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Regulatory Affairs Supervisor  
State Regulation

Arizona Corporation Commission  
**DOCKETED**

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SEP 1 2011

September 1, 2011

DOCKETED BY

Docket Control  
Arizona Corporation Commission  
1200 W. Washington  
Phoenix, AZ 85007

RE: Demand Side Management Semi-Annual Report  
Decision No. 67744; Docket No. E-01345A-03-0437 & E-01345A-05-0526

Enclosed is the Arizona Public Service Company ("APS" or "Company") Demand Side Management ("DSM") Semi-Annual Report covering the period of January 1, 2011, through June 30, 2011 in compliance with the requirements outlined below.

Pursuant to Decision No. 59601 (April 24, 1996):  
"APS shall file detailed semi-annual reports with Staff and in Docket Control on all DSM and renewables activities, although confidential information need not be filed in Docket Control."

Pursuant to Decision No. 67744 (April 7, 2005):  
"APS is required to file mid-year and end-year reports on each DSM program."

Further requirements for APS's DSM Semi-Annual Report are contained in Decision Nos. 68648, 70637, 71444, 71866, 72032, 72060, and 72088 and 72214.

The Company is also required to provide its updated Energy Conservation Plan pursuant to the Arizona Administrative Code, Section R14-2-213.

The Electric Energy Efficiency Standards require mid-year reporting by September 1 of each year as outlined in Arizona Administrative Code, Section R14-2-2409(B).

If you have any questions or concerns please contact me at (602) 250-2661.

Sincerely,

Jeffrey W. Johnson

JJ/sl  
Attachment

cc: Brian Bozzo  
Terri Ford  
Barbara Keene  
Laura Furrey

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DOCKET CONTROL

**ARIZONA PUBLIC SERVICE COMPANY**

**Demand Side Management  
Semi-Annual Report**

**January through June 2011**

**September 1, 2011**

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

This Demand Side Management Semi-Annual Progress Report ("Progress Report") includes the following information for all APS Demand Side Management ("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;
- 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; and
- Other significant information.

Summary pages detailing the program expenses are provided in Tables 1, 2 and 3. Tables 4, 5 and 6 depict DSM program MW and MWh savings. Tables 7, 8 and 9 depict net benefits and performance incentive. Table 10 depicts the environmental benefits associated with the lifetime energy savings resulting from DSM programs. Table 11 depicts DSM expenditures, budgets and participation levels. Table 12 details the Demand Response ("DR") budget versus actual expenses and Table 13 depicts the DR load reduction and savings values.

This Progress Report has been updated to meet reporting requirements of the five (5) Decisions approving various portions of APS's 2011 DSM Implementation Plan (Docket No. E-01345A-10-0219)<sup>1</sup>. The Electric Energy Efficiency Standards ("EE Rules") became effective on January 1, 2011, so this report was also updated to meet the Reporting Requirements contained in R14-2-2409. For this September 1 filing, Table 11 has been added to be responsive to R14-2-2409 (B).

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<sup>1</sup> Decision No. 71950 (November 1, 2010), Decision No. 72032 (December 10, 2010), Decision No. 72060 (January 6, 2011), Decision No. 72088 (January 20, 2011), and Decision No. 72215 (March 3, 2011).

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

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# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

**TABLE 1**  
**DSM Program Expenses: January 2011 – June 2011**

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation <sup>1</sup>	Program Marketing	Planning & Admin	Total Program Cost	
<b>Residential:</b>								
Consumer Products	\$3,129,530	\$32	\$556	\$580,952	\$307,661	\$123,257	\$4,141,988	
Existing Homes	\$4,521,146	\$87,086	\$72,527	\$1,630,477	\$259,653	\$91,321	\$6,662,210	
New Construction	\$349,400	\$10,906	\$1,041	\$143,577	\$136,832	\$77,606	\$719,362	
Appliance Recycling	\$113,940	\$0	\$0	\$315,953	\$133,621	\$9,329	\$572,843	
Behavioral	\$0	\$0	\$0	\$138,014	\$0	\$62,718	\$200,732	
Multi-Family	\$0	\$0	\$0	\$65,090	\$4,769	\$139,426	\$209,285	
Shade Trees	4,595	\$0	\$0	\$103,305	\$2,967	\$3,012	\$113,879	
Low Income	\$258,558	\$30	\$1,726	\$51,060	\$8	\$68,273	\$379,655	
<b>Totals for Residential</b>	<b>\$8,377,169</b>	<b>\$98,054</b>	<b>\$75,850</b>	<b>\$3,028,428</b>	<b>\$845,511</b>	<b>\$574,942</b>	<b>\$12,999,954</b>	
<b>Non-Residential:</b>								
Lg. Existing Facilities	\$4,211,557	\$169,586	\$35,633	\$1,582,671	\$294,112	\$156,191	\$6,449,750	
New Construction	\$527,333	\$13,567	\$13,782	\$534,417	\$121,339	\$50,762	\$1,261,200	
Small Business	\$1,340,402	\$5,518	\$958	\$317,665	\$27,273	\$36,884	\$1,728,700	
Energy Information Services	\$13,823	\$0	\$0	\$10,599	\$922	\$594	\$25,938	
Schools <sup>2</sup>	\$998,110	\$31,206	\$9,725	\$266,922	\$26,787	\$60,645	\$1,393,395	
<b>Total Non-Residential</b>	<b>\$7,091,225</b>	<b>\$219,877</b>	<b>\$60,098</b>	<b>\$2,712,274</b>	<b>\$470,433</b>	<b>\$305,076</b>	<b>\$10,858,983</b>	
<b>Segment Totals</b>	<b>\$15,468,394</b>	<b>\$317,931</b>	<b>\$135,948</b>	<b>\$5,740,702</b>	<b>\$1,315,944</b>	<b>\$880,018</b>	<b>\$23,858,937</b>	
							<b>Program Costs</b>	<b>\$23,858,937</b>
							<b>Measurement, Evaluation &amp; Research</b>	<b>\$1,245,001</b>
							<b>Performance Incentive<sup>3</sup></b>	<b>NA*</b>
							<b>TOTAL</b>	<b>\$25,103,938</b>

1. Includes costs for Implementation Contractor for all 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 Tables 8 & 9, and the methodology/calculation was approved by the ACC in Decision No. 69663 and was modified in the 2009 Settlement Agreement, Decision No. 71448.

**\*APS has an Annual MWh savings goal, and therefore, has not estimated the Performance Incentive for this 6-month Reporting Period, but will be reporting the Performance Incentive amount in the year-end Semi-Annual Progress Report.**

**Definitions**

**Rebates & Incentives** – Dollars that go toward customer rebates and incentives, installation of low income weatherization and low income bill assistance.

**Training & Technical Assistance** – Dollars that are used for energy-efficiency training and technical assistance.

**Consumer Education** – 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 contract labor and overhead costs, as well as other direct program delivery costs.

**Program Marketing** – Expenses related to marketing the program and increasing DSM consumer awareness (direct program marketing costs as opposed to general consumer education).

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

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

**Measurement, Evaluation, & Research** – Activities that 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 a percent of total DSM expenditures, depending on the percent of MWh savings goal achieved.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

**TABLE 2  
Year-to-Date DSM Program Expenses: January 2011 – June 2011**

<b>DSM Program</b>	<b>Rebates &amp; Incentives</b>	<b>Training &amp; Technical Assistance</b>	<b>Consumer Education</b>	<b>Program Implementation<sup>1</sup></b>	<b>Program Marketing</b>	<b>Planning &amp; Admin.</b>	<b>Total Program Cost</b>
<b>Residential:</b>							
Consumer Products	\$3,129,530	\$32	\$556	\$580,952	\$307,661	\$123,257	\$4,141,988
Existing Homes	\$4,521,146	\$87,086	\$72,527	\$1,630,477	\$259,653	\$91,321	\$6,662,210
New Construction	\$349,400	\$10,906	\$1,041	\$143,577	\$136,832	\$77,606	\$719,362
Appliance Recycling	\$113,940	\$0	\$0	\$315,953	\$133,621	\$9,329	\$572,843
Behavioral	\$0	\$0	\$0	\$138,014	\$0	\$62,718	\$200,732
Multi-Family	\$0	\$0	\$0	\$65,090	\$4,769	\$139,426	\$209,285
Shade Trees	4,595	\$0	\$0	\$103,305	\$2,967	\$3,012	\$113,879
Low Income	\$258,558	\$30	\$1,726	\$51,060	\$8	\$68,273	\$379,655
<b>Totals for Residential</b>	<b>\$8,377,169</b>	<b>\$98,054</b>	<b>\$75,850</b>	<b>\$3,028,428</b>	<b>\$845,511</b>	<b>\$574,942</b>	<b>\$12,999,954</b>
<b>Non-Residential:</b>							
Lg. Existing Facilities	\$4,211,557	\$169,586	\$35,633	\$1,582,671	\$294,112	\$156,191	\$6,449,750
New Construction	\$527,333	\$13,567	\$13,782	\$534,417	\$121,339	\$50,762	\$1,261,200
Small Business	\$1,340,402	\$5,518	\$958	\$317,665	\$27,273	\$36,884	\$1,728,700
Energy Information Services	\$13,823	\$0	\$0	\$10,599	\$922	\$594	\$25,938
Schools <sup>2</sup>	\$998,110	\$31,206	\$9,725	\$266,922	\$26,787	\$60,645	\$1,393,395
<b>Total Non-Residential</b>	<b>\$7,091,225</b>	<b>\$219,877</b>	<b>\$60,098</b>	<b>\$2,712,274</b>	<b>\$470,433</b>	<b>\$305,076</b>	<b>\$10,858,983</b>
<b>Segment Totals</b>	<b>\$15,468,394</b>	<b>\$317,931</b>	<b>\$135,948</b>	<b>\$5,740,702</b>	<b>\$1,315,944</b>	<b>\$880,018</b>	<b>\$23,858,937</b>
							<b>Program Costs</b>
							<b>\$23,858,937</b>
							<b>Measurement, Evaluation &amp; Research</b>
							<b>\$1,245,001</b>
							<b>Performance Incentive<sup>3</sup></b>
							<b>NA*</b>
							<b>TOTAL</b>
							<b>\$25,103,938</b>

1. Includes costs for Implementation Contractor for all 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 Tables 8 & 9, and the methodology/calculation was approved by the ACC in Decision No. 69663 and was modified in the 2009 Settlement Agreement, Decision No. 71448.

**\*APS has an Annual MWh savings goal, and therefore, has not estimated the Performance Incentive for this 6-month Reporting Period, but will be reporting the Performance Incentive amount in the year-end Semi-Annual Progress Report.**

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

**TABLE 3  
Program-to-Date DSM Program Expenses: January 2005 – June 2011**

<b>DSM Program</b>	<b>Rebates &amp; Incentives</b>	<b>Training &amp; Technical Assistance</b>	<b>Consumer Education</b>	<b>Program Implementation<sup>1</sup></b>	<b>Program Marketing</b>	<b>Planning &amp; Admin</b>	<b>Total Program Cost</b>
<b>Residential:</b>							
Consumer Products	\$15,948,135	\$4,596	\$51,473	\$6,161,261	\$2,413,747	\$772,328	\$25,351,541
Existing Homes	\$18,080,661	\$674,123	\$1,038,569	\$5,372,934	\$1,939,523	\$430,193	\$27,536,004
New Construction	\$3,778,906	\$579,707	\$129,158	\$1,161,574	\$1,907,049	\$549,799	\$8,106,193
Appliance Recycling	\$356,220	\$0	\$0	\$998,177	\$371,335	\$12,102	\$1,737,834
Behavioral	\$0	\$0	\$0	\$613,014	\$0	\$62,718	\$675,732
Multi-Family	\$0	\$0	\$0	\$65,090	\$4,769	\$153,479	\$223,338
Shade Trees	4,595	\$0	\$0	\$103,305	\$2,966	\$3,012	\$113,879
Low Income	\$6,709,559	\$73,228	\$22,824	\$619,860	\$48,928	\$651,902	\$8,126,302
<b>Totals for Residential</b>	<b>\$44,878,077</b>	<b>\$1,331,654</b>	<b>\$1,242,024</b>	<b>\$15,095,215</b>	<b>\$6,688,318</b>	<b>\$2,635,535</b>	<b>\$71,870,823</b>
<b>Non-Residential:</b>							
Lg. Existing Facilities	\$24,406,922	\$660,539	\$276,864	\$8,458,354	\$2,387,504	\$1,605,230	\$37,795,413
New Construction	\$6,786,477	\$127,698	\$54,840	\$4,219,795	\$1,061,058	\$652,809	\$12,902,677
Small Business	\$3,366,619	\$40,952	\$23,760	\$2,179,324	\$452,357	\$306,700	\$6,369,712
Building Operator Training	\$0	\$56,897	\$0	\$22,043	\$15,783	\$7,480	\$102,203
Energy Information Services	\$92,490	\$17,817	\$583	\$113,841	\$9,496	\$26,170	\$260,397
Schools <sup>2</sup>	\$3,933,328	\$62,563	\$24,016	\$1,125,596	\$486,000	\$219,845	\$5,851,348
<b>Total Non-Residential</b>	<b>\$38,585,834</b>	<b>\$966,467</b>	<b>\$380,063</b>	<b>\$16,118,953</b>	<b>\$4,412,199</b>	<b>\$2,818,235</b>	<b>\$63,281,751</b>
<b>Segment Totals</b>	<b>\$83,463,911</b>	<b>\$2,298,121</b>	<b>\$1,622,087</b>	<b>\$31,214,168</b>	<b>\$11,100,517</b>	<b>\$5,453,770</b>	<b>\$135,152,574</b>
<b>Program Costs</b>							<b>\$135,152,574</b>
<b>Measurement, Evaluation &amp; Research)</b>							<b>\$8,176,952</b>
<b>Performance Incentive<sup>3</sup></b>							<b>\$14,416,545*</b>
<b>TOTAL</b>							<b>\$157,746,071</b>

1. Includes costs for Implementation Contractor for all 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 Tables 8 & 9, and the methodology/calculation was approved by the ACC in Decision No. 69663 and was modified in the 2009 Settlement Agreement, Decision No. 71448. The program-to-date performance incentive amount is a summation of the performance incentive amount as calculated during each previous Reporting Period beginning with the January – June 2005 Semi-Annual Report.

**\*APS has an Annual MWh savings goal, and therefore, has not estimated the Performance Incentive for this six-month Reporting Period, but will be reporting the Performance Incentive amount in the year-end Semi-Annual Progress Report. The Program-to-date Performance Incentive number is from January 2005 through December 2010.**

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### TABLE 4

#### DSM Electric Savings: January 2011 – June 2011<sup>1, 4</sup>

DSM Program	Gross Peak MW Capacity Savings	Gross Annual MWh Savings	Gross Lifetime <sup>2</sup> MWh Savings	Net <sup>5</sup> Peak MW Capacity Savings	Net <sup>5</sup> Annual MWh Savings	Net <sup>5</sup> Lifetime <sup>2</sup> MWh Savings
<b>Residential:</b>						
Consumer Products	9.1	94,624	577,719	9.1	94,624	577,719
Existing Homes	7.8	13,732	193,466	7.8	13,732	193,466
New Construction	1.4	2,131	42,619	1.4	2,131	42,619
Appliance Recycling	0.9	6,196	37,174	0.9	6,196	37,174
Behavioral	0.0	0	0	0.0	0	0
Multi-Family	0.0	0	0	0.0	0	0
Shade Trees	0.0	70	2,086	0.0	70	2,086
Low Income <sup>3</sup>	0.0	211	3,696	0.0	211	3,696
<b>Totals for Residential</b>	<b>19.2</b>	<b>116,964</b>	<b>856,760</b>	<b>19.2</b>	<b>116,964</b>	<b>856,760</b>
<b>Non-Residential:</b>						
Large Existing Facilities	7.8	60,423	771,414	7.8	60,423	771,414
New Construction	1.0	6,340	90,677	1.0	6,340	90,677
Small Business	3.5	17,413	238,335	3.5	17,413	238,335
Energy Information Services	1.5	21	107	1.5	21	107
Schools	1.7	9,349	129,236	1.7	9,349	129,236
<b>Total Non-Residential</b>	<b>15.5</b>	<b>93,546</b>	<b>1,229,769</b>	<b>15.5</b>	<b>93,546</b>	<b>1,229,769</b>
<b>Segment Totals</b>	<b>34.7</b>	<b>210,510</b>	<b>2,086,529</b>	<b>34.7</b>	<b>210,510</b>	<b>2,086,529</b>

1. Savings for 2008 and after are MER adjusted, savings prior to 2008 are NOT MER adjusted. Per Decision No. 69663, APS is submitting MER adjusted MW and MWh savings, which started with the January – June 2008 Semi-Annual Report. All Semi-Annual Reports submitted prior to 2008 were based on savings as filed in APS's original DSM Portfolio Plan, before any MER adjustments.
2. Refers to savings over the expected lifetime of all program measures.
3. Semi-Annual Reports submitted prior to the July-December 2007 Report inadvertently reported only annual MWh savings for the Low Income Program.
4. Savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.
5. Based on 2010 MER Net to Gross Ratio (NTGR) analysis, APS is utilizing a NTGR of 1.0 for all DSM programs and measures.

#### **Definitions**

**Gross Savings** – Demand and energy savings related to the DSM programs prior to accounting for free-riders or spillover.

**Net Savings** – Demand and energy savings related to the DSM programs after accounting for free-riders and spillover.

**Free-riders** – Program participants who would have installed the energy-efficient DSM measures anyway, even if the program were not in operation.

**Spillover** – Refers to indirect energy impacts of the program and estimates savings from customers who take the energy-efficient action as a result of knowledge of the program, but who do not receive an incentive through the program.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### TABLE 5

#### Year-to-Date DSM Electric Savings: January 2011 – June 2011<sup>1, 4</sup>

DSM Program	Gross Peak MW Capacity Savings	Gross Annual MWh Savings	Gross Lifetime <sup>2</sup> MWh Savings	Net <sup>5</sup> Peak MW Capacity Savings	Net <sup>5</sup> Annual MWh Savings	Net <sup>5</sup> Lifetime <sup>2</sup> MWh Savings
<b>Residential:</b>						
Consumer Products	9.1	94,624	577,719	9.1	94,624	577,719
Existing Homes	7.8	13,732	193,466	7.8	13,732	193,466
New Construction	1.4	2,131	42,619	1.4	2,131	42,619
Appliance Recycling	0.9	6,196	37,174	0.9	6,196	37,174
Behavioral	0.0	0	0	0.0	0	0
Multi-Family	0.0	0	0	0.0	0	0
Shade Trees	0.0	70	2,086	0.0	70	2,086
Low Income <sup>3</sup>	0.0	211	3,696	0.0	211	3,696
<b>Totals for Residential</b>	<b>19.2</b>	<b>116,964</b>	<b>856,760</b>	<b>19.2</b>	<b>116,964</b>	<b>856,760</b>
<b>Non-Residential:</b>						
Large Existing Facilities	7.8	60,423	771,414	7.8	60,423	771,414
New Construction	1.0	6,340	90,677	1.0	6,340	90,677
Small Business	3.5	17,413	238,335	3.5	17,413	238,335
Energy Information Services	1.5	21	107	1.5	21	107
Schools	1.7	9,349	129,236	1.7	9,349	129,236
<b>Total Non-Residential</b>	<b>15.5</b>	<b>93,546</b>	<b>1,229,769</b>	<b>15.5</b>	<b>93,546</b>	<b>1,229,769</b>
<b>Segment Totals</b>	<b>34.7</b>	<b>210,510</b>	<b>2,086,529</b>	<b>34.7</b>	<b>210,510</b>	<b>2,086,529</b>

1. Savings for 2008 and after are MER adjusted, savings prior to 2008 are NOT MER adjusted. Per Decision No. 69663, APS is submitting MER adjusted MW and MWh savings, which started with the January – June 2008 Semi-Annual Report. All Semi-Annual Reports submitted prior to 2008 were based on savings as filed in APS's original DSM Portfolio Plan, before any MER adjustments.
2. Refers to savings over the expected lifetime of all program measures.
3. Semi-Annual Reports submitted prior to the July-December 2007 Report inadvertently reported only annual MWh savings for the Low Income Program.
4. Savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.
5. Based on 2010 MER Net to Gross Ratio (NTGR) analysis, APS is utilizing a NTGR of 1.0 for all DSM programs and measures.

