Units	Wattage	Watts Saved	Hours Per Year	Est. Measure Life (yrs)	MWH Savings Per Year	Lifetime MWh Savings	kW Demand Savings
100	9	31	1000	5.5	3	17	1
11,032	11	29	1000	5.5	320	1,760	54
404,675	13	47	1000	5.5	19,020	104,608	3,233
189,249	14	46	1000	5.5	8,705	47,880	1,480
33,692	14	51	1000	5.5	1,718	9,451	292
249,755	15	45	1000	5.5	11,239	61,814	1,911
54,587	15	50	1000	5.5	2,729	15,011	464
74,059	18	57	1000	5.5	4,221	23,217	718
10,299	19	56	1000	5.5	577	3,172	98
43,098	20	55	1000	5.5	2,370	13,037	403
56,650	23	35	1000	5.5	1,983	10,905	337
23,415	23	42	1000	5.5	983	5,409	167
26,814	23	52	1000	5.5	1,394	7,669	237
522	23	58	1000	5.5	30	167	5
3,247	23	67	1000	5.5	218	1,197	37
66,360	23	77	1000	5.5	5,110	28,103	869
22	25	65	1000	5.5	1	8	0
13	25	76	1000	5.5	1	5	0
4,000	26	74	1000	5.5	296	1,628	50
Indirect Cooling Savings = 5 kWh/bulb/yr					6,258	34,419	
<b>1,251,589</b>				<b>TOTAL SAVINGS</b>	<b>73,761</b>	<b>405,686</b>	<b>11,371</b>

The final savings are adjusted for line losses (9.8%).

**Benefits and Net Benefits/Performance Incentive Calculation**

The benefits and net benefits are provided in Table 2. The details for the Performance Incentive calculation are provided in Table 3.

**Problems Encountered and Proposed Solutions**

No problems were encountered during this reporting period.

**Costs Incurred**

Costs incurred for this program during the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Consumer Products	\$1,002,402	\$586	\$750	\$237,511	\$29,680	\$55,004	\$1,325,933

**Findings from all Research Projects**

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

#### **Other Significant Information**

In recognition of the outstanding results from the Consumer Products program, APS was selected by the US Environmental Protection Agency (EPA) and the US Department of Energy (DOE) in March as a 2007 Energy Star® Partner of the Year Award winner for Energy Efficiency Program Delivery. This is a highly coveted award that is bestowed upon less than 1% of all Energy Star® partners each year. APS earned the award for excellence in delivering the Energy Star® lighting program to customers in Arizona and for achieving such significant bulb sales and energy savings results.

In addition to the bulb sales at retail locations, APS has purchased a supply of CFLs to use for the low income program and for customer education and awareness building purposes. APS uses these bulbs for direct installation through the APS Low Income Weatherization program (2 bulbs provided for each home that is weatherized) and to hand out at local community events and other opportunities to educate the public about CFLs.

The program conducted more than 540 retailer visits during the reporting period to provide retailer training, assess inventories of merchandise, check point of purchase displays, address availability of qualified product, and communicate with retail sales staff.

Ecos Consulting, the program implementation contractor, hired an additional program field rep due to the large extent of the retail visits, activities and program events needed to support a program and service territory of this size.

APS conducted extensive customer outreach efforts to promote the CFL program and educate customers. Consumer education events during the reporting period included:

- Earth Day event at AKA Green, a local green building products store in Scottsdale
- Live on-air broadcasts with Rosie on the House KTAR FM radio
- Retail events – field representatives set up a table top display at participating retail locations to provide education and outreach for customers buying lighting products. Beginning in June, these events are being conducted at least once a week throughout the summer months.
- Lighting Change-Out at Maricopa County Housing Authority complex for low income customers. Provided bulbs and education for customers at a low income housing complex in Surprise Arizona. This event was done in partnership with the Arizona Energy Office and the Association of Energy Engineers (AEE). AEE provided a donation to cover the cost of the bulbs. The change out event was featured on local Channel 5 TV news broadcast May 30<sup>th</sup> 2007.

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Advertising and article placements for the CFL program included the following:

- Developed new TV, radio and print ad campaign that promotes switching to CFLs. Ad placements began in July.
- Live interviews, on-air promotions and website advertising with Rosie on the House radio show.
- Information on the homepage of aps.com.
- March issue of the APS Lifestyles newsletter.
- Spring issue of the Southwestern Home Journal insert in the Arizona Republic.
- Arizona Republic and Tribune print ads in April to advertise the Earth Day event at AKA Green.
- Point of sale signage at all participating retail locations.
- Radio interview with local radio station in Sedona in March.
- CFL advertising and article placements:
  - April 10, West Valley View newspaper (article)
  - May 4, Arizona Republic (article)
  - June 1, Daily News Sun (article)
  - May 7, Surprise Republic (article)
  - June 30, Arizona Daily Sun, Flagstaff (ad)

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: NON-RESIDENTIAL PROGRAM FOR LARGE EXISTING FACILITIES**

#### **Description**

The Large Existing Facilities Program provides prescriptive incentives for owners and operators of large (over 200 kW aggregated demand) non-residential facilities for energy-efficiency improvements in lighting, HVAC, motors and refrigeration applications. For DSM applications not covered through the prescriptive incentives, the program provides custom efficiency incentives to implement energy-efficiency measures that are evaluated on a case-by-case basis. The program also provides incentives for covering a portion of the cost of an energy study that identifies energy saving opportunities. The program provides educational and promotional pieces designed to assist facility and business owners and operators in making decisions to improve the energy efficiency of their facilities.

KEMA Services Inc. provides turnkey implementation services for this program.