#### **Definitions**

**Gross Savings** – Demand and energy savings related to the DSM programs prior to accounting for free-riders or spillover.

**Net Savings** – Demand and energy savings related to the DSM programs after accounting for free-riders and spillover.

**Free-riders** – Program participants who would have installed the energy-efficient DSM measures anyway, even if the program were not in operation.

**Spillover** – Refers to indirect energy impacts of the program and estimates savings from customers who take the energy-efficient action as a result of knowledge of the program, but who do not receive an incentive through the program.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### TABLE 6

#### Program-to-Date DSM Electric Savings: January 2005 – June 2011<sup>1, 4</sup>

DSM Program	Gross Peak MW Capacity Savings	Gross Annual MWh Savings	Gross Lifetime <sup>2</sup> MWh Savings	Net <sup>5</sup> Peak MW Capacity Savings	Net <sup>5</sup> Annual MWh Savings	Net <sup>5</sup> Lifetime <sup>2</sup> MWh Savings
<b>Residential:</b>						
Consumer Products	95.3	778,058	4,474,679	95.3	778,058	4,474,679
Existing Homes	38.5	62,310	889,753	38.5	62,310	889,753
New Construction	17.4	32,418	648,356	17.4	32,418	648,356
Appliance Recycling	2.9	20,143	120,852	2.9	20,143	120,852
Behavioral	0.0	0	0	0.0	0	0
Multi-Family	0.0	0	0	0.0	0	0
Shade Trees	0.0	70	2,086	0.0	70	2,086
Low Income <sup>3</sup>	1.0	5,120	98,661	1.0	5,120	98,661
<b>Totals for Residential</b>	<b>155.1</b>	<b>898,119</b>	<b>6,234,387</b>	<b>155.1</b>	<b>898,119</b>	<b>6,234,387</b>
<b>Non-Residential:</b>						
Large Existing Facilities	46.4	395,005	5,335,575	46.4	395,005	5,335,575
New Construction	12.5	166,017	2,369,175	12.5	166,017	2,369,175
Small Business	8.9	49,512	708,479	8.9	49,512	708,479
Building Operator Training	0.2	1,001	12,447	0.2	1,001	12,447
Energy Information Services	2.0	2,795	41,718	2.0	2,795	41,718
Schools	6.4	47,936	700,221	6.4	47,936	700,221
<b>Total Non-Residential</b>	<b>76.4</b>	<b>662,266</b>	<b>9,167,615</b>	<b>76.4</b>	<b>662,266</b>	<b>9,167,615</b>
<b>Segment Totals</b>	<b>231.5</b>	<b>1,560,385</b>	<b>15,402,002</b>	<b>231.5</b>	<b>1,560,385</b>	<b>15,402,002</b>

1. Savings for 2008 and after are MER adjusted, savings prior to 2008 are NOT MER adjusted. Per Decision No. 69663, APS is submitting MER adjusted MW and MWh savings, which started with the January – June 2008 Semi-Annual Report. All Semi-Annual Reports submitted prior to 2008 were based on savings as filed in APS's original DSM Portfolio Plan, before any MER adjustments.
2. Refers to savings over the expected lifetime of all program measures.
3. Semi-Annual Reports submitted prior to the July-December 2007 Report inadvertently reported only annual MWh savings for the Low Income Program.
4. Savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.
5. Based on 2010 MER Net to Gross Ratio (NTGR) analysis, APS is utilizing a NTGR of 1.0 for all DSM programs and measures.

#### **Definitions**

**Gross Savings** – Demand and energy savings related to the DSM programs prior to accounting for free-riders or spillover.

**Net Savings** – Demand and energy savings related to the DSM programs after accounting for free-riders and spillover.

**Free-riders** – Program participants who would have installed the energy-efficient DSM measures anyway, even if the program were not in operation.

**Spillover** – Refers to indirect energy impacts of the program and estimates savings from customers who take the energy-efficient action as a result of knowledge of the program, but who do not receive an incentive through the program.

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**TABLE 7  
DSM Societal Benefits and Performance Incentive  
January 2011 – June 2011**

<b>DSM Program</b>	<b>Program Cost</b>	<b>Societal Benefits</b>	<b>Societal Costs</b>	<b>Net Benefits</b>
<b>Residential:</b>				
Consumer Products	\$4,141,988	\$26,831,805	\$4,485,397	\$22,346,408
Existing Homes	\$6,662,210	\$15,201,582	\$13,338,755	\$1,862,827
New Construction	\$719,362	\$3,931,269	\$1,440,520	\$2,490,749
Appliance Recycling	\$572,843	\$1,948,877	\$458,903	\$1,489,974
Behavioral	\$200,732	\$0	\$200,732	(\$200,732)
Multi-Family	\$209,285	\$0	\$209,285	(\$209,285)
Shade Trees	\$113,879	\$169,281	\$169,565	(\$284)
Low Income <sup>1</sup>	\$379,655	\$196,748	\$196,748	\$0
<b>Totals for Residential</b>	<b>\$12,999,954</b>	<b>\$48,279,562</b>	<b>\$20,499,905</b>	<b>\$27,779,657</b>
<b>Non-Residential:</b>				
Large Existing Facilities	\$6,449,750	\$43,590,810	\$13,909,478	\$29,681,332
New Construction	\$1,261,199	\$5,265,003	\$2,164,454	\$3,100,549
Small Business	\$1,728,700	\$14,764,775	\$2,818,754	\$11,946,021
Energy Information Services	\$25,938	\$191,824	\$92,865	\$98,959
Schools	\$1,393,395	\$8,086,660	\$3,231,515	\$4,855,145
<b>Total Non-Residential</b>	<b>\$10,858,983</b>	<b>\$71,899,072</b>	<b>\$22,217,066</b>	<b>\$49,682,006</b>
<b>Segment Totals</b>	<b>\$23,858,937</b>	<b>\$120,178,634</b>	<b>\$42,716,971</b>	<b>\$77,461,663</b>
Measurement, Evaluation & Research	\$1,245,001		\$1,245,001	(\$1,245,001)
Performance Incentive	NA*		NA*	NA*
<b>Total</b>	<b>\$25,103,938</b>	<b>\$120,178,634</b>	<b>\$43,961,972</b>	<b>\$76,216,662</b>
<b>Performance Incentive This Period *</b>	<b>NA</b>			<b>NA</b>

1. Program Costs include weatherization and bill assistance. Societal Costs do not include bill assistance because it does not contribute to electric savings.
2. Consistent with the ACC Staff's analysis in Decision No. 68647, the societal benefit is equal to the societal cost, resulting in a benefit to cost ratio of 1.00 and net benefits of 0.

**\*APS has an Annual MWh savings goal, and therefore, has not estimated the Performance Incentive for this 6-month Reporting Period, but will be reporting the Performance Incentive amount in the year-end Semi-Annual Progress Report.**

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

**TABLE 8  
DSM Societal Benefits and Performance Incentive  
Year-to-Date, January 2011 – June 2011**

<b>DSM Program</b>	<b>Program Cost</b>	<b>Societal Benefits</b>	<b>Societal Costs</b>	<b>Net Benefits</b>
<b>Residential:</b>				
Consumer Products	\$4,141,988	\$26,831,805	\$4,485,397	\$22,346,408
Existing Homes	\$6,662,210	\$15,201,582	\$13,338,755	\$1,862,827
New Construction	\$719,362	\$3,931,269	\$1,440,520	\$2,490,749
Appliance Recycling	\$572,843	\$1,948,877	\$458,903	\$1,489,974
Behavioral	\$200,732	\$0	\$200,732	(\$200,732)
Multi-Family	\$209,285	\$0	\$209,285	(\$209,285)
Shade Trees	\$113,879	\$169,281	\$169,565	(\$284)
Low Income <sup>1</sup>	\$379,655	\$196,748	\$196,748	\$0
<b>Totals for Residential</b>	<b>\$12,999,954</b>	<b>\$48,279,562</b>	<b>\$20,499,905</b>	<b>\$27,779,657</b>
<b>Non-Residential:</b>				
Large Existing Facilities	\$6,449,750	\$43,590,810	\$13,909,478	\$29,681,332
New Construction	\$1,261,199	\$5,265,003	\$2,164,454	\$3,100,549
Small Business	\$1,728,700	\$14,764,775	\$2,818,754	\$11,946,021
Energy Information Svcs.	\$25,938	\$191,824	\$92,865	\$98,959
Schools	\$1,393,395	\$8,086,660	\$3,231,515	\$4,855,145
<b>Total Non-Residential</b>	<b>\$10,858,983</b>	<b>\$71,899,072</b>	<b>\$22,217,066</b>	<b>\$49,682,006</b>
<b>Segment Totals</b>	<b>\$23,858,937</b>	<b>\$120,178,634</b>	<b>\$42,716,971</b>	<b>\$77,461,663</b>
Measurement, Evaluation & Research	\$1,245,001		\$1,245,001	(\$1,245,001)
Performance Incentive Amount	NA*		NA*	NA*
<b>Total</b>	<b>\$25,103,938</b>	<b>\$120,178,634</b>	<b>\$43,961,972</b>	<b>\$76,216,662</b>
<b>Performance Incentive</b>	<b>NA</b>			<b>NA</b>

1. Program Costs include weatherization and bill assistance. Societal Costs do not include bill assistance because it does not contribute to electric savings.
2. Consistent with the ACC Staff's analysis in Decision No. 68647, the societal benefit is equal to the societal cost, resulting in a benefit to cost ratio of 1.00 and net benefits of 0.
3. The ACC approved a revised Performance Incentive calculation in Decision No. 71448, on December 30, 2009, as follows. "The existing Performance Incentive shall be modified to be a tiered Performance Incentive as a % of net benefits, capped at a tiered % of program costs.

<b>Achievement Relative to the EE Goal</b>	<b>Performance Incentive as % of Net Benefits</b>	<b>Performance Incentive Capped at % of Program Costs</b>
Less than 85%	0%	0%
85% to 95%	6%	12%
96% to 105%	7%	14%
106% to 115%	8%	16%
116% to 125%	9%	18%
Above 125%	10%	20%

\* APS has an Annual MWh savings goal, and therefore, has not estimated the Performance Incentive for this 6-month Reporting Period, but will be reporting the Performance Incentive amount in the year-end Semi-Annual Progress Report.

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DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011

**TABLE 9  
DSM Societal Benefits and Performance Incentive  
Program-to-Date, January 2005 – June 2011**

<b>DSM Program</b>	<b>Program Cost</b>	<b>Societal Benefits</b>	<b>Societal Costs</b>	<b>Net Benefits</b>
<b>Residential:</b>				
Consumer Products	\$25,351,540	\$207,303,992	\$43,724,052	\$163,579,941
Existing Homes	\$27,536,004	\$58,755,667	\$43,797,540	\$14,958,128
New Construction	\$8,106,192	\$42,975,467	\$11,427,268	\$31,548,199
Appliance Recycling	\$1,737,834	\$5,182,331	\$1,381,613	\$3,800,718
Behavioral	\$675,732	\$0	\$675,732	(\$675,732)
Multi-Family	\$223,338	\$0	\$223,338	(\$223,338)
Shade Trees	\$113,879	\$169,281	\$169,565	(\$284)
Low Income <sup>1</sup>	\$8,126,298	\$6,886,889	\$6,886,889	\$0
<b>Totals for Residential</b>	<b>\$71,870,817</b>	<b>\$321,273,627</b>	<b>\$108,285,996</b>	<b>\$212,987,631</b>
<b>Non-Residential:</b>				
Large Existing Facilities	\$37,795,413	\$215,284,992	\$70,701,154	\$144,583,838
New Construction	\$12,902,677	\$79,566,676	\$25,591,962	\$53,974,714
Small Business	\$6,369,710	\$41,647,656	\$8,195,813	\$33,451,843
Building Operator Training	\$102,205	\$424,302	\$183,392	\$240,910
Energy Information Services	\$260,397	\$1,583,604	\$512,046	\$1,071,558
Schools	\$5,851,354	\$32,853,691	\$10,621,912	\$22,231,779
<b>Total Non-Residential</b>	<b>\$63,281,756</b>	<b>\$371,360,921</b>	<b>\$115,806,279</b>	<b>\$255,554,642</b>
<b>Segment Totals</b>	<b>\$135,152,574</b>	<b>\$692,634,548</b>	<b>\$224,092,275</b>	<b>\$468,542,273</b>
Measurement, Evaluation & Research	\$8,176,952		\$8,176,952	(\$8,176,952)
Performance Incentive	\$14,416,545*		\$14,416,545*	(\$14,416,545*)
<b>Total</b>	<b>\$157,746,071</b>	<b>\$692,634,548</b>	<b>\$246,685,772</b>	<b>\$445,948,776</b>

1. Program Costs include weatherization and bill assistance. Societal Costs do not include bill assistance because it does not contribute to electric savings.
2. Consistent with the ACC Staff's analysis in Decision No. 68647, the societal benefit is equal to the societal cost, resulting in a benefit to cost ratio of 1.00 and net benefits of 0.
3. The ACC approved a revised Performance Incentive calculation in Decision No. 71448, on December 30, 2009, as follows. "The existing Performance Incentive shall be modified to be a tiered Performance Incentive as a % of net benefits, capped at a tiered % of program costs.

**\* APS has an Annual MWh savings goal, and therefore, has not estimated the Performance Incentive for this 6-month Reporting Period, but will be reporting the Performance Incentive amount in the year-end Semi-Annual Progress Report. The Program-to-date Performance Incentive number is from January 2005 – December 2010.**

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

**TABLE 10  
Net Environmental Benefits<sup>1</sup>**

<b>Reporting Period</b>	<b>Water Mil. Gal.<sup>2</sup></b>	<b>SOx Lbs.</b>	<b>NOx Lbs.</b>	<b>CO2 Mil. Lbs.</b>	<b>PM10 Lbs.</b>
<b>January – June 2011</b>	661	9,276	176,240	1,874	51,486
<b>YTD: January 2011 – June 2011</b>	661	9,276	176,240	1,874	51,486
<b>PTD: January 2005 – June 2011</b>	2,988	41,946	796,969	8,474	232,822

1. *The environmental reductions are based on the net KWh energy savings of all program measures over their expected lifetimes.*
2. *Some measures will result in customer water savings, which this calculation does not include. Only utility water savings are included in this calculation.*

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

**TABLE 11  
DSM Semi-Annual Expenditures, Annual Budget and Participation Rates**

<b>Energy Efficiency Programs</b>	<b>Jan – June 2011 Expenditures</b>	<b>2011 Annual Budget</b>	<b>Participation Rates Reference to location in this SAR</b>
<b>Residential:</b>			
Consumer Products	\$4,141,988	\$7,547,000	CFLs – page 32; Pool Measures – page 34
Existing Homes	\$6,662,210	\$14,812,000	RES. HVAC – page 20, HPwES – page 24
New Construction	\$719,362	\$2,800,000	RNC – page 27
Appliance Recycling	\$572,843	\$1,661,000	AR – page 41
Behavioral	\$200,732	\$1,017,000	NA
Multi-Family	\$209,285	\$1,277,000	NA
Shade Trees	\$113,879	\$444,000	ST – page 49
Low Income	\$379,655	\$2,779,000	LI – page 51
<b>Totals for Residential</b>	<b>\$12,999,954</b>	<b>\$32,337,000</b>	
<b>Non-Residential:</b>			
Lg. Existing Facilities	\$6,449,750	\$13,792,000	LE – page 56
New Construction	\$1,261,199	\$3,410,000	NC – page 64
Small Business	\$1,728,700	\$4,460,000	SM – page 67-68, DI – pages 69
Energy Information Svcs.	\$12,115	\$195,000	EIS – page 81
Schools	\$1,393,395	\$3,458,000	Schools – page 76
<b>Total Non-Residential</b>	<b>\$10,845,160</b>	<b>\$25,315,000</b>	
<b>EE Program Total</b>	<b>\$23,845,113</b>	<b>\$57,652,000</b>	
<b>DR Programs</b>			
APS Peak Solutions®	\$869,400	\$6,679,000	APS Peak Solutions® – page 83
Demand Response Marketing and MER of Rate Options	\$22,000	\$260,000	CPP – page 85, TOU & SPP – page 87
Home Energy Information Pilot Program	\$254,537	\$3,681,000	HEI Pilot – page 89
<b>DR Program Total</b>	<b>\$1,145,937</b>	<b>\$10,620,000</b>	
<b>DSM Total</b>	<b>\$24,991,050</b>	<b>\$68,272,000</b>	

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

**Table 12**  
**Demand Response Programs / Initiatives**  
**2011 Budget vs. Expenditures: January – June, 2011**

<b>Program/Initiatives</b>	<b>2011 Budget</b>	<b>Expenses (%) Jan. – Jun. 2011</b>
APS Peak Solutions <sup>® 1</sup>	\$6,679,000	\$869,400 (13.0%)
Demand Response Marketing and MER of Rate Options <sup>2</sup>	\$260,000	\$22,000 (8.5%)
Home Energy Information Pilot Program <sup>3</sup>	\$3,681,000	\$121,364 (3.3%)
<b>Total</b>	<b>\$10,620,000</b>	<b>\$1,012,764 (9.5%)</b>

**Notes:**

1. The 2011 APS Peak Solutions<sup>®</sup> estimated cost includes a 2010 adjustment amount of \$808,559 for increased measurement and verification, computer model development, and metering costs.
2. DR Marketing and MER dollars are for the following: a.) TOU rates (ET-2, ECT-2, and GS-Schools), b.) Super Peak rate, and c.) Critical Peak Pricing ("CPP") rates currently not collected through rates. The marketing of the interruptible rate has been removed since it will not be in place for 2011.
3. The estimated 2011 budget for the Home Energy is \$5,976,000. \$3,681,000 is the estimated total 2011 O&M expenses and associated carrying costs for capital expenditures with deferred recovery.

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DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**Table 13**  
**Demand Response Program/Initiatives<sup>1</sup>**  
**2011 Load Reduction and Energy Savings: January – June, 2011**

<b>Program/Initiatives</b>	<b>Load Reduction (MW)</b>	<b>Energy Savings (MWh)<sup>2</sup></b>
APS Peak Solutions <sup>®</sup>	59.0	129,210
Critical Peak Pricing	0.6	1,314
Time of Use Rates & Super Peak	18.7	40,953
<b>Total</b>	<b>78.3</b>	<b>171,477<sup>3</sup></b>

**Notes:**

1. No load reduction will be assumed for the HEI Pilot because the savings are unknown at this time.
2. Energy Savings (MWh) = Load reduction (MW) X (8,760/2) hours X 50% load factor.
3. Per ACC Decision No. 71436, the credit for demand response and load management peak reductions shall not exceed 10% of the energy efficiency standard for any year.

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

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

##### **Description**

The Residential Existing Homes Heating, Ventilation, and Air Conditioning Program ("Residential HVAC") is divided into two distinct components, 1) Heating, Ventilation, and Air Conditioning ("HVAC") measures and 2) Home Performance with ENERGY STAR® ("HPwES") measures.

The HVAC measures use a combination of financial incentives, contractor training and consumer education to promote the proper installation and maintenance of energy-efficient HVAC systems. The Air Conditioner ("AC") Rebate, Duct Test and Repair and Residential Diagnostic measures support energy-efficient residential air conditioning and heating systems along with the proper installation, maintenance and repair of these systems.

The HPwES measures promote a whole house approach to energy-efficiency by offering incentives for improvements to the building envelope of existing residential homes within the APS service territory. HPwES includes measures that improve the energy-efficiency of the home with air sealing, insulation, shade screens, faucet aerators, and low flow showerheads.

Both components of the Residential Existing Homes HVAC program provide APS customers with referrals to contractors who meet strict program requirements for professional standards, technician training, and customer satisfaction.

The two components are discussed individually below:

##### ***a. HVAC Measures – AC Rebates, Duct Test and Repair and Residential Diagnostic***

The AC Rebate with Quality Installation ("QI") measure offers financial incentives to homeowners for buying energy-efficiency equipment ( $\geq 13$  SEER/10.8 EER), that is installed in such a manner that it meets the program requirements for air flow, refrigerant charge and sizing. The Duct Test and Repair ("DTR") measure provides financial incentives to customers for having their HVAC system's duct work tested for leakage and repaired. APS also has a pilot Residential Diagnostic measure to provide a financial incentive for an advanced diagnostic tune-up on existing air conditioning and heat pump equipment to ensure that it operates more efficiently. The main components of this measure are the correction of the refrigeration charge, leak repair, condenser coil cleaning and air flow verification.