#### **Program Modifications**

Due to the positive activity of this Large Existing DSM program, \$2,380,000 of the budget was shifted to this program from the Small Business (\$890,000) and the Large New Construction (\$1,490,000) programs in Compliance with Decision No. 68488.

#### **Program Goals, Objectives and Savings Targets**

- Provide DSM opportunities for existing large non-residential customers.
- Promote the installation of high-efficiency technologies including, but not limited to lighting, HVAC equipment, motors, and refrigeration systems.
- Identify and pursue retrofit opportunities within this market segment.
- Increase the efficiency of existing facilities through the testing and retro-commissioning of large central HVAC systems, as well as other end-use measures.
- Promote integrated solutions to the extent possible.

According to the ACC Staff's analysis of the new program – for three years, the energy efficiency savings expected to result from the Large Existing Program could reduce annual peak demand by about 10 MW and 856,000 MWh over the life of the measures.

#### **Programs Terminated**

No programs were terminated during this reporting period.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### Levels of Participation

Program participation has increased considerably in the first half of 2007. The Large Existing Facilities Program has experienced the most customer interest and activity of all non-residential programs. From program inception to date, over 83% of all non-residential incentive funds paid have been in the Large Existing Facilities Program. A total of 205 active applications for large existing incentives have been received in this reporting period, from 61 unique customers. In terms of applications received, this represents a 75% increase over the last Semi Annual reporting period. Applications from school districts comprise 31 of the 205 applications. From January through June 2007, \$1,157,414 in Large Existing program incentives were paid. While the program offers a pre-notification process to reserve incentive funds, final applications are only processed after the project is completed and all required documentation is submitted and approved by KEMA.

Incentive Status by Fund for Active Applications	Incentives Paid
Large Existing – Prescriptive & Custom	\$1,142,214
Large Existing – Feasibility and Retro-commissioning studies	\$15,200
<b>Total Large Existing Funds</b>	<b>\$1,157,414</b>

During this reporting period, there were two study subsidies paid for a total of \$15,200. While DSM measure applications have not yet been received, program staff is aware of the customers' project planning efforts associated with both of these studies.

### Evaluation and Monitoring Activities and Results

During the current reporting period the Large Existing Facilities Program MER research plan was refined. The research plan for this program is incorporated within the Solutions for Business MER research plan and includes activities to be undertaken in support of the Large Existing Facilities, Small Business, and Schools programs. The Solutions for Business research plan was submitted to the ACC on August 16, 2007. As this plan was being developed, various components were approved to begin development of data collection instruments and analysis activities.

MER activities undertaken include:

- Ongoing onsite inspections on various completed projects. Also, in an effort to verify savings baseline assumptions, inspections were completed on pre-existing conditions at sites for which pre-notification applications had been submitted but projects had not yet been installed.
- In support of the 13 month filing (filed with the ACC on March 25 and pending approval) the MER contractor completed revisions on the savings and cost-benefit analysis for all measures included in the program.
- The MER contractor submitted summary findings from 2 case studies, interviews with APS and KEMA staff, and summarized project level activity.
- Reviewed and discussed with the implementation contractor and APS various adjustments and suggestions to improve the program tracking database.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **kW and kWh Savings**

The following table reflects the total energy and demand saving achievements in the first half of 2007 for the Large Existing Facilities. Only savings from projects that are completed and incentives paid are being counted in this report.

kW Savings	Annual kWh Savings	Lifetime kWh Savings
2,587	22,051,011	279,878,311

The final savings are adjusted for line losses (9.8%).

### **Benefits and Net Benefits/Performance Incentive Calculation**

The benefits and net benefits are provided in Table 2. The details for the Performance Incentive calculation are provided in Table 3.

### **Problems Encountered and Proposed Solutions**

The 13 month filing in March 2007 addresses three issues related to the Large Existing Facilities Program in which ACC approval has been requested:

- 1. Study Incentive Enhancements:** To date, no customers have submitted retro-commissioning applications. The current program attributes no savings to retro-commissioning studies. In practice, retro-commissioning will yield significant savings from improved operations and system efficiencies. The 13 month filing requests that retro-commissioning be categorized as a measure with associated kWh energy savings. Since retro-commissioning studies are more labor intensive and result in direct kWh energy savings once implemented, the 13 month filing requests increasing the retro-commissioning cap from \$10,000 **per customer** to \$20,000 **per facility**. For all other studies, the 13 month filing requests that the \$10,000 cap be changed from a per customer basis to a per facility basis. All study incentives would still apply to the \$300,000 per customer annual cap.
- 2. Custom Application Enhancements:** The program currently has separate incentives for prescriptive and custom measures. If a customer utilizes both types of measures, the customer must submit separate applications and documentation. The 13 month filing proposed that in cases where there is an integrated building energy simulation that quantifies the energy savings through the Custom Program, that prescriptive and custom measures would be allowed to be presented in one custom application and treated as a single measure. This change will simplify the application process for customers while assuring that measures would not be double-counted during the application processing.
- 3. Budgeting Flexibility:** Due to the success of the Large Existing Facilities Program, demand for the program could exceed the budget ceiling, even after exercising an allowed 25% budget shift. APS requested to increase the incentive funding in a submittal to the ACC on June 18, 2007 for expedited approval.

**ARIZONA PUBLIC SERVICE COMPANY**

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2007

**Costs Incurred**

Costs incurred for this program during the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Large Existing Facilities	\$1,157,414	\$15,420	\$8,000	\$719,656	\$5,847	\$90,346	\$1,996,683

\*The following table provides a more detailed breakdown of the Implementation Contractor (IC) costs, which are included in the Program Implement column above.