In June 2006, APS implemented the AC Rebate measure. On August 1, 2007, APS began offering the QI measure to optimize the installation of high-efficiency equipment that meets the AC Rebate measure requirements. This measure has high standards on air conditioning sizing, airflow and refrigerant charge to ensure that when the equipment is installed, it will operate at a high level of efficiency.

On December 31, 2007, APS began the Duct Test and Repair measure which offers financial incentives to customers that test and, if necessary, repair the duct work in their homes.

On April 7, 2009, the ACC approved the combination of the AC Rebate and QI measures along with revised incentive levels. See the January through June 2009 Semi-Annual report for a detailed explanation.

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On October 7, 2009, the ACC approved APS's request to modify the contractor requirements to offer the AC Rebate and QI measures. See the July through December 2009 Semi-Annual report for a detailed explanation.

The Residential Diagnostic measure was approved as a pilot on January 6, 2011 and it was launched on March 31, 2011.

### **Program Modifications**

As mentioned above the Residential Diagnostic (also referred to as the Advanced AC Tune-up) measure started at the end of March, 2011. No other significant program modifications were made to the HVAC component of the Residential HVAC program during this Reporting Period.

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

The HVAC component of the program uses a combination of financial incentives, contractor training and consumer education to promote high-efficiency HVAC systems, through the proper installation of this equipment, increasing existing equipment efficiency, and the testing and repair of the duct work in existing residential homes within the APS service territory.

APS's 2011 DSM Implementation Plan estimated that the energy-efficiency savings expected to result from the HVAC portion of the program could reduce peak demand by approximately 10.8 MW, 12,700 MWh annually and 147,000 MWh over the life of the measures expected to be installed in 2011.

### **Programs Terminated**

No programs were terminated during this Reporting Period.

### **Levels of Participation**

- A total of 8,319 rebates were paid through the HVAC portion of the program. That is 15% more than the same period in 2010. Specifically, APS has paid:
  1. AC Rebate Incentive Levels
    - a. 1,219 of the \$175 AC rebates for 13 SEER/10.8 EER equipment with QI to customer; \$50 to contractor
    - b. 5,581 of the \$425 AC rebates for 14 - 16 SEER/10.8 EER equipment with QI to customer; \$50 to contractor
    - c. 506 of the \$525 AC rebates for 17+ SEER/10.8 EER equipment with QI to customer; \$50 to contractor
    - d. 15 of the \$100 Residential Diagnostic rebates
  2. 998 Duct Test and Repair rebates made up of 1,285 total rebates and 287 tests without repairs. Only the repair (998) rebates are used for calculating the demand and energy savings shown in the savings table below.
- There are currently 203 contractors that can offer the APS AC Rebate. 155 are APS Qualified Contractors. There are 48 Rebate Eligible contractors that entered the program through the application process approved by the ACC in October 2009, which does not require membership in the Arizona Heat Pump Council. There are currently 33 contractors that can

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

offer the rebates outside the metropolitan area serving Arizona City, Aquila, Big River, Bouse, Bullhead City, Casa Grande, Camp Verde, Chino Valley, Clarkdale, Coolidge, Cornville, Cottonwood, Dewey, Eloy, Flagstaff, Florence, Jerome, Kingman, Lake Havasu, Lake Montezuma, Parker, Payson, Prescott, Prescott Valley, Quartzite, Sedona, Show Low Waddell, Wickenburg, Whitman and Yuma.

- 770 students participated in APS sponsored training courses, in both metro and non-metro training classes, to meet APS Qualified Contractor program training requirements.
- The APS Energy Answer Line provided 707 referrals to customers seeking HVAC service, repair or replacement of their home HVAC system in this Reporting Period.
- There are currently 56 contractors with Building Performance Institute certificates that are receiving Duct Test and Repair referrals. 1,205 Duct Rebate calls were taken during this Reporting Period. There are eight contractors outside of the Phoenix area, serving Flagstaff, Show Low, Yavapai County and Yuma.
- The APS Qualified Contractor list, which is posted on the aps.com website, had 12,960 visits this Reporting Period. The APS AC Rebate webpage had 20,497 visits, 5,793 visits for the Duct Test and Repair webpage and 1,922 for the Residential Diagnostic webpage.
- There were 45,578 unique user visits to the APS Energy Survey home energy audit at aps.com during this Reporting Period. Energy savings are not currently being attributed to customers who complete the on-line audit; however, research is being conducted to estimate any resulting savings.

#### Evaluation and Monitoring Activities and Results

- Reviewed and updated Residential HVAC Measure Analysis Spreadsheets and Analytic Database.
- Completed updates to the Residential HVAC components of the program design tool.
- Implemented end-use metering data collection study with a focus on Refrigerant Charge and Airflow Correction and Duct Test and Repair measures.
- Started ongoing customer and trade ally research to determine net-to-gross effects and market influence of the program.

#### MER Adjusted Gross kW and kWh Savings

Incentive Type	Number of Units	Annual kWh Savings per Unit	TOTAL Annual MWh Savings	Est. Measure Life	Total Lifetime MWh	Coin. kW Demand Savings Per Unit	Total MW Savings
13 SEER/10.8 EER w/ QI, \$175	1,219	1,015	1,237	15	18,559	0.555	0.7
14 -16 SEER/10.8 EER w/ QI, \$425	5,581	1,303	7,272	15	109,081	0.708	4.0
17+ SEER/10.8 EER w/ QI, \$425	506	1,441	729	15	10,937	0.757	0.4
Residential Diagnostic	15	1,064	16	15	239	1.211	-
Duct Test and Repair <sup>1</sup>	998	706	705	10	7,046	0.564	0.6
<b>TOTAL</b>	<b>8,319</b>		<b>9,959</b>		<b>145,862</b>		<b>5.7</b>

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- Duct Test and Repair total number of units shows only the number of rebates paid for repair work. The rebates paid for just the duct test are not included.*

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

In addition to the savings shown above, the HVAC measures 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 Measurement, Evaluation and Research (“MER”) adjusted net benefits and performance incentive are provided in Tables 8, and 9.

**Problems Encountered and Proposed Solutions**

The Residential Diagnostic measure experienced a slow start. Several factors contributed to this including finding the right messages to explain the measure to the customer, contractor’s limited experience marketing the measure, conservative initial marketing from APS, out-of-pocket costs deemed too high for the customer. To improve the acceptance of the measure, APS has allowed the rebate to go directly to the contractor so the customer’s out-of-pocket cost is comparable to a basic AC tune-up. APS has also significantly increased the marketing of the measure to build customer awareness and the marketing messages have been updated to address customer barriers that have been identified.

The result of the Societal Cost Test (“SCT”) for the HVAC part of the program were significantly lower but still passing for this Reporting Period. Even though program participation was good the SCT result was down enough to warrant close observation over the next Reporting Period. This Reporting Period included lower 2011 avoided costs and higher incremental costs. Those changes depressed the SCT results. As the year progresses APS will monitor this situation and try to improve the results for the next Reporting Period within the parameters of the program. If the situation continues it may necessitate a request for program modification.

**Costs Incurred**

Costs incurred for this program during this Reporting Period are listed below:

<b>DSM Program</b>	<b>Rebates &amp; Incentives</b>	<b>Training &amp; Technical Assistance</b>	<b>Consumer Education</b>	<b>Program Implement</b>	<b>Program Marketing</b>	<b>Planning &amp; Admin.</b>	<b>Program Total Cost</b>
Res. Existing HVAC (AC Rebates & DTR)	\$3,349,855	\$67,053	\$72,527	\$597,065	\$184,590	\$63,224	\$4,334,313

During the Reporting Period, the rebate volume was consistent with the budget with the exception of the Residential Diagnostic measure. As explained above, this measure had a slow start. As a result the overall spending for the program is under budget for this Reporting Period.

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#### Findings from all Research Projects

NA

#### Other Significant Information

APS again sponsored a Wrightsoft Manual J sizing calculation class that was promoted and managed by the Electric League of Arizona. The AC Rebate and Duct Test and Repair customer brochure used at events and distributed to the contractors were updated. A similar customer brochure was created for the Residential Diagnostic measure.

Residential Existing Home HVAC program marketing and consumer/contractor education efforts for this Reporting Period include:

- TV ads promoting the program ran on Cox Cable (20 different channels), Fox AZ, Fox Sports, KNXV, KPNX, KTVK, KASW, KSAZ, KUTP, KAZT, KPHO, KABC, KECY, KYMA, KTAZ (Telemundo Spanish), KESE (Yuma Telemundo Spanish), Telefutura and Univision (Phoenix and Yuma Spanish) and My45.
- Radio ads to promote the program ran on KTAR-AM, and Spanish stations K-SUN, KHOT, KQMR, KOMR, KLNZ, KVVA, KNAI, KVIB and KCEC.
- Articles in: APS Lifestyles Bill Insert for January (Ducts), February (Ducts), March (Tune-up), April, May, June (AC Rebates). The e-newsletter featured the Residential Diagnostic measure in June.
- Presentations on the APS Residential DSM programs to numerous community groups: Most of the consumer education events listed under Consumer Products includes information on the AC Rebate and other APS Residential programs.
- The aps.com homepage prominently features APS energy-efficiency and RE programs. These programs are grouped in one section of the homepage entitled "Green Choice," which is coordinated with the current advertising campaign and makes these programs easier to find for customers.

#### ***b. Home Performance with ENERGY STAR®***

The HPwES measure offers home owners a \$99 comprehensive home energy checkup to help identify ways to improve energy-efficiency and comfort throughout the home. This program element offers a direct install feature that includes up to 10 compact fluorescent lamps ("CFLs"), three faucet aerators, and one low-flow showerhead that are installed at the time of the checkup. Additional financial incentives are available for duct sealing, air sealing, insulation, and shade screens, once a home owner has completed an HPwES checkup. After measures are installed, rigorous test out and quality assurance protocols then verify installation quality and performance.

In January 2010, the ACC approved HPwES as a new measure under the Residential HVAC program.

#### **Program Modifications**

No significant program modifications were made to the HPwES component of the Residential HVAC program.

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

The HPwES measures promote a whole house approach to energy-efficiency by offering financial incentives for improvements to the building envelope of existing residential homes within the APS service territory.

Arizona Corporation Commission ("ACC or Commission") Decision No. 71448 requires the APS HPwES measure to complete a minimum of 1,000 energy audits in 2010 and a total of 3,000 audits between 2010 and 2012. The program has completed 4,638 audits to date, meeting this objective.

APS's 2011 DSM Implementation Plan estimated that the energy-efficiency savings to result from the HPwES portion of the program could reduce peak demand by approximately 5.1 MW, 9,000 MWh annually and 109,000 MWh over the life of the measures installed in 2011.

### **Programs Terminated**

No programs were terminated during this Reporting Period.

### **Levels of Participation**

During this Reporting Period:

- A total of 2,275 contractor rebates were paid through the HPwES for completed and approved energy audits. The number of direct install components installed during this Reporting Period are as follows:
  - a. 1,365 1.5 gpm low-flow shower heads with a shower start valve.
  - b. 3,412 1.0 gpm faucet aerators.
  - c. 18,200 compact florescent bulbs.
- The APS HPwES program paid rebates for measures installed in 883 participating homes. This indicates that 38.9% of homes that completed an audit during the Reporting Period took steps to install additional measures as a result of the audit. The total number of customer rebates paid was 1,621, which averages about two rebates per home. Specifically, APS has paid:
  - a. 1,032 of the \$250 rebates for duct sealing and repair.
  - b. 135 of the \$250 rebates for the air sealing only.
  - c. 581 of the \$500 rebates for air sealing and attic insulation.
  - d. 98 of the \$250 rebates for shade screens.
- There are currently 85 qualified HPwES contractors. Contractors must complete the Building Performance Institute's Building Analyst certification and undergo a mentorship with the Foundation for Senior Living (FSL) Home Improvements prior to becoming active. 200 hours of mentorship were completed to further aid in quality improvement and enhanced customer experience. HPwES currently serves Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, and Yuma counties.
- The APS HPwES call center has received 1,097 referral inquires by telephone.
- There were 7,420 visits to the HPwES website from January – June 2011.

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### Evaluation and Monitoring Activities and Results

- Reviewed and updated HPwES Measure Analysis Spreadsheets and Analytic Database.
- Completed updates to the HPwES components of program design tool.
- Implemented end-use metering data collection study with a focus on Refrigerant Charge and Airflow Correction and Duct Test and Repair measures.
- Conducted survey research with HPwES participants to enhance program performance
- Started planning HPwES customer and trade ally research to establish a baseline to enable determination of net-to-gross effects and market effects of the program.

### MER Adjusted Gross kW and kWh Savings

Incentive Type	Number of Units	Annual kWh Savings per Unit	TOTAL Annual MWh Savings	Est. Measure Life	Total Lifetime MWh	Coin. kW Demand Savings Per Unit	Total MW Savings
Direct Install Low-Flow Showerheads with Shower Start	1,365	237	324	10	3,237	0.023	0.0
Direct Install Low-Flow Faucet Aerators	3,412	80	274	10	2,743	0.013	0.1
Direct Install CFLs	18,200	43	783	6	4,696	0.006	0.1
HPwES Duct Sealing	1,032	1,064	1,098	18	19,757	1.211	1.2
HPwES Air Sealing Only	135	1,654	223	13	2,903	0.904	0.2
HPwES Air Sealing and Attic Insulation	581	1,531	890	14	12,453	0.731	0.4
HPwES Shade Screens	98	1,852	182	10	1,815	1.318	0.1
<b>TOTAL</b>	<b>24,823</b>		<b>3,773</b>		<b>47,604</b>		<b>2.1</b>

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

In addition to the savings shown above, HPwES 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 MER adjusted net benefits and performance incentive are provided in Tables 8, and 9.

### Problems Encountered and Proposed Solutions

In February 2011, APS introduced the Residential Energy Efficiency Financing ("REEF") program as an additional financial incentive for customers participating in HPwES. The financing program allows customers to finance only project cost after rebates. To facilitate use of the REEF program with no out of pocket cost, APS now allows customers to sign their rebate over to the installing contractor.

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### Costs Incurred

Costs incurred for this program during this 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 (AC Rebates & DTR)	\$3,349,855	\$67,053	\$72,527	\$597,065	\$184,590	\$63,224	\$4,334,313
HPwES	\$1,171,291	\$20,033	\$0	\$1,033,412	\$75,064	\$28,097	\$2,327,897
<b>Res. Existing HVAC Total</b>	<b>\$4,521,146</b>	<b>\$87,086</b>	<b>72,527</b>	<b>\$1,630,477</b>	<b>\$259,654</b>	<b>\$91,321</b>	<b>\$6,662,210</b>

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Res. Existing HVAC	\$536,768	\$60,297	\$597,065
HPwES	\$892,502	\$140,910	\$1,033,412
Res. Existing HVAC Total	\$1,429,270	\$201,207	\$1,630,477

### Findings from all Research Projects

N/A

### Other Significant Information

APS works closely with other utilities in the state to coordinate the delivery of HPwES statewide. Most notably, APS has coordinated with Unisource Gas to combine the delivery of programs in shared service territory. APS will continue to engage other utility and industry partners to promote cooperative programming and market consistency.

HPwES<sup>®</sup> marketing and consumer/contractor education efforts for this Reporting Period include:

- Distribution of an HPwES<sup>®</sup> brochure through community events, trade allies, contractors, and other industry partners.
- A stand alone website is available at [www.azhomeperformance.com](http://www.azhomeperformance.com).
- Television ad to promote the program that ran on Cox Cable, Fox AZ, Fox Sports, KNXV, KTAZ-TV (Telemundo Spanish), Telefutera and Univision (Spanish) from July to August and then again in November through December.
- "Sustaining Arizona" television special that ran on Cox Channel 7 and on the [aps.com](http://aps.com) website.
- Event based marketing with the Suns, Diamondbacks, Coyotes, and several trade shows.
- Radio ads to promote the HPwES on KMXF, KPKX, KNIX, KSLX, KESZ, KMLE, KOOL, KUPD in Phoenix, and sister stations in Coconino and Yavapai counties.
- Articles in: APS Lifestyles Bill Insert for July and August.
- Presentations on the APS Residential DSM programs to numerous community groups. Most of the consumer education events listed under Consumer Products includes information on the HPwES and other APS Residential programs.

The [aps.com](http://aps.com) homepage prominently features APS energy efficiency ("EE") and RE programs. These programs are grouped in one section of the homepage entitled "Green Choice," which is coordinated with the current advertising campaign and makes these programs easier to find for customers.

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

##### **Description**

This program promotes high-efficiency construction practices for new homes. It offers incentives to builders that meet the program's 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 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. To encourage builders to meet even higher energy-efficiency standards, the program also offers a higher incentive of \$1,000 per home for builders that meet higher savings levels of 30% compared to standard new construction. This higher tier efficiency standard is approximately double the 15% savings of the current ENERGY STAR® homes program.

##### **Program Modifications**

No program modifications have been made during 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, has historically been one of the biggest drivers of APS's system load growth. It is more cost-effective to work with builders to implement energy-efficiency at the time of construction rather than to 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.

APS's analysis of this program, as filed in the 2011 APS DSM Implementation Plan, estimates that the energy-efficiency savings expected to result from the Residential New Construction Program in 2011 could reduce peak demand by about 3.7 MW, 7,000 MWh annual energy savings and 155,000 MWh over the life of the measures expected to be installed in 2011.

##### **Programs Terminated**

No programs were terminated during this Reporting Period.

##### **Levels of Participation**

During this Reporting Period, APS signed 1,245 homes that are committed to being built to ENERGY STAR® program standards and to being built to the new ENERGY STAR® Plus (HERS 70) program standards. At the end of this Reporting Period, there were 68 homebuilders and 191 subdivisions with 12,690 future lots signed up to participate. The program currently includes ENERGY STAR®

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communities throughout the APS service territory including the Phoenix metro area, Yuma, Casa Grande, Florence, Prescott, Verde Valley, and Flagstaff.

APS paid homebuilder incentives for 379 APS ENERGY STAR® homes at the first savings tier level, and 212 ENERGY STAR® homes at the second tier of energy savings (HERS score of 70 or less) that were completed and connected to the APS system during this Reporting Period. Since the start of this program in 2006, APS has paid incentives on 8,775 ENERGY STAR® homes.

During this Reporting Period, APS held one builder training with Woodside Homes. The training, called "Success with ENERGY STAR®", teaches 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 detailed customized construction photos and process checklists to ensure implementation accuracy at the job site. In addition, APS provided sales training and/or technical training assistance to numerous Arizona builders during this Reporting Period.

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

During this Reporting Period the Residential New Construction Homes program MER research data collection and analysis activities included:

- Reviewing and updating Residential New Construction Measure Analysis Spreadsheets and Analytic Database
- Updating RNC components of program design tool.
- Conducting field research, measurement and verification of performance of non-participating builder homes.
- Conducting builder research to determine net-to-gross effects and market effects of the program. Preliminary RNC results were reported for 2010.

#### **MER Adjusted Gross 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	Total MW Savings
APS Energy Star Homes	379	2,922	1,107	20	22,149	2.4	0.9
Second Tier - HERS 70	212	4,828	1,024	20	20,471	2.5	0.5
<b>TOTAL</b>	<b>591</b>		<b>2,131</b>		<b>42,619</b>		<b>1.4</b>

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

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 MER adjusted net benefits and performance incentive are provided in Tables 8, and 9.

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### Problems Encountered and Proposed Solutions

This program has been successful to date, despite the residential new construction market decline over the past few years. APS first indicated a market downturn in APS's January - June 2008 Semi-Annual DSM Report, and this concern continues at a heightened level given the current economy. While the overall market has been down, the APS program has seen increasing market share, especially as the trend for energy-efficient and "green" homes has grown. However, during this Reporting Period, there continued to be a lack of new home construction activity and lower than anticipated rebates being issued for this program.

### Costs Incurred

Costs incurred for this program during this Reporting Period are listed below:

	Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin.	Program Total Cost
Res. New Home Construction	\$349,400	\$10,906	\$1,041	\$143,577	\$136,832	\$77,606	\$719,362

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Res. New Home Construction	\$0	\$143,577	\$143,577

### Findings from all Research Projects

No findings to report at this time.