DSM Program	IC - Implementation	IC - Marketing	IC - Education	IC - Technical Services	IC - Total Cost
Large Existing Facilities	\$334,020	\$208,319	\$55,423	\$121,895	\$719,656

**Findings from all Research Projects**

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

**Other Significant Information**

During the first half of 2007, program development activities focused on increasing program participation and fine-tuning implementation processes. These activities fall into three general categories: market outreach, and expanding technical and training resources. Specific activities include the following:

**Market Outreach:**

Marketing activities for the Large Existing Customer program consisted of four areas of focus:

- 1. Trade Ally Development:** Trade Ally recruitment focused on one-on-one development and training. Several meetings were held with individual potential trade allies, and program staff worked with existing trade allies to streamline application processes. These individual meetings allowed program staff to address the specific needs and opportunities of the Trade Ally. For instance, a seminar was developed for a lighting vendor to address lighting opportunities and program documentation. One general Trade Ally seminar was held at the Electric League of Arizona.
- 2. Customer awareness and project generation:** One-on-one meetings were held with several customers to identify potential projects. Meetings with small groups of customers were held in Flagstaff and Prescott. The program was featured in multiple Success Newsletters that are distributed to non-residential customers. Topics included energy issues for schools, small business, and energy tips.
- 3. Generate Program Awareness through key events:** Trade shows included the Edison Electric Institute's National Accounts meeting and the Arizona Convenience Store trade show.

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

4. **Engage Key Organizations:** Key organizations engaged by the Solutions for Business program in the first half of 2007 include outreach to 100's of potential Trade Allies and customers at meetings of the following kinds of organizations: Green Business Council, WESTMARC, Sustainable Arizona, Building Owners and Management Association (BOMA), and Air Conditioning Contractors of America (ACCA).

In addition, a partnership with the EPA/DOE ENERGY STAR® program was formalized to enable business customers to access additional resources to implement energy-efficiency improvements and to market their efforts internally and publicly.

#### **Expanding Technical and Training Resources:**

- An Energy Efficiency Training Series was started under the "Solutions for Business" umbrella. This training series is designed to provide education on a variety of technical topics on an on-going basis. A program brochure was produced for the series, and the first training session is planned to be held on July 11 with motors as the topic. Future training classes will include retro-commissioning, lighting and engineering studies. A training subsidy that offsets the registration fee is offered to APS customers and trade allies.
- The program website was enhanced to provide more informational references to customers.
- Informational "Fact Sheets" for retail and restaurant segments were developed, to provide energy saving insights to these customer segments.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: NON-RESIDENTIAL NEW CONSTRUCTION AND MAJOR RENOVATIONS**

#### **Description**

The Non-Residential New Construction and Major Renovations program includes three components: design assistance, custom efficiency, and prescriptive 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. Custom efficiency provides incentives for large non-residential customers and provides feasibility studies to assess the savings from complex applications. Prescriptive incentives are available for energy-efficiency improvements in lighting, HVAC, motors and refrigeration applications.

KEMA Services Inc. provides turnkey implementation services for this program.

#### **Program Modifications**

Due to the positive activity of the Large Existing DSM program, \$1,490,000 of the budget was shifted from this program to the Large Existing Facilities program.

#### **Program Goals, Objectives and Savings Targets**

- Promote integrated design and integrated analysis of alternative high-efficiency design packages through design assistance in new construction and major renovation applications.
- Assist the customer design team in examining alternative high-efficiency design packages through the provision of the design incentive.
- Encourage facility-specific efficiency improvements through custom incentives that are otherwise difficult to cover in a prescriptive program.
- Encourage the integrated systems approach to incorporating energy-efficiency improvements in new construction and major renovation projects.
- Promote integrated energy efficiency solutions where possible to capture interactive effects and synergistic savings opportunities.
- Train commercial qualified contractors to meet APS' standards for installation and operation of high efficiency systems.

According to the ACC Staff's analysis of the new program for three years, the energy efficiency savings expected to result from the Large New Construction Program could reduce annual peak demand by about 8.8 MW and 729,000 MWh over the life of the measures.

#### **Programs Terminated**

No programs were terminated during this reporting period.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### Levels of Participation

The New Construction program participation continues to increase, however long lead times for new construction typically result in a longer ramp up time for program participation. Incentives paid in the first half of 2007 were 70% higher than the previous six months. A total of 26 applications for New Construction incentives have been received, from 17 unique customers. Three of the 26 applications are from school districts. In the first half of 2007, \$51,381 in New Construction incentives were paid. To date, funds paid in this program represent approximately 5.6% of the total New Construction budget. While the program offers a pre-notification process to reserve incentive funds, final applications are only processed after the project is completed and all required documentation is submitted and approved by KEMA.

Incentive Status for Active Applications	Incentives Paid
Large New Construction – Prescriptive, Custom & Design Assistance	\$51,381
Large New Construction – Feasibility and Commissioning Studies	\$0
<b>Total Large New Construction Funds</b>	<b>\$51,381</b>

During this reporting period, there were no instances that incentives were paid for New Construction related studies.

### Evaluation and Monitoring Activities and Results

During the current reporting period the Non-Res New Construction Program (NRNCP) MER research plan was refined. The research plan was submitted to the ACC on August 16, 2007. As this plan was being developed, various components were approved to begin development of data collection instruments and analysis activities.

MER activities undertaken from include:

- Completed revisions on the savings and cost-benefit analysis for all measures included in the program and submitted as part of the 13 Month Filing which is pending approval by the ACC.
- Field data collection and analysis to address the uncertainty of savings estimates is on-going.
- Review of a case study and interviews with APS and KEMA staff.
- Reviewed and discussed with the implementation contractor various adjustments needed for the program tracking database.