### Other Significant Information

In recognition of the ongoing success of the APS energy-efficiency program portfolio and the APS ENERGY STAR® Homes Program, APS was selected by the U.S. Environmental Protection Agency ("EPA") as a 2011 ENERGY STAR® Sustained Excellence Award winner. This is the highest award that can be earned by an ENERGY STAR® partner, and is bestowed on partners who show sustained excellence in their commitment to energy-efficiency and whose organization is a national model of best practices in advancing energy-efficiency. APS has now earned ENERGY STAR® awards for five consecutive years: Partner of the Year in 2007 for the APS Consumer Products program (ENERGY STAR® CFL lighting), Partner of the Year in 2008 and 2009 for the APS ENERGY STAR® Homes program, and the Sustained Excellence Award in 2010 and 2011.

In January of 2012, the national ENERGY STAR® Homes program will be increasing its minimum energy-efficiency specifications. During this Reporting Period, APS continued work to proactively position the Arizona market for the transition to ENERGY STAR® Version 3. In May, APS held a full day forum on Version 3 with participating program HERS raters. The purpose of the meeting was to ensure that communications with builders about upcoming program changes were done in a coordinated and consistent manner. APS and raters discussed aspects of the Version 3 specifications that pertain specifically to the Arizona market and climate with emphasis on how to manage the requirements for mechanical, supply-side ventilation.

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In order to maintain consistency with the EPA's timeline for launching ENERGY STAR® Version 3, a formal letter to participating builders was issued informing them of upcoming changes in program requirements beginning January 1, 2012.

APS is working with Advanced Energy to revise APS's existing training manuals and materials for the Success with ENERGY STAR® builder workshops to more closely align with the new Version 3 specification changes. Final documents are being solidified for incorporating immediately into the builder workshops scheduled for the remainder of 2011.

The APS ENERGY STAR® and Solar Homes program combines DSM and RE incentives to encourage builders to offer both energy-efficiency and solar features in their new home communities. The program requires builders to meet the standards of the APS ENERGY STAR® Homes program as a pre-requisite to access special homebuilder incentives for solar communities. This is to ensure that homes incorporate efficiency first to enable solar to be as cost effective as possible. As of this Reporting Period, there are 11 builders and 39 communities that are currently participating.

Program marketing and education efforts during this Reporting Period include the following:

- Completed the design of a program Energy Scale to show consumers just how much more efficient ENERGY STAR® or ENERGY STAR® plus Solar homes are compared to standard construction techniques, as well as compared to older existing homes.
- Added the Energy Scale to online marketing toolkit allowing builders to customize and upload their logo and plan information.
- Continued running billboard campaign promoting APS ENERGY STAR® Homes. The billboard message was "More House, Less Energy Bill". The billboards ran in targeted locations near APS ENERGY STAR® Homes communities in the metro Phoenix area.
- Distributed model home sales signage that participating builders can customize with their logo to promote the benefits of ENERGY STAR® homes. The series of signs can be ordered by participating builders and customized directly online at [aps.com](http://aps.com).
- Continued placement in New Homes Today mailer (targeted to prospective homebuyers) that are geographically targeted.
- ENERGY STAR® feature web pages on [Newhomeswebzine.com](http://Newhomeswebzine.com) – website targeted to prospective Arizona homebuyers.
- Distributed APS ENERGY STAR® Home program sales book for builder sales agents to use in selling the features of ENERGY STAR® Homes to prospective homebuyers. The books are being distributed through model home sales offices of participating APS ENERGY STAR® builders.
- Distributed Energy Cost Brochures – customized point of sale brochures that describe APS ENERGY STAR® Homes features and outline the approximate annual and monthly energy costs per model.
- Distributed a homebuyer brochure that is targeted to new buyers and discusses the features and benefits of an ENERGY STAR® home. The brochures are being distributed at community events and at participating builders' model home sales offices.
- Provided information on [aps.com](http://aps.com). Website homepage has been updated to highlight APS energy-efficiency and RE programs. APS ENERGY STAR® Homes program is now featured prominently on [aps.com](http://aps.com).

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- Construction Corner at [aps.com](http://aps.com) – web pages targeted to Arizona homebuilders. Features promotion of program benefits for builders.
- Radio ads focused on the energy savings and environmental benefits of APS ENERGY STAR® Homes.
- APS ENERGY STAR® Homes TV commercial ran during sports and news segments, and as part of ongoing placement contract with Cox Cable.
- Ran an ad placement in the 2011 Homebuilders Association member directory on the back cover to promote the program to builders.

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

##### **Description**

The Consumer Products Program is composed of two elements – Residential Lighting and Residential Pool Products.

The Residential Lighting element of the program promotes high-efficiency EPA/DOE ENERGY STAR® CFLs. CFLs use an average of 75% less energy than standard incandescent bulbs and last up to ten times longer, typically saving consumers up to \$40 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.

The Energy-Efficient Pool Pump and Timer element of the Consumer Products program is designed to improve the energy-efficiency in residential pool operations while maintaining equivalent or better standards for pool sanitation and cleanliness. The program promotes the installation and optimal calibration of energy-efficient variable and dual speed pool pump motors and seasonal timers with rebates ranging from \$75 to \$270.

##### **Program Modifications**

No program modifications during this Reporting Period.

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

For the high-efficiency lighting (CFL) element of the program, the goal is to promote the purchase of high-efficiency CFLs and increase the awareness and knowledge of retailers and consumers on the benefits of ENERGY STAR® rated lighting products.

For the energy-efficient pools element of the program, the goal is to promote the purchase of high-efficiency variable and dual speed pool pumps and seasonal pool timers. In a typical Arizona home with a pool, the pool pump energy use can make up a significant portion of annual energy use. There are new variable and dual speed pool pump technologies and seasonal pool timers that provide opportunities for significant cost effective savings. These efficient pool products have not been widely adopted in the marketplace, although they are proven technologies.

APS's analysis of the overall Consumer Products program, including both the CFL and pools elements of the program, estimates that the energy-efficiency savings expected to result from the program could reduce peak demand by about 14.0 MW and reduce energy consumption by 615,000 MWh over the life of the measures expected to be installed in 2011.

##### **Programs Terminated**

No programs were terminated during this Reporting Period.

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**MER Adjusted Gross kW and kWh Savings for CFL's**

Total No. of Units Sold	Units currently in service in APS territory	Wattage	Lighting Watts Saved	HVAC Watts Saved	Hours Per Year	Est. Measure Life (yrs)	Annual MWh Savings	Lifetime MWh Savings	kW Demand Savings
9,820	8,287	7	33	10	876	6	264	1,584	21
52,251	44,091	9	31	9	876	6	1,319	7,917	107
4	3	9	36	11	876	6	0.1	1	0
25,202	21,266	10	30	9	876	6	616	3,695	50
26,442	22,313	11	29	9	876	6	625	3,748	51
35	30	11	34	10	876	6	1	6	0
1,061	895	11	39	12	876	6	34	202	3
673,183	568,059	13	47	14	876	6	25,774	154,642	2,087
460,310	388,428	14	46	14	876	6	17,249	103,492	1,397
14,748	12,445	14	51	15	876	6	613	3,676	50
37,712	31,823	15	45	14	876	6	1382	8,294	112
114,599	96,703	15	50	15	876	6	4668	28,006	378
1,401	1,182	15	60	18	876	6	68	411	6
170	143	16	44	13	876	6	6	37	0
13,458	11,356	16	49	15	876	6	537	3,223	44
42	35	18	52	16	876	6	2	11	0
48,002	40,506	18	57	17	876	6	2,229	13,373	181
83,891	70,791	19	56	17	876	6	3,827	22,962	310
35,604	30,044	20	55	17	876	6	1,595	9,571	129
480	405	20	65	20	876	6	25	152	2
1,081	912	23	67	20	876	6	59	354	5
314,539	265,421	23	77	23	876	6	19,729	118,376	1,598
11,188	9,441	23	97	29	876	6	884	5,304	72
1,627	1,373	26	64	19	876	6	85	509	7
289	244	26	69	21	876	6	16	97	1
62,588	52,814	26	74	22	876	6	3,773	22,637	306
7,566	6,384	27	73	22	876	6	450	2,700	36
98	83	27	98	30	876	6	8	47	1
40	34	29	121	37	876	6	4	24	0
22	19	30	95	29	876	6	2	10	0
23	19	32	68	21	876	6	1	8	0
1,378	1,163	32	118	36	876	6	132	795	11
62	52	33	117	35	876	6	6	35	0
23	19	40	110	33	876	6	2	12	0
1,351	1,140	42	108	33	876	6	119	713	10
2,000,290	1,687,925								
<b>SUBTOTAL</b>							<b>86,104</b>	<b>516,623</b>	<b>6,973</b>
Line Loss Factors							7.0%	7.0%	11.7%
Reserve Capacity Factor									15%
<b>TOTAL</b>							<b>92,131</b>	<b>552,787</b>	<b>8,835</b>

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\*In addition to the savings for this Reporting Period, additional savings were realized as a result of CFL bulbs which had been purchased in prior periods and placed into service during this Reporting Period. The "in-service adjustment" assumes in any given Reporting Period that 10% of bulbs purchased are placed on the shelf at that time for future use. These bulbs are not counted in the savings calculation during the period in which they are purchased. Bulbs from prior years (that were not counted in savings) which are assumed to be placed into service in 2011 will be reported in the July-December 2011 Semi-Annual Report.

#### **Levels of Participation**

During this Reporting Period, the energy-efficient lighting element of the program resulted in sales of 1,820,757 CFLs through participating retail locations. In addition, APS distributed 179,533 CFLs during community events and consumer education seminars, for a combined total of 2,000,290 CFLs distributed during this Reporting Period. There were also approximately 325 retail outlets participating throughout the APS service territory where APS customers could purchase discounted CFLs. Participating retailers during this Reporting Period included: 99 Cents, Ace Hardware, Albertson's, Best Buy, Costco, CVS, Dollar Tree, Family Dollar, Goodwill Industries, Grocery Outlet, Home Depot, Lighting Unlimited, Lowe's, Premier Lighting, Sam's Club, True Value, and Wal-Mart.

The pool pump and timers element of the program received approval in January, 2010. During this Reporting Period, program representatives conducted a number of information events and pump calibration trainings and elicited participation from a wide range of pool product retailers.

The program currently includes 125 participating pool retailers, distributors, and pool builders. During this Reporting Period, eight pump calibration training seminars were held with a total of 156 pool professionals trained. In addition, program representatives attended 17 pool industry association meetings and conducted over 470 retail visits to inform pool professionals about the APS rebate program.

During this Reporting Period, the program provided rebates for 547 variable speed pool pumps, 27 dual speed pool pumps, and 83 seasonal pool timers.

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**MER Adjusted Gross kW and kWh Savings for Pools Measures**

The program provided the following rebates to participating APS residential customers during this Reporting Period.

Measure	# Units	kW Demand Savings per unit	kWh Energy Savings per unit	Measure Life (yrs.)	Total Annual MWh	Total Lifetime MWh	Total kW Demand
Variable Speed Pump		0.46	4,036	10	2,208	22,077	252
2-Speed Pump	27	.16	1,445	10	39	390	4
Timers	83	.12	1,005	10	83	834	10
<b>Subtotal</b>					<b>2,330</b>	<b>23,301</b>	<b>266</b>
Line Losses					7.0%	7.0%	11.7%
Capacity Reserve							15%
<b>TOTAL</b>					<b>2,493</b>	<b>24,932</b>	<b>342</b>

**Total savings from the Consumer Products Program during this Reporting Period are shown in the table below.**

Measure	Total Annual MWh	Total Lifetime MWh	Total kW Demand
CFLs	92,131	552,787	8,835
Pools	2,493	24,932	342
<b>TOTAL</b>	<b>94,624</b>	<b>577,719</b>	<b>9,177</b>

**Evaluation and Monitoring Activities and Results**

During this Reporting Period the Consumer Products program MER research data collection and analysis activities included

- Reviewing and updating CFL Measure Analysis Spreadsheets and Analytic Database.
- Updating CPP components of program design tool.
- Continuing research on residential lighting run-time hour study. Updated the study to examine topics such as in-service rate, operating hours of specialty lamps and other factors.
- Conducting research on residential pool pump run-time hour study. Examining typical run times for dual speed pumps, variable speed pumps, and pumps equipped with seasonal timers.
- Began survey research with Pool Pumps program participants and trade allies to determine how to enhance program effectiveness
- Conducting research to determine net-to-gross effects and market influence of the program. Preliminary CPP results related to CFLs were reported for 2010.

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

The MER adjusted net benefits and performance incentive are provided in Tables 8, and 9.

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### Problems Encountered and Proposed Solutions

No problems were encountered during this Reporting Period.

### Costs Incurred

Costs incurred for this program during this Reporting Period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin.	Total Cost
CFLs	\$2,917,390	\$32	\$162	\$275,700	\$264,106	\$115,450	\$3,572,841
Pools	\$212,139	\$0	\$394	\$305,252	\$43,555	\$7,806	\$569,147
<b>Consumer Products Total</b>	<b>\$3,129,529</b>	<b>\$32</b>	<b>\$556</b>	<b>\$580,952</b>	<b>\$307,661</b>	<b>\$123,256</b>	<b>\$4,141,988</b>

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Consumer Products	\$492,638	\$88,314	\$580,952

### Findings from all Research Projects

No findings to report at this time.

### Other Significant Information

APS continued a CFL recycling program in partnership with participating retailers and Veolia Environmental Services, which operates a recycling facility in Phoenix. Customers can take their burned out CFLs to participating retail locations (including select Ace, True Value and Home Depot stores) throughout the APS service territory for free recycling. Retailers collect the CFLs and then send them to Veolia, where more than 99% of all materials, including the trace amounts of mercury in CFLs, are reused.

The program conducted retailer visits and retailer trainings during the Reporting Period to educate retail sales staff, assess inventories of merchandise, check point of purchase displays, address availability of qualified product, and communicate with retail sales staff.

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.

APS conducted extensive community education and customer outreach efforts to promote the CFL program and educate customers about APS programs, rebates, and opportunities for saving energy and money. Consumer education events during this Reporting Period included:

- January 1, Fiesta Bowl, Glendale
- January 14-16, Maricopa County Home Show, Phoenix
- January 19, Home Depot, Phoenix
- January 21, Home Depot, Casa Grande
- January 22, Home Depot, Payson

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- January 22, Desert Pool and Spa Show, Phoenix
- January 22, Vistancia Community Expo, Peoria
- January 25, Home Depot, Scottsdale
- January 26, Home Depot, Phoenix (Tatum)
- February 5, Home Depot, Flagstaff (east)
- February 5, Pebble Creek, Goodyear
- February 5, Lowes, Buckeye
- February 7, Coyotes game, Glendale
- February 9, ASU Baseball, Tempe
- February 12-13, Phoenix Chinese Week, Phoenix
- February 16, Home Depot, Phoenix (Bell)
- February 18, Lowes, Casa Grande
- February 19, Carefree Home and Garden Show, Carefree
- February 23, Tempe employee environmental event, Tempe
- February 24, ASU women's basketball, Tempe
- March 4-6, Maricopa County Home Show, Glendale
- March 4-6, Northern AZ Homebuilding and Remodeling, Flagstaff
- March 5-6, Tres Rios Festival, Goodyear
- March 10, STEM Teachers Night, Glendale
- March 10, Coyotes game, Glendale
- March 12, Chino Valley Home and Business Expo, Chino Valley
- March 14, Spring training game, Peoria
- March 17, Diamondbacks spring green game, Scottsdale
- March 18-20, Luke Days at Luke AFB, Litchfield
- March 20, Coyotes game
- March 24, Coyotes game
- March 26, Yuma Marine Air Station, Yuma
- April 1, Suns green game, Phoenix
- April 1, Coyotes game
- April 2, Glendale Family Health Fair, Glendale
- April 8, Valley Forward Livability Summit, Phoenix
- April 9, City of Surprise Green Fair, Surprise
- April 9, Del Webb Greenbuilt events, Florence and Buckeye
- April 10, Home Depot, Flagstaff
- April 15-16, Build it Green Expo, Phoenix
- April 21, USAA Earth Day, Phoenix
- April 21, Luke AFB Energy Fair, Litchfield
- April 21, Univision event, Phoenix
- April 21, Chavez Plaza Earth Day Event, Phoenix
- April 21, AZ Western College, Yuma
- April 22, Yavapai Apache Earth Day event, Camp Verde
- April 23, Meritage Homes, Buckeye
- April 23, Lowes, Yuma

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- April 23 Lowes. Prescott
- April 28-May 1, Diamondbacks Green Series, Phoenix
- April 29-May 1, Maricopa County Home Show, Phoenix
- April 30, Emerald Pools, Phoenix
- May 6, Home Depot, Payson
- May 7, B&L Pools, Phoenix
- May 13-15, Yavapai County Home Show, Prescott Valley
- May 14, Aqua Sentry, Scottsdale
- May 18, APS shareholders meeting, Phoenix
- May 21, Public library, Glendale
- June 1, Intel Green Fair, Chandler
- June 3-5, White Mountains Expo, Show Low
- June 4-6, AZ Home and Building Expo, Phoenix
- June 7, APS Customer Office, Prescott
- June 7, APS Customer Office, Cottonwood
- June 8, APS Customer Office, Casa Grande
- June 10, APS Customer Office, North Phoenix
- June 13, APS Customer Office, Goodyear
- June 14-16, Diamondbacks games
- June 14, APS Customer Office, Payson
- June 14, APS Customer Office, Chandler
- June 15, APS Customer Office, Globe
- June 15, APS Customer Office, Snowflake
- June 15, Pools training, Elks Lodge, Phoenix
- June 16, APS Customer Office, Williams
- June 17, APS Customer Office, Tuba City
- June 18, Diamondbacks game, Phoenix
- June 21, Pool and Spa Pro Event, Mesa
- June 21, APS Customer Office, Douglas
- June 21, APS Customer Office, Bisbee
- June 23, Pools training, Sedona
- June 24, APS Customer Office, Parker
- June 27, APS Customer Office, Glendale
- June 27, APS Customer Office, Surprise

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

- Ran TV spots featuring CFL program messages on Cox Cable, local sports broadcasts (Diamondbacks, Suns) and KNXV TV.
- Maintained a tool on [aps.com](http://aps.com) called the "CFL Calculator." [www.aps.com/main/various/CFL/calculator.html?source=hme](http://www.aps.com/main/various/CFL/calculator.html?source=hme). The tool provides customers with a way to enter all of the light fixtures in their home and see the savings in dollars and greenhouse gas emissions they could achieve by switching to CFLs. The calculator provides recommendations for which type of CFL should be used to replace each bulb in a

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home and then the tool will print out a custom shopping list for customers to use to purchase exactly the bulbs they need at the store.

- CFL radio spot was aired on local sports broadcasts and local news talk radio.
- Information on the homepage of aps.com including a listing of all participating retail locations and a retail locator function that shows that closest stores for any customer throughout the service area based on entering a zip code.
- Public relations and earned media including TV, radio and print articles.
- Articles in the Lifestyles residential newsletter.
- Point of sale signage at all participating retail locations.

In addition, the program conducted a wide range of marketing and advertising activities to raise awareness about the pools element of the program including:

- Provided program brochure for consumers.
- Maintained program web pages on aps.com including basic information about the program, online application forms, video content, answers to frequently asked questions, and a list of all participating pool retailers and professionals.
- Produced a short program video spot with D Baxter (Diamondbacks mascot) that airs on the Jumbotron during Diamondbacks home games and on the Diamondbacks website.
- Produced extensive collateral for in store point of sale materials, including many different styles and sizes of in-store signage.
- Conducted an extensive billboard campaign throughout the Phoenix metro area.
- Conducted radio remote events and radio advertising
- Created new in-store point of sale materials including stickers, signs, window clings and store stand-ups to promote EE pool products.

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### **PROGRAM: REFRIGERATOR RECYCLING PROGRAM**

#### **Description**

The program is designed to educate APS customers that their old, operating, extra refrigerator or freezer uses a great deal of energy and that by turning in their extra refrigerator or freezer, they can save up to \$100 per year on their electric bill. Many refrigerators and freezers being replaced are still functioning and often end up as secondary units in basements and garages, or are sold in the used appliance market. This program provides customers a way to remove their old, inefficient appliances from the grid. The APS Refrigerator Recycling Program began on February 1, 2010 (approved in Decision No. 71444, dated December 23, 2009).

APS customers who own an old, operating, extra refrigerator can receive a \$30 rebate and free refrigerator pick up service. The refrigerator is picked up at the customers' convenience, and can be scheduled online at [www.aps.com/turnitin](http://www.aps.com/turnitin) or by calling toll-free 877-514-6654. APS partners with JACO Environmental, Inc. to provide the free pick up and recycling service.

The primary focus for 2011 has been on program awareness and marketing. The marketing strategy emphasizes educating the customer about the inefficiency of their second working refrigerator or freezer, the \$30 rebate, and the free pickup service.

As a result of this program, a recycling facility has been established in Phoenix where up to 95% of appliance elements are recycled and used to manufacture other products. Additionally, 25 new "green" jobs have been created to staff and operate the new recycling facility. During the recycling process, JACO Environmental safely disposes of all refrigerators and freezers preventing the release of hazardous chemicals into the environment.

#### **Program Eligibility Requirements:**

- Must be a current APS customer and unit must be owned by customer
- Refrigerator/freezer must be operable (maintain a cold temperature)
- Refrigerator/freezer must be plugged in (cold inside) and empty
- Refrigerator/freezer must be a standard size (between 10 – 30 cubic feet as measured on the inside)
- There must be a clear pathway to pick up and remove appliance
- There is a maximum of two units per household per year
- Someone 18 years or older must be present to sign and release unit

#### **Program Modifications**

On December 10, 2010, Decision No. 72032, the ACC ordered APS to include extra working Non-Residential refrigerators and/or freezers in the APS Refrigerator Recycling Program. These units must still fulfill all of the current eligibility requirements including being within 10-30 cubic feet in size. The program is unable to accept units any larger in size because the recycling facility cannot demanufacture units larger than 30 cubic feet. It is anticipated that fewer than 100 Non-Residential units will be picked up annually. During this Reporting Period, no Non-Residential refrigerators or freezers were recycled.

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JACO Environmental entered into a partnership with Sears in November 2010. The purpose of the agreement was to provide a value-added service as a convenience to customers when they purchase a new refrigerator or freezer. At the point of sale, the customer receives a special sticker to place on their old unit enabling the ability to track retail units separately.

Upon delivery of a new refrigerator or freezer, Sears will pick up the customer's old (now secondary) appliance, saving them the hassle of making yet another appointment to schedule a refrigerator recycling pickup. This ensures that the old unit does not end up in the secondary market, or a garage or laundry room plugged in. The customer receives the \$30 rebate from JACO through normal operating channels. These units are taken to a Sears containment facility where JACO picks up refrigerators and freezers once a week for recycling and processing. During this Reporting Period, APS has recycled 122 units picked up through Sears.

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

The program objective is to educate APS customers that their second, older, working refrigerator or freezer in the garage or laundry room is costing them an additional \$100 per year in energy costs to operate. Refrigerators and freezers today are much more energy-efficient than models built prior to 1993. Models sold today use about 1/3 the energy of older units.

The program goal is to recycle 10,000 units in 2011. APS's 2011 DSM Implementation Plan estimates that the energy-efficiency savings expected to result from the Refrigerator Recycling Program could reduce peak demand by approximately 1.6 MW and 66,000 MWhs over the life of the measures that are expected to be installed in 2011.

#### **Programs Terminated**

No programs/measures were terminated during this Reporting Period.

#### **Levels of Participation**

During this Reporting Period, APS has recycled 4,091 refrigerators and freezers, and paid \$113,940 in incentives to customers. Units were picked up across APS's service territory statewide. Year-to-date volume totals are slightly under the mid-year target at 41%, however, the summer months are the busiest months for refrigerator recycling so it is anticipated that at year-end, actual volume targets will be very close to the 10,000 unit goal.

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

The 2010 Refrigerator Recycling Program process and impact evaluation has verified annual energy consumption data for over 50% of the type of units recycled as being consistent with the California Energy Commission's appliance database. Additionally, three quarters of the units recycled were manufactured prior to the first DOE Efficiency Standard in 1993, effectively demonstrating that APS is in fact recycling many of these older, energy-guzzling units.

During this Reporting Period the Appliance Recycling program MER research data collection and analysis activities included:

- Reviewing and updating Measure Analysis Spreadsheets and Analytic Database for refrigerator and freezer recycling.

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- Updating the ARP components of program design tool.

### MER Adjusted Gross kW and kWh Savings

Program	Number of Units Recycled	Annual kWh Savings Per Unit	Total Annual MWh Savings	Est Measure Life (yrs.)	TOTAL Lifetime MWh	Coin. kW Demand Savings Per Unit	TOTAL MW Savings
Refrigerators	3,679	1,522	5,599	6	33,597	0.2	0.8
Freezers	412	1,447	596	6	3,577	0.2	0.1
<b>TOTAL</b>	<b>4,091</b>		<b>6,196</b>		<b>37,174</b>		<b>0.9</b>

The final savings are adjusted for line losses (Energy 7.0%, Demand 11.7%) and a capacity reserve factor of 15%.

### Benefits and Net Benefits/Performance Incentive Calculation

The MER adjusted net benefits and performance incentive are provided in Tables 8, and 9.

### Problems Encountered and Proposed Solutions

During this Reporting Period, the program has been implemented efficiently through JACO Environmental, the implementation contractor. Very few problems have been encountered thus far.

Customers sometimes comment about the fact that the program does not pick up non-working refrigerators. If this results in a customer complaint, each situation is evaluated on a case-by-case basis. It is likely that their unit will be picked up and recycled as a courtesy to the customer, but the \$30 rebate will not be offered.

### Costs Incurred

Costs incurred for this program during this Reporting Period are listed below:

	Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Program Total Cost
Refrigerator Recycling	\$113,940	\$0	\$0	\$315,953	\$133,621	\$9,329	\$572,843

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Refrigerator Recycling	\$301,343	\$14,610	\$315,953

### Findings from all Research Projects

No findings to report at this time.

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#### Other Significant Information

The program marketing strategy for 2011 is to have a consistent multi-media presence in addition to utilizing internal marketing opportunities such as bill inserts and monthly newsletters. APS also ran some digital media on Pandora.com with some success.

Program marketing efforts during this Reporting Period include the following:

- Newspaper advertising (English/Spanish)
- Billboard advertising
- March bill insert
- May newsletter article
- ValPak direct mail to northern AZ in March and June
- E-mail newsletter (January & April)
- Radio advertising (English/Spanish)
- Messaging on Telemundo, Univision, & Dispierta
- Taped television segment for Sonoran Living Show
- Refrigerator magnets for community events
- Web banner advertising on Pandora.com
- Direct mail postcard to targeted zip codes (June)
- Video clip posted to [www.greenupaz.com](http://www.greenupaz.com)

Newspaper ads ran several times monthly in the following publications:

- Arizona Republic Newspaper
- Prensa Hispana (Spanish)
- Prescott Daily Courier
- Yuma Sun
- Flagstaff Arizona Daily Sun

During this Reporting Period, APS held a milestone anniversary event in April when it reached 10,000 units program-to-date at the recycling facility. A brand new ENERGY STAR® refrigerator was donated to Lowell Elementary of the Phoenix Elementary School District #1, and in exchange, the school recycled two older refrigerators. The entire fourth grade from Lowell Elementary came to tour the recycling facility, and the students observed "their" refrigerator go through the recycling process.

Based on customer feedback, APS is developing a process that gives customers the option to donate their \$30 refrigerator recycling rebate to The Salvation Army's Project S.H.A.R.E. (Service to Help Arizonans with Relief on Energy). Currently, the process is in a test phase. More information will be available in the next Reporting Period.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### **PROGRAM: BEHAVIORAL PROGRAM**

#### **Description**

The Residential Conservation Behavior Pilot Program provides participating residential customers with bi-monthly reports containing information designed to motivate them to change their energy usage behavior to save energy.

To drive conservation behavior, this program direct mails comparative Home Energy Reports to the Pilot participants that show how the energy usage in a customer's home compares with similar homes. Coupled with the comparison data, customers receive recommendations for specific and targeted actions they can take to save energy.

Derived from best practices in behavioral science research, this program approach uses the power of normative messaging to successfully engage and motivate conservation actions of targeted individuals. Comparing an individual's energy use to what is "normal" in his/her neighborhood has proven to be an effective mechanism to attract attention and motivate action. Normative messaging on energy use, combined with highly targeted recommendations on how to improve, are the basis of the concept for the Conservation Behavior program. The program provides a benchmark for customers to achieve and instills a sense of competition to produce sustained conservation behaviors.

#### **Program Modifications**

There are no program modifications to report at this time.

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

This program was approved by the ACC in Decision No. 71950, November 1, 2010. The program launched with the first reports arriving in pilot participant mailboxes in mid May 2011. Due to the late launch, the program design and the timing of this filing, no energy savings are being reported in this report. Program implementation costs were incurred during this period and are shown below.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.

#### **Levels of Participation**

The program targets 80,000 residential (both single and multi-family) customers for the 2011 pilot with a control group of an additional 40,000 customers. Customers are able to "opt out" of the program at any time.

During this Reporting Period, 54 participants have opted out of this program.

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

During this Reporting Period the Conservation Behavior program MER research data collection and analysis activities included:

- Completing updates to the home energy reports components of the program design tool.
- Outlining AMI data requirements necessary for energy and demand savings impact analysis.

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**MER Adjusted Gross kW and kWh Savings**

Due to the late launch, the program design and the timing of the Reporting Period, no energy savings are being reported.

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

Due to the late launch, the program design and the timing of the Reporting Period, no benefits and net benefits have been realized or reported during the Reporting Period.

**Problems Encountered and Proposed Solutions**

During the pilot phase, there have been no problems encountered with implementation to date.

**Costs Incurred**

Costs incurred for this program during this Reporting Period are listed below:

DSM Program	Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin.	Program Total Cost
Conservation Behavior	\$0	\$0	\$0	\$138,014	\$0	\$62,718	\$200,732

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Conservation Behavior	\$137,922	\$92	\$138,014*

\* The total implementation cost for the Reporting Period is \$138,014 which includes \$10,922 in taxes that were inadvertently added to the contractor invoices. The tax amount of \$10,922 will be credited back to the implementation category in the second Reporting Period of 2011.

**Findings from all Research Projects**

No findings to report at this time.

**Other Significant Information**

**Tie in with Existing Programs:**

In addition to conservation behavior savings, one of the key benefits of this program is that it offers a great vehicle for promoting all of the APS rebate programs. The program's Comparative Home Energy Reports contain specifically targeted and customized APS EE program promotions based on customer profiles. It is anticipated that in addition to achieving conservation related savings of approximately 2% in usage reductions per household, this program can help increase participation in other efficiency programs by up to 25%.

**Marketing and Communications:**

For the pilot phase of this program, the marketing and communications are limited to participating pilot customers only. This targeted group of customers is provided with direct mail reports (unless they specifically opt in for emailed reports) and has the opportunity to interact further using a web portal. Pilot participants can opt out of the program at any time using a variety of methods.

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### **PROGRAM: MULTIFAMILY ENERGY-EFFICIENCY PROGRAM**

#### **Description**

The Multifamily Energy Efficiency Program ("MEEP") is a program designed to encourage energy EE improvements in multifamily communities within the APS service territory. The MEEP received Commission approval on January 6, 2011, in ACC Decision No. 72060.

MEEP uses a three track approach to promote EE within the multifamily market segment.

- Track 1 provides free direct install components to retrofit the residential dwellings of existing communities. Participating communities receive enough CFLs, low flow showerheads, and faucet aerators to retrofit every community dwelling. Facility personnel, with implementation contractor field support, conduct all direct install installations.
- Track 2 utilizes APS Solutions for Business programs to provide complementary energy assessments of the community commercial facilities. The energy assessment will identify opportunities for additional EE savings and the applicable Solutions for Business incentives that are available.
- Track 3 targets new construction and major renovation multifamily projects. This track builds from the success of the APS ENERGY STAR<sup>®</sup> Homes program and encourages energy efficient building principles by paying an incentive to builders on a per unit basis for following a list of EE measures outlined in one of four builder option packages (BOP). Larger incentives are offered for achieving increasingly higher levels of efficiency.

#### **Program Modifications**

No program modifications were proposed during this Reporting Period.

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

The MEEP program objectives are to:

- Reduce overall energy consumption and peak demand in the multifamily housing market segment.
- Promote existing community EE retrofits of both dwelling units and common areas.
- Promote higher efficiency construction standards in the development of new multifamily projects.
- Increase overall awareness about the importance and benefits of EE improvements to the landlord and property ownership community.
- Contribute to meeting the APS EE program energy savings goals.

2011 MEEP goals include:

- Completing 5,000 multifamily dwelling retrofits
- Rebating 240 units in the new construction/major renovation program.
- Diversify program participation so that every customer segment and demographic region within the APS service area can benefit.

2011 MEEP savings goals include:

- Achieving 4,000 MWhs in accumulated energy savings.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### Programs Terminated

No programs were terminated during this Reporting Period.

### Levels of Participation

The MEEP Program launched in May 2011. Despite the short runtime of the program during the Reporting Period, program participation was strong.

- Direct Install: During the Reporting Period eight participating communities were enrolled in the direct install program. Two communities were close to completing dwelling measure installations at the close of the Reporting Period.
- Common Area Energy Assessments: Solutions for Business program personnel performed 2 common area energy assessments in the Reporting Period.
- New Construction: Outreach efforts began engaging builders proposing multifamily projects. While several projects were identified, none officially enrolled during the Reporting Period.

### Evaluation and Monitoring Activities and Results

Navigant Consulting will conduct the MEEP MER activities for the 2011 program year. No MER activities were undertaken during this Reporting Period.

### MER Adjusted Gross kW and kWh Savings

The first MEEP participants had not completed their measure installations at the close of the Reporting Period. As a result there are no kWh savings to report.

### Benefits and Net Benefits/Performance Incentive Calculation

The net benefits and performance incentive are provided in Tables 8, and 9.

### Problems Encountered and Proposed Solutions

MEEP experienced no problems of significance during the Reporting Period.

### Costs Incurred

Costs incurred for this program during this Reporting Period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin.	Total Program Cost
Multi-family EE Program	\$0	\$0	\$0	\$65,090	\$4,769	\$139,426	\$209,285

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Multi-family EE Program	\$43,167	\$21,923	\$65,090

MEEP program expenses through the first half of the year totaled \$209,285. Program spending is low through the first half of the year due to a second quarter program launch.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

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

No research projects were undertaken during this Reporting Period.

### **Other Significant Information**

Program marketing and education efforts during this Reporting Period include the following:

- Developed a program brochure to use as collateral material for outreach activities.
- Issued a press release announcing the program's launch.
- Developed tenant educational leave-behinds to promote the benefits of the installed energy saving measures.
- Developed a education leave-behind to give tenants instruction on the proper use of the showerheads.
- Developed a new construction brochure to use as collateral material for the new construction outreach activities.
- Developed a program presence on aps.com that included downloadable participation forms.
- Promoted the program by presenting at several local events.
- Actively worked within the Arizona Multifamily Association ("AMA") to promote program awareness.
- Ran an article in "Arizona Lifestyles", an APS newsletter sent to residential customers.
- Ran an article in "Arizona Success", an APS newsletter sent to commercial customers.
- Published APS Green Tips for multifamily properties in the AMA member newsletter.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### **PROGRAM: SHADE TREES PROGRAM**

#### **Description**

The Shade Tree program provides free shade trees to APS customers that have attended an APS Shade Tree workshop to help reduce customer cooling needs. The tree planting workshop educates customers on successful tree planting and care techniques and provides a customer specific site map indicating the ideal tree planting location(s) for EE. Customers can qualify to receive between two (homes built after 1980) and three (homes built prior to 1980) free shade trees per residence. This program is available to residential customers in Maricopa County.

#### **Program Eligibility Requirements:**

- Must be a current APS residential customer living in Maricopa County
- Must be able to plant the trees approximately 15 feet away from the western, eastern or southern side of their home
- Must have the legal right to plant the trees on the property
- Must have the ability to care for the trees as needed
- Must first attend an APS Shade Tree workshop

#### **Program Modifications**

There are no program modifications to report at this time.

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

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

The program goal is to distribute 5,000 trees in 2011. APS's 2011 DSM Implementation Plan approved by ACC, Decision No. 72215, estimated that the EE savings expected to result from the Shade Tree Pilot Program could reduce peak demand annually by approximately 0.4 MW and save 19,000 MWhs over the life of the measures expected to be installed in 2011.

#### **Programs Terminated**

No programs/measures were terminated during this Reporting Period.

#### **Levels of Participation**

During this Reporting Period, APS distributed 515 trees to Maricopa County residential customers. A number of summer and fall workshop and distribution events have been planned to meet the 2011 distribution goal of 5,000 trees.

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

Since the program launched in mid-May 2011, the only evaluation and monitoring results are from the workshop evaluation forms completed by customers during the first six workshops. Using a net promoter score (NPS) calculation system, the combined NPS for the May shade tree program events is 82.5%. A NPS of 82.5% ranks near the top in United States NPS Leaders in 2011 with USAA (87%) and Trader Joe's (82%).

Detailed evaluation and monitoring will be completed at the end of the 12 month pilot period.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**MER Adjusted Gross kW and kWh Savings**

The	Number of Units	Annual kWh Savings Per Unit	TOTAL Annual MWh Savings	Est. Measure Life (yrs.)	TOTAL Lifetime MWh	Coin. kW Demand Savings Per Unit	TOTAL MW Savings
Shade Trees	515	135	70	30	2,086	.09	.05

final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

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

The MER adjusted net benefits and performance incentive are provided in Tables 8, and 9.

**Problems Encountered and Proposed Solutions**

There have been no problems encountered with implementation during the Reporting Period.

**Costs Incurred**

Costs incurred for this program during this Reporting Period are listed below:

DSM Program	Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin.	Program Total Cost
Shade Trees	\$4,595	\$0	\$0	\$103,305	\$2,966	\$3,013	\$113,879

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Shade Trees	\$76,840	\$26,465	\$103,305

**Findings from all Research Projects**

No findings to report at this time.

**Other Significant Information**

The Phoenix Permaculture Guild, the local non-profit organization contracted to implement this program, has changed their name to the Valley Permaculture Alliance during this Reporting Period.

The shade tree workshop curriculum development was vetted with local arborists with the following designations:

- International Society of Arboriculture ("ISA") Certified Arborist
- ISA Certified Arborist/Utility Specialist
- ISA Certified Arborist/Municipal Specialist

## ARIZONA PUBLIC SERVICE COMPANY

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In the initial APS Shade Tree Pilot filing, APS proposed limiting the program to Mesquite and Palo Verde tree varieties. At the request of the ACC, APS has expanded the tree variety list to include the following trees and still retain cost effectiveness:

- Mesquite (three varieties)
- Palo Verde (two varieties)
- Desert Willow
- Chaste Tree
- Willow Acacia

Program marketing efforts during this Reporting Period include the following:

- Flyer distributed at local events and communities
- [aps.com](http://aps.com)
- Call Center referrals
- Page 2 bill message for targeted zip codes surrounding the spring workshop locations
- Contractor messaging to their member groups
- Local area sustainability program newsletter publications
- Press release to west valley small market newspapers
- Poster at the workshop location

Each participant receives the following materials in an educational workshop packet:

- Aerial photo of his/her home with the ideal EE planting locations highlighted
- Program participation form
- Workshop evaluation form
- Blue Stake Guide
- Right Tree, Right Place brochure
- Detailed watering guide published by the Arizona Municipal Water Users Association
- In addition to the materials listed above, additional resources including a copy of the curriculum, tree information and helpful links are provided on [aps.com](http://aps.com).

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

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

#### **Description**

APS's Energy Wise Low Income Weatherization Program is designed to improve the EE, 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's service territory.

#### **Program Modifications**

No modifications for this Reporting Period.

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

- To improve the EE 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 acknowledged the estimates that the Weatherization component of the Energy Wise Program could serve 382 homes per year (based on APS's annual budget of \$705,000) and result in reduced energy consumption of 763 MWh per year and a demand reduction of 115 kW per year.

The goals for the APS Energy Wise Low Income Weatherization program specified in APS's 2011 DSM Implementation Plan, filed on July 15, 2010, estimates that the EE savings expected to result from the Low Income Program could reduce peak demand by about 0.2 MW and 30,000 MWh over the life of the measures, which are expected to be installed between the years 2010 – 2011.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.