### kW and kWh Savings

The following table reflects the total energy and demand saving achievements in the first half of 2007 for the Large New Construction Program. Only savings from projects that are completed and incentives paid will be counted in this report.

kW Savings	Annual kWh Savings	Lifetime kWh Savings
348	1,225,828	20,611,587

The final savings are adjusted for line losses (9.8%).

**ARIZONA PUBLIC SERVICE COMPANY**

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**Benefits and Net Benefits/Performance Incentive Calculation**

The benefits and net benefits are provided in Table 2. The details for the Performance Incentive calculation are provided in Table 3.

**Problems Encountered and Proposed Solutions**

Large New Construction projects often have a long lead / lag-time between the design phase, start of construction and complete build-out of a project. There is often an 18 month or longer lead time with new construction projects, and this could affect the timing of savings results and incentives paid in this program. Active marketing and project development is ongoing to raise program participation. These efforts are described in the Market Outreach section below.

In addition, the Studies and Custom Application issues described in the Large Existing section apply to this program as well.

**Costs Incurred**

Costs incurred for this program during the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Large Non Res New Const	\$51,381	\$13,403	\$55	\$373,235	\$2,611	\$52,859	\$493,544

\*The following table provides a more detailed breakdown of the IC costs, which are included in the Program Implement column above.

DSM Program	IC - Implementation	IC - Marketing	IC - Education	IC - Technical Services	IC - Total Cost
Large Non Res New Const	\$181,887	\$94,874	\$28,246	\$68,228	\$373,235

**Findings from all Research Projects**

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **Other Significant Information**

During the first half of 2007, program development activities focused primarily on increasing program participation. Specific activities include the following:

#### **Market Outreach:**

Marketing activities for the New Construction program consisted of three areas of focus:

- 1. Trade Ally Development:** Trade Ally recruitment focused on one-on-one development and training. Program staff held several company-specific training sessions at architectural and construction firms. In addition, the potential tools and support were explored, such as sample RFP for choosing a LEED consultant, and potential "Design Charettes" to assist design firms with incorporating energy efficiency into their building plans. These kinds of tools and services are being offered to select trade allies when their projects and level of commitment demonstrate that their projects could benefit from them.
- 2. Customer awareness and project generation:** The focus for generating New Construction projects has been directed to the "Owner Occupied" segment. These include state and local government buildings, schools and signature development projects. One-on-one meetings were held with several customers and their contractors to identify potential projects. A "pipeline" of 80 projects due to be constructed over the next three years has been developed, with regular follow up to encourage participation. The program was also featured in multiple Success Newsletters that are distributed to non-residential customers.
- 3. Engage Key Organizations:** In addition to engaging A&E and construction firms on an individual basis, outreach to several New Construction organizations built exposure in this industry. This kind of outreach also provides the program with leads on individual projects to pursue with customers and their contractors. These organizations include the Alliance for Construction Excellence (ACE), BOMA, Construction Specifications Institute, the Green Building Council and others.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: SMALL BUSINESS PROGRAM**

#### **Description**

The Small Non-Residential Program provides prescriptive incentives for small non-residential customers (<200 kW of aggregated demand) for energy-efficiency improvements in lighting, HVAC ("heating, ventilation, and air conditioning"), motors, and refrigeration applications through a simple and straightforward mechanism for program participation. In addition, the program provides educational and promotional materials designed to assist building owners and lease-holders in making decisions to improve the energy-efficiency of their facilities.

KEMA Services Inc. provides turnkey implementation services for this program.

#### **Program Modifications**

Due to the positive activity of the Large Existing DSM program and the slower uptake of this Small Business program, \$890,000 of the budget was shifted from this program to the Large Existing Facilities program. In addition, the 13 Month Filing proposes a "Direct Install" program that would make it easier for customers to implement DSM measures and ultimately increase Small Business participation.

#### **Program Goals, Objectives and Savings Targets**

- Provide Demand Side Management opportunities for small non-residential customers
- Promote the installation of high-efficiency lighting, packaged HVAC equipment, motors, and refrigeration systems.
- Increase the availability of trained and qualified contractors and service technicians who are knowledgeable about systems performance issues, proper testing, operation and commissioning techniques, and the importance of energy and comfort conditioning benefits of systems that are properly installed and operated.
- Promote cross-training and energy-efficiency assessment and referral opportunities among HVAC and lighting contractors.

According to the ACC Staff's analysis of the new program – for three years, the energy efficiency savings expected to result from the Small Non-Residential Program could reduce annual peak demand by about 6.5 MW and 571,000 MWh over the life of the measures.

#### **Programs Terminated**

No programs were terminated during this reporting period.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2007**

**Levels of Participation**

The Small Business program continued to have a relatively slow uptake. This occurred even after significant and focused outreach to the small business segment. As reported in the previous Semi Annual Report, the small business sector is difficult to reach and often requires greater incentives than other markets. A total of 30 applications for Small Business incentives have been received from 26 unique customers. From January 1 through June 30, 2007, \$19,670 in Small Business program incentives were paid. To date, incentives paid for this program represent less than 5% of the program incentive budget. While the program offers a pre-notification process to reserve incentive funds, final applications are only processed after the project is completed and all required documentation is submitted and approved by KEMA.

Incentive Status for Active Applications	Incentives Paid
Small Business	\$19,670

**Evaluation and Monitoring Activities and Results**

During the current reporting period the Small Business Program MER research plan was refined. The research plan for this program is incorporated within the Solutions for Business MER Research Plan and includes activities to be undertaken in support of the Large Existing Facilities, Small Business, and Schools programs. The research plan was submitted to the ACC on August 16, 2007. As this plan was being developed, various components were approved to begin development of data collection instruments and analysis activities.

MER activities undertaken include:

- Ongoing onsite inspections on various completed projects. Also, in an effort to verify savings baseline assumptions, inspections were completed on pre-existing conditions at sites for which pre-notification applications had been submitted but projects had not yet been installed.
- In support of the 13 month filing, completed revisions on the savings and cost-benefit analysis for all measures included in the program and completed an analysis of all measures included in a proposed very small business program.
- Conducted interviews with APS and KEMA staff, and a summary of project level activity.
- Reviewed and discussed with the implementation contractor various adjustments needed for the program tracking database.

**kW and kWh Savings**

The following table reflects the total energy and demand saving achievements in the first half of 2007 for Small Businesses. Only savings from projects that are completed and incentives paid will be counted in this report.

kW Savings	Annual kWh Savings	Lifetime kWh Savings
137	608,957	10,712,013

Final savings are adjusted for line losses (9.8%).

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### Benefits and Net Benefits/Performance Incentive Calculation

The benefits and net benefits are provided in Table 2. The details for the Performance Incentive calculation are provided in Table 3.

### Problems Encountered and Proposed Solutions

Low participation in this program remains the key challenge even though focused marketing has been implemented. This challenge is consistent with other DSM markets, which is why APS proposed modifications to the program in the 13 month filing. These modifications include reducing the "small business customer" classification to include customers that have 100kW or less of aggregated monthly demand, and increasing incentives for some measures under a "Direct Install" program as proposed in APS' 13 Month Filing which is pending ACC approval.

### Costs Incurred

Costs incurred for this program during the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Small Business	\$19,670	\$390	\$5,447	\$240,257	\$1,859	\$31,958	\$299,582

\*The following table provides a more detailed breakdown of the IC costs, which are included in the Program Implement column above.

DSM Program	IC - Implementation	IC - Marketing	IC - Education	IC - Technical Services	IC - Total Cost
Small Business	\$137,668	\$61,418	\$17,235	\$23,936	\$240,257

### Findings from all Research Projects

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

### Other Significant Information

While general improvements to materials and information were made for the entire Solutions for Business program, development for the Small Business program focused on marketing and outreach in an effort to improve program participation.

### Marketing and Communications

A new Small Business outreach strategy was developed and is being implemented. This strategy leveraged APS' Community and Economic Development Department contacts and included outreach to small business organizations. Presentations and program information were revised to address this difficult to reach market. Since small businesses comprise the majority of Chambers of Commerce membership, the program met with several Chambers to promote the program in their newsletters and to distribute program information at their events.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

Marketing activities for the Small Non-residential Customer program consisted of three areas of focus:

- 1. Trade Ally Coordination:** In addition to Trade Ally recruitment and training for all programs, program staff met with specific Trade Allies in an effort to engage them in the small business market. While the existing structure of incentives and small business realities make this an expensive and difficult market for contractors to reach, one trade ally has begun to pursue this market in the Sedona area. This Trade Ally is also becoming engaged in the Nevada Direct Install program to build capabilities in the event a similar program is approved for Arizona.
- 2. Key Organizations/Customer awareness:** Meetings were held with nearly all Metro area Chambers of Commerce in an effort to gain their support in promoting the program to their membership. In addition, meetings were held with the Chamber of Commerce for Casa Grande, Florence, Maricopa, Arizona City, and Globe. A presentation was also made to small business leaders in Parker, and the program participated in small business meetings in Prescott and Humboldt. The Flagstaff Chamber promoted the program in their newsletter. Additional meetings are being scheduled with other small business organizations throughout APS' service territory.
- 3. Small Business Events and Information:** The program targeted the small business market at two Chamber of Commerce conferences. In addition, the program had a booth at a Convenience Store trade show at the Phoenix Civic Center. Since one-on-one customer meetings have not been an effective way to achieve small business participation, program information was developed to provide segment-specific energy savings ideas. These "Fact Sheets" were developed for the small offices, retail and restaurant segments. In addition, a small business case study was in final review at the end of June.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: BUILDING OPERATOR TRAINING PROGRAM ("BOT")**

#### **Description**

The Building Operator Training Program ("BOT") provides training incentives for building operators (managers) and facility maintenance technicians on energy-efficient building operating and maintenance practices. Program training is provided through a cooperative effort with the Electric League of Arizona ("ELA") in support of their "Institute for Facility Management Education" program, which includes industry expert training targeted to reach facility managers and building operators of medium to large commercial and industrial facilities. The ELA issues a certificate of completion for participants that successfully complete Facility Maintenance Technician Training and Building Operator Training.

#### **Program Modifications**

No modifications for this reporting period.

#### **Program Goals, Objectives and Savings Targets**

- Promote operation and maintenance practices that increase the energy-efficiency of commercial and industrial facilities.
- Help participants understand general utility rate concepts and energy consumption.
- Institute a preventative maintenance program in their facility, which includes written maintenance logs that must be completed periodically. Include checks for efficient equipment operation (i.e., economizer/dampers for leaks, coil cleaning, air filter cleaning, system balancing, controls, etc.).
- Learn how to perform an energy audit of their facility and identify savings opportunities
- Learn to create reports for management that justify energy-efficiency capital expenses intended to produce O&M savings.
- Improve purchasing requirements by knowing what to look for when repairing or replacing equipment, and how to calculate the payback of energy savings associated with purchase options; and
- Provide a mechanism for channeling participation to the APS Business Solutions Program.

According to the ACC Staff's analysis of the new program – for three years, the energy efficiency savings expected to result from the BOT Program could reduce annual peak demand by about 6.43 MW and 81,000 MWh over the life of the measures.