#### **Levels of Participation**

A total of 217 households received assistance during the Reporting Period. A single household may have received more than one type of assistance.

Type of Assistance	Number of Households
Bill Assistance	143
Health and Safety	0
Repair and Replace	0
Weatherization	74
<b>Total</b>	<b>217</b>

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### 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.

The Arizona Department of Commerce Energy Office ("AEO"), 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.

Information from the 2011 AEO report was submitted January 2011 and is provided below:

### Utility Bill Analysis

An analysis of 235 homes has been completed from July 2007 through January 2011 using utility data from APS, Tucson Electric Power, Unisource Gas and Electric and Southwest Gas. This analysis will be ongoing, and new data will be added and reported in the future reports.

Provided are Savings to Investment Ratios ("SIR") for total investment from all funding spent (diagnostics, energy measures and health and safety measures) and for energy related measures only (diagnostics and energy measures).

### Assumptions

Present value is based on 17.5 years measure life, discount rate of 3% and a utility cost escalation rate of 3%.

### Results Summary

The combined SIR of all jobs reviewed to date for funds spent on diagnostics, energy measures and health and safety measures was 1.19. Health and Safety represented 13% of expenditures.

The combined SIR of all jobs reviewed to date for funds spent on energy measures and diagnostics was 1.35.

The average saving per home reviewed was 2,667 kWh and 32 therms of natural gas (gas therms average includes all electric homes).

### Gross kW and kWh Savings

Of the 217 households participating in the program, a total of 74 homes received weatherization services that contributed to the energy savings.

No. of Homes	Annual kW Savings	Annual kWh Savings	Lifetime kWh Savings
74	29.0	211,173	3,695,529

The final savings are adjusted for line losses (Energy 7.0%, Demand 11.7%).

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The kW factor used to calculate the savings is based on data from the AEO study of 235 weatherized homes. The study normalized electric and gas savings into dollars with gas savings equaling 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 demand savings per home in this study are estimated to be 0.3 kW. A 17.5 years measure life and kWh savings factor of 2,667 kWh per home, based on the current AEO report, has been utilized to determine the appropriate kWh savings.

### Benefits and Net Benefits/Performance Incentive Calculation

The net benefits for this program are provided in Tables 7, 8, and 9. 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. Consequently, the net benefits for the Energy Wise Program for this Reporting Period as shown in Table 7 are \$0. However, the spending on the Energy Wise Low Income Weatherization Program is included in the total spending, on which the performance incentive is calculated.

### Problems Encountered and Proposed Solutions

The American Recovery and Renewal Act ("ARRA") weatherization funding continues to impact the APS Energy Wise Weatherization program. The temporary slowdown in utility weatherization program activities is a direct result of the agencies focus on spending the ARRA funds. Nonetheless, since ARRA funds must be leveraged with existing funds, APS has commitments from the agencies that the utility funds will be expended by year end.

### Costs Incurred

Costs incurred for this program during this Reporting Period are listed below:

Activity	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin.	Program Total Cost
Bill Assistance	\$156,306	-	-	-	-	\$26,601	\$182,907
Health & Safety	-	-	-	-	-	-	\$0
Repair and Replace	-	-	-	-	-	-	\$0
Weatherization	\$102,252	\$30	\$1,725	\$51,060	\$8	\$41,673	\$196,748
3rd Party Manager - Arizona Community Action Association	-	-	-	-	-	-	\$0
APS Program Support	-	-	-	-	-	-	\$0
<b>Total</b>	<b>\$258,558</b>	<b>\$30</b>	<b>\$1,725</b>	<b>\$51,060</b>	<b>\$8</b>	<b>\$68,274</b>	<b>\$379,655</b>

This table displays all Energy Wise Program costs, including Health and Safety, and Repair and Replace. However, these categories are not included in Table 1.

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Low Income Weatherization	\$50,000	\$1,060	\$51,060

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### Measures: Health and Safety, Repair and Replace Components

Measure	Health and Safety	Repair and Replace
Air Conditioner	0	0
Heat Pump	0	0
Evaporative Cooler	0	0
Refrigerators	0	0
Water Heaters	0	0

### Findings from All Research Projects

NA

### Other Significant Information

The March 3, 2011 approval of the APS 2011 DSM Implementation Plan and the long lead time required by some of the agencies to receive approval of the weatherization contract amendments, resulted in most of the agencies being unable to fully implement the APS Energy Wise Weatherization program. As of June 30, 2011, the Navajo Nation Weatherization contract and the Maricopa County contract were still unsigned representing a total of \$412,788 of unobligated weatherization funds out of a total of \$1,444,000. Additionally, the agencies are still focused on spending ARRA funds before they run out in March 2012. For example, the latest Community Action Human Resources Agency Annual Financial Statements and Auditor's Report, for their fiscal year ending June 30, 2010 shows expenditures of \$130,678 of Low-Income Home Energy Assistance provided by the Arizona Department of Energy and \$470,665 of U.S. Department of Energy funds compared to \$5,314 of APS funds. Clearly, the focus is on spending the Federal funds.

Program marketing efforts included:

- Presentation at Weatherization Peer-to-Peer Meeting
- Weatherization outreach and field visits to participating Community Action Plan (CAP) offices

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

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

##### **Description**

The Large Existing Facilities Program provides prescriptive incentives for owners and operators of large (over 100 kW aggregated peak monthly demand) Non-Residential facilities for energy-efficiency improvements in technologies such as lighting, HVAC, motors and refrigeration applications. The Direct Install approach is available for facilities which are individually metered with a peak demand of 400 kW and less. For energy-efficiency applications not covered by the prescriptive incentives, the program offers custom incentives, which are evaluated individually based on energy savings. The program also provides incentives to reduce 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.

##### **Program Modifications**

ACC Decision No. 72088, dated January 20, 2011, approved the addition of sixteen measures to the prescriptive program and approved the increase of customer and measure caps. New prescriptive measures include LED channel signs and traffic lights, smart strips, computer power management, shade screens, several refrigeration measures, HVAC controls, energy efficient motor rewind, and heat pump water heaters. In addition to these new measures, the Bid for Efficiency pilot program was also approved.

Decision No. 72088 also raised the cap on custom projects to 75% of incremental cost and raised the incentive cap for retro-commissioning to up to 75% of study cost (up to \$20,000). The cap for large customers (>100 kW monthly demand) increased to \$500,000 + 50% of incentive over \$500,000.

Decision No. 72215, dated March 3, 2011, approved the addition of coin-operated washing machines to the prescriptive program.

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

- Promote and support energy-efficiency 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.
- Promote market transformation through APS trade allies, customer outreach and technical training classes.

APS's 2011 DSM Implementation Plan estimated that the energy-efficiency savings from the Large Existing Program could reduce annual peak demand by about 15.1 MW, 101,000 MWh annually and 1,287,000 MWh over the life of the measures expected to be installed in 2011.

##### **Programs Terminated**

No programs were terminated during this Reporting Period.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### Levels of Participation

The Large Existing Facilities Program has been the strongest performing Non-Residential program since its inception. During this Reporting Period, APS paid \$4,211,557 in Large Existing program incentives. This represents a total of 609 active applications from 275 unique customers and includes projects implemented through Direct Install. Payments to School Districts and charter schools comprised 26 of the 609 applications.

Incentive Status by Fund for Active Applications	Incentives Paid
Large Existing – Prescriptive & Custom	\$4,112,184
Large Existing – Studies	\$78,873
Large Existing – Retrocommissioning Studies	\$20,500
<b>Total Large Existing Funds</b>	<b>\$4,211,557</b>

In Decision No. 70637, the ACC approved APS's request to continue to track DSM applications resulting from studies for which incentives have been paid, and report the semi-annual and cumulative results of its program-to-date. During this Reporting Period, APS paid a total of \$99,373 for 52 study applications from 24 customers. Seven of the 52 studies have already resulted in implementation of the associated measures. Since the program's inception, 176 studies have been completed. Of those 176 studies, 86 have resulted in energy-efficiency projects applications to date.

### Self-Direction:

There was no participation in the Self Direction program for this Reporting Period.

### Direct Install

The Direct Install measures were launched in April 2009. While these measures are targeted to small businesses, program rules allow small facilities (under 400 kW demand) of large customers to participate. K-12 school buildings of any size can also participate in Direct Install measures. In this Reporting Period, 175 Direct Install projects for Large Existing Facilities were paid a total of \$659,354 in incentives. Program development and outreach for Direct Install are described in the Small Business section of this Progress Report.

### Evaluation and Monitoring Activities and Results

The Large Existing Facilities program MER research data collection and analysis activities for this Reporting Period included:

- Conducting ongoing review and analysis of Large Existing participation database.
- Reviewing and updating Non-Residential Measure Analysis Spreadsheets and Analytic Database
- Updating components of program design tool.
- Conducting on-site verification and analysis of self-direct projects.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

- Conducting review of measure incentives and incentive optimization task for selected measures.
- Conducting ongoing primary and secondary research of key factors and performance variables affecting savings and cost-effectiveness of a wide range of measures.
- Completing a non-residential lighting runtime hour and coincidence factor study. Results were used to inform current savings estimates.
- Conducting non-participant process research by sector to determine how to increase participation
- Conducting best practice research in utility retro-commissioning programs to understand effective program designs in 2011.
- Designing customer and trade ally research plan to determine net-to-gross effects and market influence of the program.

### **MER Adjusted Gross kW and kWh Savings**

The following Table reflects the MER adjusted total energy and demand saving achievements in this Reporting Period for the Large Existing Facilities program. Only savings from projects that were completed and incentives paid are counted in this Progress Report.

### **MER Adjusted kW and kWh Gross Savings**

kW Savings <sup>1</sup>	Annual kWh Savings	Lifetime kWh Savings
7,778	60,422,932	771,413,836

1. kW Savings is coincident peak.

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

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

The MER adjusted net benefits and performance incentive are provided in Tables 8 and 9.

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

There are no new problems to report.

### **Costs Incurred During the Reporting Period**

Costs incurred for this program during this Reporting Period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Program Implementation*	Consumer Education	Program Marketing	Planning & Admin	Program Total Cost
Large Existing	\$4,211,557	\$169,586	\$1,582,671	\$35,633	\$294,112	\$156,191	\$6,449,750

\* All implementation expenditures are contractor expenses. APS does not charge to this budget category for this program.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

A breakdown of all implementation contractor expenses for this Reporting Period and program are:

DSM Program	IC- Implementation	IC- Marketing	IC- Education	IC- Technical Services	IC- Total Cost
Large Existing	\$1,582,671	\$268,464	\$17,212	\$162,178	\$2,030,525

### Findings from all Research Projects

NA

### Other Significant Information

The focal point of program development activities centered on specific market segments. The program developed technical resources, information, trainings and advertisements to engage and educate these specific segments.

The program continued to develop and foster relationships with industry and stakeholder associations to enhance outreach efforts and connections with members. During the Reporting Period, these activities included the following:

- Building Owners and Managers Association (“BOMA”):
  - Sponsored two Benchmarking with ENERGY STAR® trainings; maintained active participation on Green Building Committee; and, sponsored BOMA’s Kilowatt Krackdown (ENERGY STAR® portfolio manager program) promotion.
  - APS Solutions for Business received the Business Ally of the Year in January.
- National Association of Industrial and Office Properties (NAIOP) – exhibited at annual networking event; discussing options to provide some training assistance.
- Arizona Hotel & Lodging Association – participate on Green Committee; presenting at annual conference.
- 24/7 (IT-focused association) – delivered a presentation
- Area Agency on Aging – Participated in conference; exploring training opportunities
- Central Arizona Society of Hospital Engineers (“CASHE”) – training opportunities
- Valley Forward – participate in meetings

**1. Trade Ally Network:** Trade allies are contractors and other industry professionals who deliver EE solutions to customers. The program supports a Trade Ally program to ensure an informed and engaged network of service providers. To be listed as a Solutions for Business Trade Ally, a company must submit an application and attend program training. To remain on the list, the company must participate in the rebate program and attend an annual training.

Trade Allies who have not participated within six months of approval are contacted and encouraged to participate or agree to be dropped from the program. Those agreeing to be dropped are generally either out of business or not working in the commercial market. They will continue to receive communications from the program and are welcome to return with additional/updated training and a valid project.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

As a result of the program's focus on trade ally development and recruiting efforts, 68 new trade allies (companies) were approved during this Reporting Period; 19 were dropped for lack of participation. At the end of this Reporting Period the program had a total of 337 trade allies (companies).

### **Trade Ally Outreach**

The Trade Ally program continues to generate interest from a variety of industry professionals. These professionals can attend a bi-weekly training meeting to learn about the Solutions for Business program and the benefits of becoming a program trade ally. The program added "Office Hours" during this Reporting Period: certain times are set aside every two weeks so that contractors can drop-in for assistance with applications or project bids.

Outreach is conducted through strategic partnerships with professional associations within the energy and contracting industry as well as trade show and event participation and program advertisements. These efforts are ongoing and continue to be effective.

Program trade allies received two editions of the Solutions for Business Trade Ally Newsletter during this Reporting Period. Newsletter articles highlighted trade ally projects, provided program updates, and included links to useful program information, upcoming events and training opportunities.

Additional trade ally development opportunities centered on technical support to new and existing trade allies with enhanced focus on encouraging program participation, increasing program knowledge and improving the quality of trade ally-submitted incentive applications. Efforts to develop and leverage the existing trade ally network included program training opportunities, technical training classes, trade ally events, and program participation in trade ally-hosted events.

The program also developed and launched a Trade Ally Web portal to make it easier for trade allies to connect with program materials and resources. Training presentations, news updates and other announcements are posted on the portal.

### **Trade Ally Events**

The program held a mandatory Trade Ally event in February to educate trade allies on the recently-approved changes to the rebate program and the new application forms. The training also provided education on technical and marketing topics through breakout sessions. Those who could not make the event were accommodated through webinars throughout the Spring, which reprised all the sessions. More than 250 trade allies attended the February event.

### Participation in Trade Ally-Hosted Events

Solutions for Business program information was provided at the following trade ally-hosted events:

January            Air Conditioning Contractors of America ("ACCA") Professional Air Conditioning Certification (PAC) Training, 17 attendees  
                      Tolin Mechanical-Trade Ally Orientation, 8 employees  
                      National Electric Contractor Association -Trade Ally Orientation, 5 members

AZ Energy Pros- Trade Ally Orientation, 10 employees  
Caliente Construction- Trade Ally Orientation, 7 employees

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

February	Annual Trade Ally Event, 250 attendees Sabino Electric- Trade Ally Orientation, 3 employees
March	Energy Systems Design- Trade Ally Orientation, 10 employees HDR- Trade Ally Orientation, 12 employees
April	Air Conditioning Contractors of America- Trade Show, 300 attendees
May	Specialty Electric Yuma- Trade Ally Orientation, 16 employees ESSCO- Trade Ally Orientation, 6 employees Air Conditioning Contractors of America- program presentation, 200 attendees
June	Taylor Freezer,-Trade Ally Orientation 2 employees Yuma, AZ Trade Ally Orientation, 24 attendees Mid State Energy -Trade Ally Orientation, 6 employees Linc- Trade Ally Orientation, 7 employees Deca SW, program review with employees

#### **2. Customer Awareness and Advertising:**

Marketing and outreach efforts focus on high-value opportunities that raise customer awareness of the program and EE benefits. This was accomplished through print and electronic advertisements in segment-specific publications, updates to the program website, public relations events and other marketing channels.

Messaging in the print advertisements placed during this Reporting Period focused on educating market segments on a manageable number (three) of EE measures. The measures and benefits were customized for the targeted segment. These advertisements ran in the following local publications:

- Arizona Food Marketing Alliance Journal
  - Arizona Hotel and Lodging Association (AzHLA)
  - Arizona School Board Association
  - Arizona Small Business Resource (annual publication)
  - Arizona Real Estate Magazine ("AZRE")
  - Electric Times
  - HVACR Today (Heating, Ventilation, Air Conditioning and Refrigeration)
  - Flagstaff Business News
  - Phoenix Business Journal
  - Restaurateur of Arizona
  - TechConnect
  - Valley Hotel and Resort Association (VHRA)
- Customer awareness and interest was raised through check-presentation events, including AT&T, Shaw Industries (Yuma) and the City of Chandler.
  - The program worked with a small business customer (Metro Arts – a charter school in Phoenix) to produce a video highlighting the benefits of the Express Solutions measures for that customer. The video is available through the program website.
  - Program information was provided in two issues of APS's Success Newsletter billing insert (March, June) during this Reporting Period.

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### **Market Segmentation**

APS continues to tailor its marketing and outreach efforts to specific market segments. As a program matures and "early adopters" complete projects, it becomes more challenging to engage participants and achieve energy saving targets. By segmenting the Non-Residential market into more-defined categories, the program can implement targeted and cost-effective strategies to engage customers. The objective is to secure participation by a broader range of eligible customers and to encourage these customers to implement comprehensive projects.

The program currently segments Non-Residential customers into 12 categories by business type: college/universities, data centers, government, grocery, hotels, industrial, K-12 schools, medical, office, restaurant, retail, and warehouse. The segments align with customer participation trends and demographics as well as the assignments of APS Key Account Managers.

During this Reporting Period, one outreach and one technical staff were assigned to each segment. Each person supports three to four different segments. The assigned staff will provide in-depth knowledge of their particular segments in terms of segment motivators, barriers, procurement process, energy consumption patterns and appropriate technologies and energy-saving measures. Outreach staff will continue to develop relationships with associations and other industry contacts related to the assigned segments, participate in events and guide development of marketing messages and program tools.

Each market segment has an individual savings goal and outreach plan based on historical and current participation, potential, and other market conditions. This will allow APS to better track success within segments and quickly adjust for changing market conditions and opportunities pertaining to these segments.

**3. Generate Program Awareness Through Key Events:** The program participated in the following trade shows and conferences:

- January 27 – Paradise Valley Mall Business for Breakfast (presentation to business chamber members)
- February 22 – AZRE Red Awards (award presenter, tabletop display)
- March 8 – Sustainable Arizona Tourism Workshop (tabletop display)
- March 31 – Carefree/Cave Creek Chamber of Commerce meeting (presentation to business chamber members)
- April 13 - Data Center Dynamics Conference (presenter)
- April 15 – Build It Green Expo - (booth)
- April 26 – BOMA Benchmarking with ENERGY STAR® (workshop)
- May 19 – NALCO Water and Energy Seminar (presentation to 30 large industrial users)
- May 31 – National Center for the Learning Environment Expo (booth)
- June 1-3 – Aging Services of Arizona Expo (booth)

### **4. Technical Training:**

Training courses help customers understand technologies and potential for energy savings. This understanding promotes quicker adoption of new technologies and encourages customers to undertake more in-depth and holistic projects. Classes allow interaction among customers, topic experts and contractors who can perform work, thus facilitating the contracting process. Feedback

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from this educational series indicates that customers are more likely to adopt alternative technology following such presentations and the knowledge gained from them.

APS continued to work closely with the Arizona Chapter of the Association of Energy Engineers ("AEE-AZ") to promote and manage registration of the APS Technical Training series. AEE-AZ provided access to their membership to promote the trainings and the Solutions for Business program and also provided APS with turnkey registration support for the four trainings that occurred during this Reporting Period. Attendance has been particularly strong this Reporting Period; many attendees were repeat students.

The four classes held during this Reporting Period attracted 269 attendees:

- January 26 – Specialty Lighting (52 attendees)
- March 2 – Energy Studies and Benchmarking with ENERGY STAR® (63 attendees)
- March 30 – HVAC Systems (66 attendees)
- May 18 – Fundamentals of Chillers (88 attendees)

Materials were developed for each training session, including class materials on CDs for participants, class evaluations, invitation fliers, and certificates of completion. Class fliers and registrations forms were sent out to the Program's contact list and through the Association of Energy Engineers (AEE) member list, State Energy Office, and APS Key Account Managers

Information on the Solutions for Business program was presented at the training events.

The program sponsored the following training organizations and related classes:

- Green Ideas - LEED Trainings and Sustainable Building Advisor certification
- BOMA – Benchmarking with ENERGY STAR®
- ACCA – Professional Air Conditioning Technician Certification
- Association of Energy Engineers (AEE) – Certified Energy Manager series

APS held several training courses with ACCA for the revised HVAC Tune Up incentive. APS conducted an administrative class for paperwork and application processing and a technical training on the Stargate testing device. Currently there are enough trained contractors to accommodate the Tune Up program. If additional contractors are needed, training options will be evaluated.