#### **Programs Terminated**

No programs were terminated during this reporting period.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### Levels of Participation

The BOT Program had ten APS customer participants in the Spring 2007 Building Operator Training session, and all ten successfully received a passing grade from the ELA and received their BOT Certificate of completion. The training subsidy paid to the ELA to cover the tuition subsidy for APS customer participation totaled \$5,975 or \$597.50 per participant.

The BOT Program also had thirteen APS customer participants in the Spring 2007 Facilities Maintenance Training (FMT) session, and all thirteen successfully received a passing grade from the ELA. The FMT subsidy paid to the ELA to cover the tuition subsidy for APS customers was \$5,818 or \$447.50 per passing customer.

### Evaluation and Monitoring Activities and Results

During the current reporting period the Building Operator Training Program MER research plan was in development; it was submitted to the ACC on August 16, 2007. As this plan was being developed, various components were approved to begin development of data collection instruments and analysis activities.

MER activities undertaken from the draft research plan include;

- Review of program material, interviews with APS staff, ELA staff and instructors on 3 programs, and interviews with attendees of the Fall Building Operator Certification Program.

### kW and kWh Savings

Participants	Est. Measure Life (yrs)	kWh Savings per Year*	Lifetime kWh Savings	kW Demand Savings *
BOT = 10	15	73,764	1,106,460	9.55
FMT = 13	15	95,893	1,438,391	12.42

\* Annual energy and demand savings per participant approved equals 6,718 kWh and .87 kW. The final savings are adjusted for line losses (9.8%).

### Benefits and Net Benefits/Performance Incentive Calculation

The benefits and net benefits are provided in Table 2. The details for the Performance Incentive calculation are provided in Table 3.

### Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

### Costs Incurred

Costs incurred for this program during the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Building Operator Training	\$0	\$12,688	\$0	\$6,758	\$7,162	\$0	\$26,607

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DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2007

**Findings from all Research Projects**

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

**Other Significant Information**

None.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: ENERGY INFORMATION SERVICES ("EIS") PROGRAM**

#### **Description**

The EIS Program helps large customers (>200 kW) save energy by giving them a better understanding and control of their facilities' electric use. EIS provides data not only regarding usage and demand, but also when, where and how much power is used in specific areas of each facility. This detailed information allows customers to fine-tune equipment use and operations and to document the impact of those changes. Participating customers monitor their electric usage through a web-based energy information system that allows them to receive historical (previous day) 15 minute usage and demand graphics. This information can be used to improve or monitor energy usage patterns, reduce energy use, reduce demands during on-peak periods and better manage their overall energy operations.

APS is encouraging customers to take advantage of EIS by providing a one-time incentive of up to a maximum of \$900 or 75% of the cost of installing a meter and communications equipment necessary to participate in the program. Automated Energy provides turn-key implementation services for the EIS program.

#### **Program Modifications**

No modifications for this reporting period.

#### **Program Goals, Objectives and Savings Targets**

- Provide monthly energy usage information to large non-residential customers.
- Identify strategies to lower energy cost by reducing energy usage and demand.
- Educate EIS program participants about utility rate concepts and how managing or reducing their energy consumption through energy-efficiency measures and operational practices can reduce their energy expenses.
- Teach participants how to download billing history information and create spreadsheets to chart and graph their energy use, as well as identify consumption trends and savings opportunities.
- Educate EIS participants about creating reports for management that justify energy-efficient capital expenses intended to produce operations and maintenance ("O&M") savings; and
- Facilitate analysis of what-if scenarios to help large facility managers assess the benefits of capital improvements or operating adjustments to improve energy-efficiency.

According to the ACC Staff's analysis of the new program – for three years, the energy efficiency savings expected to result from the EIS Program could reduce annual peak demand by about 3.57 MW and 45,000 MWh over the life of the measures.

#### **Programs Terminated**

No programs were terminated during this reporting period.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### Levels of Participation

No participation to report, as the EIS program was started in late 2006. The program is early in the implementation phase. One customer is in the process of obtaining metering for this service but did not have these services in place as of June 30<sup>th</sup>. Seven customers have active proposals that are in the process of being reviewed.

### Evaluation and Monitoring Activities and Results

During the current reporting period there has been no MER activity on the EIS program.

### kW and kWh Savings

No savings to report during this period.

### Benefits and Net Benefits/Performance Incentive Calculation

Since there were no kW or kWh savings to date, the EIS program benefits are zero to date.

### Problems Encountered and Proposed Solutions

The Energy Information Services (EIS) program customer incentive caps were designed around the basis of one meter EIS application costing a maximum of \$1200. Based on a limit of 75% incentive to incremental cost factor that was used throughout the Non-Residential incentive program design, the maximum incentive per customer was set at \$900. However, most Non-Residential customers have more than one meter. The Company has received program feedback from one of our large city customers stating that this customer cap does not make sense for them since they have approximately 300 meters. They would like to see the program cap be raised to recognize the fact that program participants will install EIS on multiple meters within their domain.

The Company, through the 13 Month Filing, is now recommending that the EIS program incentives be expanded to allow more incentives for those customers with multiple meters. However, the Company still needs to insure that one customer does not dominate the incentives. Therefore, APS recommends that any one EIS customer be capped at \$12,000 (5% of the EIS incentive budget) over any one year. In addition, this EIS incentive would be included in the total large customer DSM incentive cap of \$300,000 per year.

### Costs Incurred

Costs incurred for this program during the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Energy Information Services	\$0	\$0	\$583	\$23,100	\$0	\$2,266	\$25,949

### Findings from all Research Projects

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

### Other Significant Information

None.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **PROGRAM: SCHOOLS PROGRAM**

#### **Description**

The Schools program includes a set-aside budget for schools and provides assistance in reducing the energy used in school buildings, including public, private and charter schools. The incentives available for schools include the same DSM measures that are available for all non-residential customers.

KEMA Services Inc. provides turnkey implementation services for this program. This includes a grant to the Arizona Department of Commerce Energy Office to provide outreach to rural school districts.

#### **Program Modifications**

No modifications for this reporting period.

#### **Program Goals, Objectives and Savings Targets**

- Maximize the energy savings that can be attained with available DSM funds by providing schools incentives to upgrade lighting, HVAC, and refrigeration systems.
- Provide educational and training materials to aid schools in other energy conservation projects.
- Provide design assistance, commissioning and energy feasibility incentives to aid schools in identifying energy savings opportunities.
- Provide incentives for other cost effective DSM projects by allowing schools to participate in any Non-Residential DSM Program.

According to the ACC Staff's analysis of the new program – for three years, the energy efficiency savings expected to result from the lighting component of the Schools Program alone could reduce annual peak demand by about 6.37 MW and 178,000 MWh over the life of the measures. Staff also indicated to the extent that other cost-effective measures would be undertaken by Schools, additional savings could accrue.

#### **Programs Terminated**

No programs were terminated during this reporting period.

#### **Levels of Participation**

In the first half of 2007, a total of 35 applications from schools were received, from 10 unique school districts. To date, schools have had a healthy level of participation in the program. While school districts comprise less than 8% of APS's non-residential energy use, to date they have received nearly 15% of the paid program funds for their energy efficiency projects.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

The self-reported size of the school entity, based on the number of students as submitted on approved applications is:

Metro/Non-Metro	Project Type	Size	No. of Students in District
Metro	Prescriptive Measures – Retrofit	>200kW	700
Metro	Prescriptive & Custom Measures – Retrofit	>200 kW	35,743
Non-Metro	Prescriptive Measures – Retrofit & Technical Assistance	>200 kW	1,400
Non-Metro	Prescriptive & Custom Measures – Retrofit	>200kW	1,245
Metro	Prescriptive Measures – Retrofit	>200kW	1,350
Metro	Prescriptive Measures – Retrofit	>200kW	3,865
Metro	Prescriptive & Custom Measures – Retrofit	>200 kW	34,226
Metro	Prescriptive Measures – New Construction	>200kW	38,000 (estimated)
Metro	Prescriptive Measures – Retrofit	>200kW	28,000
Non-Metro	Prescriptive Measures – Retrofit	>200kW	10,500

When an incentive application is received from a school district and deemed eligible, funding is first allocated from the Schools budget, a maximum of \$25,000 or \$15/student cap. Any additional funding required to cover the application is then allocated from the appropriate Large Existing, New Construction or Small Business Program budget.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

During this reporting \$78,579 in incentives were paid to schools. The Schools Program incentives of \$39,220 were paid under the schools program (including one study). The remaining \$39,359 in incentives were paid to schools under the Large Existing Program (see the table below).

Incentive Status by Fund for Active Applications	Incentives Paid
Schools Budget – Prescriptive & Custom	\$37,028
Schools Budget – Feasibility, Commissioning and Retro-commissioning Studies	\$2,192
<b>Total School Funds</b>	<b>\$39,220</b>
<b>Schools Summary:</b>	
Schools – School Funds	\$39,220
Schools – Large Existing Funds	\$39,359
Schools – New Construction Funds	\$0
Schools – Small Business Funds	\$0
<b>Total Allocated for Schools</b>	<b>\$78,579</b>

During this reporting period, there was one study completed and paid to a School district. The district is currently seeking budget approval for the associated projects identified in this study.

### **Evaluation and Monitoring Activities and Results**

During the current reporting period the Schools Program MER research plan was developed. The research plan for this program is incorporated within the Solutions for Business MER Research Plan and includes activities to be undertaken in support of the Large Existing Facilities, Small Business, and Schools programs. The MER Research plan was submitted to the ACC on August 16, 2007. As this plan was being developed, various components were approved to begin development of data collection instruments and analysis activities.

MER activities undertaken include:

- Ongoing onsite inspections on various completed projects. Also, in an effort to verify savings baseline assumptions, inspections were completed on pre-existing conditions at sites for which pre-notification applications had been submitted but projects had not yet been installed.
- In support of the 13 month filing, completed revisions on the savings and cost-benefit analysis for all measures included in the program.
- Performed interviews with APS and KEMA staff, and a summarized project level activity.
- Reviewed and discussed with the implementation contractor various adjustments needed for the program tracking database.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### **kW and kWh Savings**

The following table reflects the total energy and demand saving achievements in the first half of 2007 for schools projects. Only actual savings from projects that are completed and incentives paid will be counted in this report.

	<b>kW Savings</b>	<b>Annual kWh Savings</b>	<b>Lifetime kWh Savings</b>
Schools – School Funds	109	587,448	9,603,571
Schools – Large Existing Funds	9	398,273	6,619,088
Schools – New Construction Funds	0	0	0
Schools – Small Business Funds	0	0	0
<b>Total Attributable to Schools</b>	<b>118</b>	<b>985,721</b>	<b>16,222,659</b>

Final savings are adjusted for line losses (9.8%).

### **Benefits and Net Benefits/Performance Incentive Calculation**

The benefits and net benefits are provided in Table 2. The details for the Performance Incentive calculation are provided in Table 3.

### **Problems Encountered and Proposed Solutions**

Due to the nature of new school construction and remodeling, multiple school districts have expressed difficulty with producing invoices for specific application measures that document the price, date of purchase and model numbers of equipment and assistance and education are being provided. Program engineers have performed on-site inspections and documented their review on behalf of these districts, but obtaining all of the information necessary to process applications for schools is occasionally not possible. In addition, some school districts have had difficulty understanding the program's qualifying equipment performance standards. Special training and a seminar were developed to assist school districts and their contractors with these areas.