Solutions for Business staff met with city and county Workforce Development representatives and ASU staff to discuss collaborative efforts on federally funded training courses. APS is supportive of classes and will have some limited participation. APS will continue to search out educational efforts that support market transformation among both the public and the trades.

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

#### **Description**

The Non-Residential New Construction and Major Renovations program includes three components: 1) design assistance/feasibility studies, 2) custom measures including Whole Building Design, and 3) 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 process as possible. Incentives are also available for feasibility studies that assess savings opportunities from complex applications. Prescriptive incentives are available for energy-efficiency improvements in lighting, HVAC, motors and refrigeration applications.

#### **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.
- Promote market transformation through APS trade allies, customer outreach and technical training classes

APS's 2011 DSM Implementation Plan estimated that the energy-efficiency savings from the New Construction Program could reduce annual peak demand by about 1.6 MW, 27,000 MWh annually and 377,000 MWh over the life of the measures that are expected to be installed in 2011.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.

#### **Levels of Participation**

The impact of the economy is driving significantly fewer new construction starts; only a handful of projects started before the economic downturn and are now finishing construction. In this Reporting Period, APS paid a total of \$527,333 in New Construction incentives. This represents 30 applications from 12 unique customers. None of the 30 applications were from school districts.

<b>Incentive Status for Active Applications</b>	<b>Incentives Paid</b>
Large New Construction – Prescriptive & Custom	\$489,833
Large New Construction – Studies	\$37,500
<b>Total Large New Construction Funds</b>	<b>\$527,333</b>

In Decision No. 70637, the Commission ordered APS to continue tracking DSM customer applications resulting from studies for paid incentives, and report the semi-annual and cumulative results of its program-to-date tracking efforts. During this Reporting Period, one design assistance study incentive was paid for a total of \$7,500, and three commissioning study incentives were paid for a total of \$30,000. Two of these four applications have resulted in energy-efficiency projects to date. Since

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program inception, 40 studies have been completed. Of those 40 studies, 24 resulted in applications for energy-efficiency projects.

APS Solutions for Business launched the "Whole Building" incentive in January 2010. During this Reporting Period the program received 15 Pre-Notification applications. Since these projects are in early design and construction phases, no Whole Building projects have been paid.

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

During this Reporting Period the Non-Residential New Construction program MER research data collection and analysis activities included:

- Conducting ongoing review and analysis of New Construction participation database.
- Reviewing and updating Non-Residential Measure Analysis Spreadsheets and Analytic Database.
- Updating to components of program design tool.
- Conducting ongoing primary and secondary research of key factors and performance variables affecting savings and cost-effectiveness of participating projects.
- Initiating customer and trade ally research to determine net-to-gross effects and market influence of the program.

### **MER Adjusted Gross kW and kWh Savings**

The following Table reflects the MER adjusted total energy and demand saving achievements in this Reporting Period for the Large New Construction Program. Only savings from projects that were completed and incentives paid are counted in this Progress Report.

### **MER Adjusted kW and kWh Gross Savings**

<b>kW Savings<sup>1</sup></b>	<b>Annual kWh Savings</b>	<b>Lifetime kWh Savings</b>
1,018	6,340,155	90,676,501

1. kW Savings is coincident peak.

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

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

The MER adjusted net benefits and performance incentive are provided in Tables 8 and 9.

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

No new problems to report for this Reporting Period.

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### Costs Incurred

Costs incurred for this program during this Reporting Period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Program Implementation*	Consumer Education	Program Marketing	Planning & Admin.	Program Total Cost
New Construction	\$527,333	\$13,566	\$534,417	\$13,782	\$121,339	\$50,762	\$1,261,199

\* All implementation expenditures are contractor expenses. APS does not charge to this budget category for this program.

A breakdown of all implementation contractor expenses for this Reporting Period is:

DSM Program	IC- Implementation	IC- Marketing	IC- Education	IC- Technical Services	IC- Total Cost
New Construction	\$534,417	\$121,339	\$2,342	\$13,566	\$671,664

### Findings from all Research Projects

NA

### Other Significant Information

During this Reporting Period, program development activities focused on following up with projects in progress and increasing program participation. Specific activities are highlighted below.

### Marketing and Outreach

Strategic partnerships continue to play an important role in New Construction outreach. During this Reporting Period, APS sponsored the Energy Award at the annual awards of the Phoenix chapter of American Institute of Architects (AIA). This partnership will help the program attract allies in the architectural sector and promote the Whole Building incentive. Architects can access low cost Continuing Education Units (CEUs) through APS's training program and marketing opportunities. APS also sponsored the Sustainability Award through the AZRE magazine Red Awards, which recognizes outstanding efforts in energy-efficient design and construction.

In addition to many of the marketing and outreach activities described for the Large Existing program, marketing activities for the New Construction program focus on educating potential program participants from the following customer segments: owner-occupied buildings, government buildings (schools, county, city, state), and signature projects.

New Construction projects have been identified and approached from several directions. During this Reporting Period, the Solutions for Business program made significant contacts with the contractor community. Program staff have worked with developers and contractors throughout the project development cycle and have been actively engaged in a pipeline of 48 new construction projects. New starts and major renovations are picking up. Specific examples of New Construction outreach include:

- Monthly networking at construction industry association meetings, including CASHE, the Alliance for Construction Excellence (ACE), the Arizona chapter of the US Green Building Council, and Building Owners and Managers Association (BOMA) meetings. This attendance is an important component of lead development for future projects, which could qualify for

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design assistance and other program incentives. It also helps to identify and recruit potential trade allies into the program.

- Project-specific meetings with architecture and engineering firms, developers, contractors and customers continue for projects at all stages of design and development. In addition, industry professionals receive program updates and program-related support. In this Reporting Period, APS Solutions for Business program staff held on-site trainings with approximately 45 professionals to discuss program details and identify potential incentive opportunities.

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

#### **Description**

The Non-Residential Small Business Program provides prescriptive incentives for small Non-Residential customers ( $\leq 400$  kW of aggregated peak monthly demand) for energy-efficiency improvements in lighting, HVAC, motors, and refrigeration applications through a simple and straightforward mechanism for program participation. Small Business customers are eligible for custom incentives to implement energy-efficiency measures. The program provides incentives for conducting an energy study that identifies energy saving opportunities. The program also provides educational and promotional materials designed to assist building owners and lease-holders in making decisions to improve the energy-efficiency of their facilities. Direct Install measures were introduced to the Small Business market in April 2009.

#### **Program Modifications**

ACC Decision No. 72088 expanded eligibility for Direct Install to customers with  $\leq 400$  kW of aggregated peak monthly demand (previously limited to 100 kW and below). It also added two lighting measures to the Direct Install incentive offering. The cap for small customers ( $\leq 100$  kW monthly demand) was increased to \$150,000 plus 50% of the incentive over \$150,000.

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

- Promote and support energy-efficiency opportunities for small Non-Residential customers.
- Promote the installation of high-efficiency lighting, packaged HVAC equipment, motors, and refrigeration systems.
- Provide customers with direct energy saving opportunity identification and implementation services through the Direct Install family of measures.
- Promote cross-training and energy-efficiency assessment and referral opportunities among lighting and refrigeration contractors.
- Promote market transformation through APS trade allies, customer outreach and technical training classes.

APS's 2011 DSM Implementation Plan estimated that the energy-efficiency savings from the Small Business Program could reduce annual peak demand by about 6.1 MW, 28,000 MWh annually and 439,000 MWh over the life of the measures expected to be installed in 2011.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.

#### **Levels of Participation**

In this Reporting Period, APS paid a total of \$1,340,402 in Small Business program incentives, an increase of nearly 50 percent compared to the same period in 2010. APS paid incentives on 727 applications from 640 unique customers during this Reporting Period, an increase of over 60 percent compared with the number of Small Business program applications processed during the first six months of 2010.

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Of the 727 small business projects paid, 85 were conducted through the Classic prescriptive/custom program and 642 were conducted through Direct Install. None of the 727 applications were from school districts.

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.

Incentive Status for Active Applications	Incentives Paid
Small Business – Prescriptive	\$1,332,999
Small Business – Studies	\$7,403
Small Business – Retrocommissioning Studies	\$0
<b>Total Small Business Funds</b>	<b>\$1,340,402</b>

In Decision No. 70637, the Commission ordered APS to continue to track DSM applications resulting from studies for which incentives have been paid, and report the semi-annual and cumulative results of its program-to-date tracking efforts. There was one study incentive paid in the Small Business program during this Reporting Period. Six studies have been completed since program inception, of which five study applications have resulted in energy-efficiency projects.

### **Direct Install**

Direct Install incentives were paid on 642 projects for Small Business customers during this Reporting Period. While small businesses are the primary target for the Direct Install offering, large customers with facilities of 400 kW or less premise demand qualify for Direct Install measure incentives, and schools of any size can participate. In addition to the 642 projects paid to small businesses, an additional 178 Direct Install projects for Large Businesses and Schools were paid. The breakdown of Direct Install incentives and paid projects is provided in the section below.

Projects implemented through Direct Install during this Reporting Period are expected to save 20.1 GWh annually, or 291.1 GWh over the lifetime of the measures. This is a 50 percent increase over the savings achieved during the same Reporting Period of 2010.

### **1. Active Number of Contractors and Contractor Identification:**

Direct Install contractor participation has increased significantly due to focused recruiting, training and support efforts. During this Reporting Period, 32 approved contractors participated in Direct Install, an increase of 56 percent compared to the first six months of 2010. Contractors participating during the current Reporting Period include the following:

3C ELECTRIC INC  
ACCEL ELECTRIC INC  
AMERICAN ENERGY CONSULTANTS  
ATS ELECTRIC, INC.  
BAMBER ELECTRIC COMPANY  
BURDEN ELECTRIC LLC  
DAK ELECTRIC

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DECA SOUTHWEST  
DEMAND DROP  
FACILITY SOLUTIONS GROUP  
G & A SERVICES LLC  
GENERATIONS OF CONTRACTORS  
GREEN FUEL TECHNOLOGIES  
GREENLIGHT ELECTRIC LLC  
GROGAN ELECTRIC INC  
HOPE CONSTRUCTION LLC  
IES COMMERCIAL  
INLINE ELECTRICAL RESOURCES  
J & S ELECTRIC LLC  
JEN ELECTRIC  
KER ELECTRIC, INC  
LONE MOUNTAIN ELECTRIC LLC  
NUWEST TECHNOLOGIES INC  
REGROUP PERFORMANCE CONTRACTING LLC  
RETRO TECH SYSTEMS INC  
STONE KAT DEVELOPMENT  
SUPERMARKET ENERGY TECHNOLOGIES  
TEPCON CONSTRUCTION  
THE SIGNERY  
THUNDERBIRD MOUNTAIN FACILITIES  
US ENERGY SERVICES INC  
WILSON ELECTRIC SERVICES CORP

Two contractor training meetings were held for four companies interested in participating in the Direct Install approach. Each training meeting provided an in-depth review of the Direct Install measure software and included a "hands-on" approach that allowed participants to input sample projects into the Direct Install software. Three new companies were approved for Direct Install measure participation during the first six months of 2011.

### **2. Number of Direct Install Jobs Completed:**

A total of 820 Direct Install projects were paid during this Reporting Period.

### **3. Dollar Value of the Direct Install Incentives Paid to Contractors:**

During this Reporting Period, \$2,012,660 in Direct Install incentives was paid to contractors. This represents 67% of the total project costs.

### **4. Dollar Value of the Direct Install Jobs Paid by the Customer:**

The total cost of the Direct Install projects during this Reporting Period was \$2,995,604. Customers paid \$982,943 toward these Direct Install projects during this Reporting Period.

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**5. Quantity of Each Direct Install measure for which incentives were paid:**

<b>Direct Install Measure</b>	<b>Quantity</b>
Delamping	27,992
T8 Lighting	10,391
Screw-in CFL	805
Occupancy Sensors	925
Exit Signs	688
Refrigerated Case Fan Motors	511
Anti Sweat Heater Controls	613
Refrigerated Novelty Case Controls	23
Refrigerated Case Evaporator Fan Controls	415
Hard-Wired CFL	4,224
Occupancy Sensors - Vending Machines	95

**6. Number of Instances Where Incentives Were Reduced Because of Eligibility for Incentives Paid by Other Entities:**

No known occurrences during this Reporting Period.

**7. Spending and Savings Numbers Attributable to Direct Install for the Period and Year-to-Date and Program-to-Date:**

**Reporting Period**

<b>kW Savings</b>	<b>Annual kWh Savings</b>	<b>Lifetime kWh Savings</b>
4,973	20,384,326	291,101,026

**Year to Date**

<b>kW Savings</b>	<b>Annual kWh Savings</b>	<b>Lifetime kWh Savings</b>
4,973	20,384,326	291,101,026

**Program-to-date**

<b>kW Savings</b>	<b>Annual kWh Savings</b>	<b>Lifetime kWh Savings</b>
11,380	50,372,560	775,055,049

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

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Direct Install Cost	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Subtotal
Period Jan-June 2011	\$2,012,660	\$7,350	\$0	\$305,503	\$30,784	\$0	\$2,356,297
YTD Jan-Dec 2011	\$2,012,660	\$7,350	\$0	\$305,503	\$30,784	\$0	\$2,356,297
PTD Jan 2005- Dec 2011	\$4,879,032	\$238,347	\$638,997	\$323,809	\$33,129	\$70,166	\$6,183,480

**8. Descriptions of the Types of Businesses Participating in Direct Install:**

The "Miscellaneous" sector participated in the Direct Install measure at the highest rate of frequency and accounted for 51% of Direct Install projects paid during this Reporting Period. This sector includes a variety of service-oriented businesses and faith-based organizations.

Participation in the Direct Install measure included the following business types:	
College/University	0
Grocery	44
Hotel/Motel	4
K-12 School	27
Medical	6
Miscellaneous	419
Office	44
Process Industrial	16
Restaurant	67
Retail	182
Warehouse	11

**9. Estimate of Avoided Marketing or Other Program or Administration Costs:**

The costs to implement and market the Small Business program prior to implementing the Direct Install measures were higher on a \$/kWh basis. This is because low participation resulted in low kWh savings on which to spread implementation costs. From the program inception through 2008, implementation and marketing costs for Small Business was \$1.41M (excluding incentives). Program net annual savings achieved were 5,544,000 kWh. This resulted in non-incentive program costs of \$.25/kWh saved for the Small Business program.

In this Reporting Period, estimated Direct Install implementation and marketing costs decreased to \$0.016/kWh saved, due to increased kWh savings and lower costs of the Direct Install process. The total Small Business program cost savings is estimated to be \$4,770,000 over the 2008 program cost rate. [Reduced program costs = (\$0.25 - \$0.016) x 20,384,326 net annual savings.]

**Evaluation and Monitoring Activities and Results**

MER research data collection and analysis activities conducted specifically for the Small Business market include:

- Conducted ongoing review and analysis of the Small Business participation database.

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- Continued to review and update Non-Residential Measure Analysis Spreadsheets and Analytic Database.
- Completed updates to components of the program design tool.
- Conducted review of measure incentives and incentive optimization task for selected measures.
- Conducted ongoing primary and secondary research of key factors and performance variables affecting savings and cost-effectiveness of a wide range of measures.
- Completed a Non-Residential lighting runtime hour and coincidence factor study. Results will be used to inform current savings estimates.
- Initiated customer and trade ally research to determine net-to-gross effects and market influence of the program.

#### **MER Adjusted Gross kW and kWh Savings**

The following Table reflects the total energy and demand saving achievements in this Reporting Period for Small Businesses. Only savings from projects that were completed and incentives paid are counted in this Progress Report.

#### **MER Adjusted kW and kWh Gross Savings**

kW Savings <sup>1</sup>	Annual kWh Savings	Lifetime kWh Savings
3,527	17,412,640	238,334,646

1. kW Savings is coincident peak.

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

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

The MER adjusted net benefits and performance incentive are provided in Tables 8, and 9.

#### **Costs Incurred**

Costs incurred for the Small Business Program during this Reporting Period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Program Implementation*	Consumer Education	Program Marketing	Planning & Admin.	Program Total Cost
Small Business	\$1,340,402	\$5,518	\$317,665	\$958	\$27,273	\$36,884	\$1,728,700

\* All implementation expenditures are contractor expenses. APS does not charge to this budget category for this program.

A breakdown of all implementation contractor expenses for this period and program is:

DSM Program	IC- Implementation	IC- Marketing	IC- Education	IC- Technical Services	IC- Total Cost
Small Business	\$317,665	\$26,194	\$958	\$5,518	\$350,335

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

Not applicable.

### **Other Significant Information**

In addition to the marketing efforts described for the Large Existing program, specific marketing activities for the Small Business program leveraged small business associations, such as Chambers of Commerce, and provided targeted program education and information. These activities included the following:

- Placed print advertisements in Chamber newsletter ads, the Phoenix Business Journal and the Restaurateur of Arizona;
- Produced promotional materials for Direct Install and provided print materials to contractors for distribution.
- Developed a video highlighting the benefits of Direct Install for small businesses. This video is available through the program website.

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### **PROGRAM: SCHOOLS PROGRAM**

#### **Description**

The Schools program includes a set-aside budget for K-12 schools and provides assistance in reducing the energy used in school buildings, including public, private and charter schools (K-12). The incentives available for schools include the same DSM measures that are available for all Non-Residential customers, including Direct Install measures for K-12 schools of any size.

#### **Program Modifications**

No modifications to Schools program.

#### **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, refrigeration, and any other energy consuming systems.
- Provide educational and training materials to facility managers and trade allies in order to aid schools in other energy conservation projects.
- Promote market transformation through APS trade allies, customer outreach and technical training classes. Provide incentives for other cost effective DSM projects by allowing schools to participate in any Non-Residential DSM Program including Direct Install.

APS's 2011 DSM Implementation Plan estimated that the energy-efficiency savings from the Schools Program could reduce annual peak demand by about 4.6 MW, 23,000 MWh annually, and 314,000 MWh over the life of the measures expected to be installed in 2011.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.

#### **Levels of Participation**

In this Reporting Period, APS paid incentives for 102 applications from schools, representing 29 unique school districts and charter schools. Schools have had a very high level of participation in the program. While school districts comprise approximately 8% of APS's Non-Residential energy use, to date, they have received 10% of the paid program incentive funds for their energy-efficiency projects.

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The self-reported size of the school entity (based on the number of students ) for approved applications paid in this Reporting Period are:

Division	Programs	# of Applications	# of Students
Metro	Prescriptive Measures - Retrofit	4	24,723
Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	7	23,994
Metro	Prescriptive Measures - Retrofit	1	23,402
Metro	Prescriptive Measures - New Construction	1	19,929
Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	2	18,488
Metro	Prescriptive Measures - Retrofit	3	16,480
Metro	Prescriptive Measures - Retrofit	1	13,221
Non-Metro	Prescriptive Measures - Retrofit	3	11,751
Metro	Prescriptive Measures - Retrofit, Technical Assistance & Studies	4	10,883
Non-Metro	Prescriptive Measures - Retrofit, Technical Assistance & Studies	7	5,990
Metro	Prescriptive Measures - Retrofit	1	5,423
Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit, Technical Assistance & Studies	32	5,062
Non-Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	1	4,299
Metro	Custom Measures - Retrofit, Prescriptive Measures - New Construction, Prescriptive Measures - Retrofit	4	3,851
Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	1	3,454
Metro	Technical Assistance & Studies	1	2,627
Non-Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	4	1,232
Metro	Custom Measures - Retrofit	1	1,200
Non-Metro	Custom Measures - New Construction, Prescriptive Measures - New Construction	11	761
Non-Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	2	638
Metro	Prescriptive Measures - Retrofit	1	400
Metro	Prescriptive Measures - Retrofit	1	240
Non-Metro	Prescriptive Measures - Retrofit	1	202
Non-Metro	Prescriptive Measures - Retrofit	2	202
Non-Metro	Prescriptive Measures - Retrofit	1	195
Metro	Prescriptive Measures - Retrofit	1	160
Non-Metro	Prescriptive Measures - Retrofit	1	107
Metro	Prescriptive Measures - Retrofit	1	92
Metro	Prescriptive Measures - Retrofit	1	42

When an incentive application is received from a school district and deemed eligible, funding is first allocated from the Schools budget up to a maximum of \$100,000. Any additional funding required to cover the application is then allocated from the appropriate Large Existing, New Construction or Small Business program budget.