APS is evaluating the concept to allow schools to participate in the "Direct Install" program that is recommended for the Small Business program. This would lower up-front cost for these school projects. This would also remove documentation requirements for school districts for prescriptive lighting and refrigeration measures that are part of the Direct Install program. Schools would still be eligible to participate in the broader program.

The Schools program also has the Custom Measure and Studies issues as discussed earlier in the Large Existing Facilities and New Construction Program sections.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2007

### Costs Incurred

Program costs incurred during the first half of 2007 are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Schools	\$39,220	\$2,193	\$837	\$95,000	\$644	\$13,620	\$151,514

\* The following details the IC costs, which are included in the Program Implement column above.

DSM Program	Implementation	Marketing	Education	Technical Services	Program Total Cost
Schools	\$40,895	\$32,641	\$6,456	\$15,008	\$95,000

### Findings from all Research Projects

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

### Other Significant Information

During the first half of 2007, program development activities focused on increasing program participation and providing specialized education to schools. Marketing and educational activities for the Schools program consisted of three areas of focus:

1. **Trade Ally Development:** Trade Ally recruitment focused on one-on-one development and training. Several meetings were held with individual potential trade allies, and program staff worked with existing trade allies to streamline application processes. These individual meetings allowed program staff to address the specific needs and opportunities of schools and the trade ally. A&E and construction firms were targeted, with several schools-specific meetings held at their offices.
2. **Customer awareness and project generation:** One-on-one meetings were held with several school districts in an effort to identify potential projects. A list of these districts is included in the Schools Program Participation section, below.
3. **Key Events and Training:**
  - A special Schools Seminar was held with the dual objectives of increasing program participation and assisting with some common difficulties in the application process. Invitations were sent to over 120 school districts, and the ½ day program included presentations by Scottsdale School District and the Arizona Schools Facilities Board, in addition to program staff presentations.
  - An overview and tutorial was presented to the Arizona Association of School Business Officials (AASBO) at their annual meeting in Bullhead City.

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- The program supported three schools educational events at trade ally locations: Orcutt Winslow Partnership, Sigler/Carrier Schools Conference and the Centennial Contractors schools event.
- A special schools "Fact Sheet" was published that provides schools with energy use and energy savings advice.
- A ceremonial check was presented at a Deer Valley USD board meeting for \$170,757 in incentives which was the highest amount received by any school district to date. An associated press release was sent out, in an effort to encourage other school districts to participate in the program.

**4. Schools Program Participation in this Reporting Period:** Direct marketing of the DSM program to 36 school districts, including 14 Rural and Non-metro and 22 Metro school districts was completed during the reporting timeframe.

In addition to individual school district outreach, program staff continued to engage the Arizona School Facilities Board ("ASFB"). The ASFB has been actively supportive of the program, and requests that A&E firms include program eligible equipment and design criteria in their new schools or major renovations to existing schools. The ASFB was also a valuable part of the agenda at the program's Schools Seminar.

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### PORTFOLIO PLANNING: DSM MEASUREMENT, EVALUATION AND RESEARCH

#### Description

Summit Blue has been hired by APS to provide Measurement, Evaluation and Research (MER) turnkey services for all DSM programs, other than the Energy Wise Low Income Weatherization program. The MER project includes two broad categories of research:

- Process evaluation research to indicate how well programs are working to achieve their objectives,
- Impact evaluation research to verify that energy-efficient measures are installed as expected, measurement 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.

During the current reporting period MER activities include refining the research plans and implementing various components of the plan as they were approved by APS. The process activities approved and undertaken in the first 6 months of 2007 include:

- Various process evaluation activities are under way on all programs with the exception of EIS, including ongoing reviews of program materials and interviewing a range of program actors.
- Interim reports were submitted summarizing early process evaluation findings on the Residential New Construction, Res Existing AC, Consumer Home Products, Building Operator Training, Solutions for Business, and Non-Residential New Construction programs.

Various impact evaluation activities are under way on all programs with the exception of Consumer Home Products, Building Operator Training and EIS. The impact activities approved and undertaken in the first 6 months of 2007 include:

- Updating savings and cost-benefit analysis on the Residential Existing AC, Solutions for Business and Non-residential New Construction programs and providing evaluation support for the 13 Month Filing submitted in March.
- Developed the Residential New Construction Program tracking database.
- Field verification activities have been ongoing on projects installed through the Solutions for Business program; including an ongoing review of the program databases to ensure a representative sample of projects are being researched.
- Reviewed and discussed with the implementation contractor various adjustments necessary to the program tracking database.

#### Program Modifications

Not applicable.

#### Program Goals, Objectives and Savings Targets

Not applicable.

#### Programs Terminated

Not applicable.

#### Levels of Participation

Not applicable.

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#### **Evaluation and Monitoring Activities and Results**

The DSM program Measurement and Evaluation activities are underway. The process evaluation and verification of savings is an ongoing activity and will continue through 2007. See specific program sections for additional information.

#### **kW and kWh Savings**

Not applicable.

#### **Benefits and Net Benefits/ Performance Incentive Calculation**

Not applicable.

#### **Problems Encountered and Proposed Solutions**

Not applicable.

#### **Costs Incurred**

Total costs incurred for Measurement and Evaluation during this reporting period were \$537,918.41.

#### **Findings from all Research Projects**

During this period, APS filed a DSM Baseline Study that was approved in Decision No. 67816. A second portion of the research project, a DSM Market Potential Study, is currently being finalized.

#### **Other Significant Information**

None.