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

APS paid \$1,757,633 in incentives to schools during the Reporting Period, of which \$998,111 was paid from the Schools program budget. The remaining \$759,522 was paid to schools from the Large Existing program budget (see table below).

Incentive Status by Fund for Active Applications	Incentives Paid
Schools Budget – Prescriptive, Custom, & Direct Install	\$962,506
Schools Budget – Feasibility, Commissioning Studies	\$35,605
Schools Budget – Retrocommissioning Studies	\$0
<b>Total School Funds</b>	<b>\$998,111</b>

Schools Funding Summary:	Incentives Paid
Schools – School Funds	\$998,111
Schools – Large Existing Funds	\$759,522
Schools – New Construction Funds	\$0
Schools – Small Business Funds	\$0
<b>Total Paid to Schools</b>	<b>\$1,757,633</b>

In Decision No. 70637, the Commission ordered APS to continue tracking DSM applications resulting from studies for which incentives have been paid, and report the semi-annual and cumulative results of its program-to-date tracking efforts. Four schools received study incentives during this Reporting Period; 22 studies have been completed at schools since program inception. Of those 22 studies, 17 have resulted in energy-efficiency projects at schools.

#### **Schools Direct Install**

Direct Install incentives were paid on 27 school projects during this Reporting Period. Of the 27 projects, 26 were paid from the Schools fund and one was paid from Large Existing funds. Direct Install activities for this period are described in the Small Business Program report.

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

During this Reporting Period the Schools program MER research data collection and analysis activities included:

- Conducting ongoing review and analysis of the Schools participation database.
- Reviewing and updating Non-Residential Measure Analysis Spreadsheets and Analytic Database.
- Completing updates to components of program design tool.
- Conducting review of measure incentives and incentive optimization task for selected measures.
- Conducting ongoing primary and secondary research of key factors and performance variables affecting savings and cost-effectiveness of a wide range of measures.

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

- Completing a non-residential lighting runtime hour and coincidence factor study. Results to be used to inform current savings estimates.
- Initiating customer and trade ally research to determine net-to-gross effects and market influence of the program.

#### **MER Adjusted Gross kW and kWh Savings**

The following table reflects the total energy and demand saving achievements for schools projects completed and paid during this Reporting Period.

#### **MER Adjusted kW and kWh Gross Savings**

	<b>kW Savings<sup>1</sup></b>	<b>Annual kWk Savings</b>	<b>Lifetime kWh Savings</b>
Schools – School Funds	1,663.7	9,349,376	129,235,614
Schools – Large Existing Funds	1,102.4	8,015,153	112,432,165
Schools – New Construction Funds	0.0	0	0
Schools – Small Business Funds	0.0	0	0
<b>Total Attributable to Schools</b>	<b>2,766.1</b>	<b>17,364,529</b>	<b>241,667,779</b>

1. kW is coincident peak.

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

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

The MER adjusted net benefits and performance incentive are provided in Tables 8, and 9.

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

No problems to report for this Reporting Period.

#### **Costs Incurred**

Program costs incurred during this Reporting Period are listed below:

<b>DSM Program</b>	<b>Rebates &amp; Incentives</b>	<b>Training &amp; Technical Assistance</b>	<b>Program Implementation*</b>	<b>Consumer Education</b>	<b>Program Marketing</b>	<b>Planning &amp; Admin.</b>	<b>Program Total Cost</b>
Schools	\$998,111	\$31,206	\$266,922	\$9,725	\$26,786	\$60,645	\$1,393,395

\* All implementation expenditures are contractor expenses. APS does not charge to this budget category for this program.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

A breakdown of all implementation contractor expenses for this period and program:

DSM Program	IC- Implementation	IC- Marketing	IC- Education	IC- Technical Services	IC- Total Cost
Schools	\$266,922	\$26,786	\$1,672	\$31,206	\$326,586

### Findings from all Research Projects

There were no findings from any research projects during this Reporting Period.

### Other Significant Information

In addition to many of the marketing outreach activities described for the large existing program, marketing activities associated with the Schools program centered on five areas of focus:

- 1. Trade Ally Development:** Trade Ally recruitment and support efforts focused on improving program knowledge by providing opportunities for development and training. Outreach efforts focused particularly on the state-approved energy service companies ("ESCOs") that have contracts for all the stimulus-funded projects and other ESCOs, since enabling legislation allows districts to use performance contracting.
- 2. Customer awareness and project generation:** During this Reporting Period, the schools outreach staff member concentrated on stimulus-funded projects. Seventy-six contacts were made including phone calls, emails and meetings with districts to identify potential projects. Staff recently attended the National Center for the Learning Environment conference and connected with the CEO of the Collaborative for High Performance Schools ("CHPS") to discuss CHPS potential entry into Arizona.
- 3. Coordination with the Schools Facility Board ("SFB"):** Staff attends all SFB meetings to stay abreast of school EE projects, both funding and progress. While ARRA funding has been fully dispensed, some ARRA dollars were reallocated due to unused funds in certain districts or state agencies. In addition, some of the emergency repairs approved by SFB include equipment covered by program specifications such as cooling systems. As these are approved, Solutions for Business follows up with the districts.

During this Reporting Period, APS's ongoing relationship resulted in program staff meetings with SFB to introduce them to the HVAC Tune-up Program, understand the benefits to schools and create a method to make the procurement process attractive. After a demonstration at Coolidge Unified School District by Pueblo Mechanical, the SFB has endorsed the program. Coolidge plans to conduct tune ups on the 38 units they are not replacing, to make the remaining equipment as efficient and maintenance free as possible, until they are due for replacement. The SFB is in the process of writing a standard RFP for schools to use for tune up bids and has identified several interested school districts even before the RFP is complete.

As the program identifies new opportunities for schools, APS will continue to work with SFB to bring those to schools within APS territory.

- 4. Coordination with the Arizona School Board Association ("ASBA"):** The program advertises in the ASBA newsletter, will exhibit at the annual conference, and is exploring opportunities to present at association educational seminars.
- 5. Coordination with the APS Schools Key Account Manager.** Program staff has coordinated with the APS Schools Key Account Manager ("KAM") to maximize the customer's time and

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

value during planned meetings. The partnership with the APS's Schools KAM has facilitated troubleshooting of other related customer issues as well as the cross-selling of other DSM programs.

- 6. Attended conference and meetings of the Arizona Association of School Business Officials ("AASBO").** Program staff has attended all AASBO Bi-monthly meetings where school business and finance professionals meet. Latest news on legislative and financial issues pertaining to schools is disseminated at these meetings and contacts have been made with school business officials.

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

##### **Description**

The EIS Program, which was first made available to APS customers in November 2006, helps large customers (>100 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 identifies 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 (up to 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 \$12,000 or 75% of the cost of installing metering and communications equipment necessary to participate in the program.

##### **Program Modifications**

No modifications made during this Reporting Period.

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

- Provide monthly energy usage information to participating large Non-Residential customers.
- Participants 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.
- Customers ultimately save electric (kWh) energy through simple changes in operations and maintenance (low/no cost savings measures).

APS's 2011 DSM Implementation Plan estimated that the energy-efficiency savings from the Energy Information System could reduce annual peak demand by about 0.2 MW, 2,000 MWh annually and 27,000 MWh over the life of the measures expected to be installed in 2011.

##### **Programs Terminated**

No programs were terminated during this Reporting Period.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### Levels of Participation

Four customers were added to EIS during this Reporting Period resulting in EIS being installed on 38 meters. A total of 38 customers now participate in EIS, representing 244 meters.

### Evaluation and Monitoring Activities and Results

During this Reporting Period the EIS MER research data collection and analysis activities included:

- Completed tracking and review of program participation data.
- Conducted participant research that included field inspections and data collection for savings achieved by the program. The program totals have been updated to include the new savings numbers.

### MER Adjusted Gross kW and kWh Savings

Meters	Est. Measure Life Years	kWh Savings per Year	Lifetime kWh Savings	kW Demand Savings <sup>1</sup>
38	5	21,347	106,733	1,455

1. kW savings is coincident peak.

The final savings are adjusted for line losses (energy 7.0%, demand 11.7%) and a capacity reserve factor of 15%.

### Benefits and Net Benefits/Performance Incentive Calculation

The MER adjusted net benefits and performance incentive are provided in Tables 8, and 9.

### Problems Encountered and Proposed Solutions

No problems to report for this Reporting Period.

### Costs Incurred

Costs incurred for this program during this 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	\$13,823	\$0	\$0	\$10,599	\$922	\$594	\$25,938

\* All implementation expenditures are contractor expenses. APS does not charge to this budget category for this program.

A breakdown of all implementation contractor expenses for this period and program:

DSM Program	IC- Implementation	IC- Marketing	IC- Education	IC- Technical Services	IC- Total Cost
Energy Information Services	\$10,599	\$922	\$0	\$0	\$11,521

### Findings from all Research Projects

NA

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**Other Significant Information**

NA

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### **PROGRAM: APS PEAK SOLUTIONS® PROGRAM**

#### **Description**

APS Peak Solutions® is a commercial and industrial DR program for APS's Yuma and Phoenix metropolitan customers utilizing direct load control and manual load reduction.

The program began on June 1, 2010 and is available for the summer months of June through September between 12:00 noon and 8:00 p.m. (Sunday - Saturday) daily. Customers have the option of being notified either ten minutes or two hours prior to the start of a Peak Solutions® event. Events are limited to minimum of one hour and maximum of six hour per day and 80 event-hours during the season. The program is required to have one test at the start of the season between June 1<sup>st</sup> and July 15<sup>th</sup> lasting from four to six hours.

Customers are paid an incentive check at the end of the season for their load reduction amount based on \$/kW or \$/ton of air conditioning.

#### **Program Modifications**

No modifications have occurred in the program description outlined in APS' s Commercial and Industrial Load Management application approved by the Commission in Decision No. 71104 (June 5, 2009).

#### **Levels of Participation**

Approximately 2,000 customers are enrolled in the program.

#### **MW and MWh Savings Targets**

The program is expected to provide a 2011 load reduction amount of 59 MW as stated in the 2011 Q2 Load and Resource plan which is a slight increase from the 53 MW reported in the APS 2011 DSM implementation plan. The 59 MW load reduction will provide 258,420 MWh of annual savings and 129,210 MWh of savings through June 2011. Load reduction and savings targets summarized in Table 13 – Demand Response Program/Initiatives: 2011 Load Reduction and Energy Savings: January – June, 2011.

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

No Peak Solutions® events have been called to date. Thus, no evaluation and monitoring activity has taken place.

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

The U.S. Consumer Product Safety Division issued a release on January 12, 2011 (Release #11-096) requiring the batteries to be removed from the Peak Solutions® White Rodger Thermostat. Letters were sent to the approximately 500 impacted Peak Solutions® customers in February and again in May informing them of what to do to comply with the release. Efforts are underway to correct the deficiency.

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**Costs Incurred**

Peak Solutions® has spent \$869,400 of the \$6,679,000 budget or approximately 13%. Costs are also shown in Table 12 – DR Program/Initiatives: 2011 Budget vs. Expenses: January – June, 2011.

**Market Outreach:**

Customer program enrollment has been primarily accomplished by door-to-door sales by APS's third party vendor, Comverge, Inc.

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### **PROGRAM: CRITICAL PEAK PRICING – GENERAL SERVICE AND RESIDENTIAL**

#### **Description**

Critical Peak Pricing, or its marketing name of Peak Event Pricing, is a DR program for both APS's business (or General Service) and Residential customers in the Yuma and Phoenix metropolitan areas utilizing manual load reduction.

CPP is a two year pilot program which became effective on January 1, 2010 and runs through January 1, 2012. On June 24, 2011, APS filed a request to extend the Residential program for another two years through January 1, 2014<sup>2</sup>.

The program provides a price signal to incent customers to reduce their usage during events initiated by APS. CPP events will take place during June through September, weekdays between 2 p.m. and 7 p.m. (Monday through Friday), excluding holidays. Customers will be notified of an event by telephone, e-mail or text message by 4:00 p.m. of the day prior to the CPP event. Peak Events are limited to 90 hours during the season. APS is required to initiate a minimum of 6 events and a maximum of 18 events.

Customers receive a kWh discount incentive off their existing rate for all of the electricity usage during the program months of June through September.

#### **Program Modifications**

No modifications have occurred in the program description approved by the Commission in Decision No. 71448 (December 30, 2009) or as filed with the Commission on June 24, 2011 for extending the Residential program.

#### **Levels of Participation**

Approximately 626 Residential and no business customers are enrolled in the program. Business customers have found APS Peak Solutions<sup>®</sup> more financially and operationally beneficial.

#### **MW and MWh Savings Targets**

The program is estimated to provide a 2011 load reduction amount of 0.6 MW which is a decrease from the 3.6 MW reported in the APS 2011 DSM Implementation Plan. The 0.6 MW load reduction will provide 2,628 MWh of annual savings and 1,314 MWh of savings through June 2011. Load reduction and savings targets are summarized in Table 13 – DR Program/Initiatives: 2011 Load Reduction and Energy Savings: January – June, 2011.

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

Three CPP events were called on June, 22<sup>nd</sup>, 27<sup>th</sup> and 30<sup>th</sup>. APS is currently evaluating the results but expects an average of 1 kW load reduction/customer per event. On January 28, 2011, APS filed the Super Peak and Critical Peak Programs Impact Study Results<sup>3</sup> which provided the impact of the

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<sup>2</sup> Docket E-01345A-11-0250, (June 24, 2011)

<sup>3</sup> Pursuant to Decision No. 71448 (December 30, 2009)

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rates on 2010 participants' energy use during critical peak hours as well as other assessments and evaluations.

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

No problems are reported for this Reporting Period.

#### **Costs Incurred**

Program implementation costs are not specifically tracked. Program marketing costs are shown in Table 12 – DR Program/Initiatives: 2011 Budget vs. Expenses: January – June, 2011.

#### **Market Outreach:**

The CPP market outreach is outlined below:

1. Residential
  - a. Lifestyle newsletter (June)
  - b. Email campaign (June)
  - c. Email newsletter (June)
2. Business
  - a. Success newsletter (March & June)
  - b. Bill Message (June)

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

#### **PROGRAM: TIME OF USE ("TOU") RATES INCLUDING SUPER PEAK PRICING ("SPP")**

##### **Description**

TOU rates are designed 1) to reflect the time variation in the cost of producing electricity, to more accurately match those costs with the service being provided to the customer thereby encouraging efficient use of energy, and 2) to encourage customers to reduce consumption during peak hours or to shift energy usage to off-peak periods.

APS currently offers five Residential TOU rates:

- a. Two "Series 1" rates that have on-peak hours from 9:00 a.m. to 9:00 p.m. and have been offered since 1982. The Series 1 rates were closed to new customers on January 1, 2010,
- b. Two "Series 2" rates that have on-peak hours from 12:00 pm Noon to 7:00 p.m. and have been offered since 2006. These rates offer customers 40% fewer on-peak hours,
- c. One Super-Peak Pricing TOU rate that went into effect on January 1, 2010. The SPP periods are pre-determined and set forth in the rate schedule rather than communicated to the customer on a day-ahead basis as with the CPP. Participating customers will pay higher charges during the "Super-Peak" periods, but will pay lower charges during off-peak periods. The "Super-Peak" period is 3:00 p.m. to 6:00 p.m., Monday thru Friday during June, July, and August (excluding holidays).

APS is offering two new school rates which contain an additional shoulder time period which may benefit customers who can shift loads from on-peak times.

##### **Rate Modifications**

No modifications have occurred in the rates.

##### **Levels of Participation**

Approximately 504,830 customers are enrolled in the TOU rates of which 223 are super peak customers. No schools have enrolled in the two new rates to date.

##### **MW and MWh Savings Targets**

The program is estimated to provide a 2011 load reduction amount of 0.60 MW from the Series 1 and 2 rates and 18.1 MW from the super peak rate. The 18.7 MW total load reduction will provide 81,906 MWh of annual savings and 40,953 MWh of savings through June 2011. Load reduction and savings targets are summarized in Table 13 – DR Program/Initiatives: 2011 Load Reduction and Energy Savings: January – June, 2011.

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

No evaluation of TOU rates have been performed to date other than customer count.

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

No problems have been encountered for this Reporting Period.

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### **Costs Incurred**

Program implementation costs are not specifically tracked. Program marketing costs are shown in Table 12 – DR Program/Initiatives: 2011 Budget vs. Expenses: January – June, 2011.

### **Market Outreach:**

The TOU and CPP market outreach is outlined below:

1. Bill Message (June)
2. Lifestyle newsletter (June)
3. Email campaign (June)
4. Email newsletter (June)

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### **PROGRAM: HOME ENERGY INFORMATION PILOT**

#### **Description**

On March 3, 2011, the Commission approved the Company's Home Energy Information ("HEI") Pilot<sup>4</sup>. APS's HEI Pilot is designed to test available home area network technologies and determine communication devices, DR strategies, and the mix of "smart" home applications that can be most effectively employed in a residential setting. In addition, the HEI Pilot will assess customer acceptance, value, and frequency of usage of in-home energy displays or other communication devices designed to assist customers in managing their daily energy usage. The pilot was previously planned to be conducted over two summer seasons (2011 and 2012) allowing the Company time to choose technology vendors, solicit Residential participants, install devices and communications systems, and determine measurement and evaluation techniques. The Company plans to request the Pilot be extended by one year (2013) to ensure ample customer data exists to make solid conclusions about the Pilot.

APS is deploying the following five technology assessment programs as part of the HEI Pilot:

1. Critical Peak Pricing with Customer Control Device,
2. In-Home Energy Information Display,
3. Direct Load Control,
4. "Smart" Communication devices, and
5. Pre-Pay Energy Service.

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

#### **Program Modifications**

No modifications have occurred to date.

#### **Levels of Participation**

No HEI customer enrollment has occurred to date. APS anticipates the customer recruitment to begin in Q1 of 2012. APS is working with Navigant and GoodCents to define the customer interface roles and responsibilities.

#### **MW and MWh Savings Targets**

No load reduction or MWh savings will be considered until data from the Pilot is available.

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

APS has selected Navigant Consulting to conduct the HEI evaluation. The companies are working together to set up the Pilot measurement and evaluation parameters.

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<sup>4</sup> Decision No. 72214 (March 3, 2011)

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

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

APS is working with its project partners on software development and system integration efforts. Multiple internal and external systems are required to communicate in order for all five Pilot categories to be successfully launched. Current schedule is to complete integration and end-to-end process flows by end-of-year and begin customer recruitment in early Q1 2012 and customer deployment in Q2 2012.

#### **Costs Incurred**

HEI Pilot has spent \$121,364 of the \$3,681,000 budget or approximately 3.3%. Costs are also shown in Table 12 – DR Program/Initiatives: 2011 Budget vs. Expenses: January – June, 2011.

#### **Market Outreach:**

Kicked off the Pre-Pay stakeholders collaborative workshops in June 2011. Three more meetings are scheduled through the end of the year.

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

#### **AMERICAN RECOVERY AND REINVESTMENT ACT**

ARRA is federal legislation passed by Congress in February 2009 to stimulate investment, create jobs, and speed economic recovery. ARRA provides for over \$18 billion in energy-efficiency funding. The primary objectives of the energy-Efficiency funding are to build jobs, save energy, and build energy-efficiency infrastructure for the long term. The State Energy Program ("SEP") was allocated \$3.1 billion nationally.

The Arizona Energy Office filed an application for \$55 million of the \$3.1 billion SEP funding and was awarded the funds. The plan includes \$10 million for the State Building Energy Performance Contracting Program and \$20 million for the Energy-efficiency and Renewable Energy in Schools Grant Program. The remaining \$25 million will be distributed to an agriculture grant, 21 Century Grant and utility renewable programs.

Another type of energy-efficiency funding from ARRA is the Energy Efficiency and Conservation Block Grants, which provided \$64 million directly to Arizona cities and counties. Cities and counties in APS's service territory are eligible for approximately two-thirds of these funds. The majority of these funds have been awarded and APS is meeting with the decision makers to ensure APS's program is leveraged to the fullest extent. Projects have up to three years to be completed and all monies spent. The deadline to spend monies is April 2012.

On December 11, 2008, the Commission issued Decision No. 70637, which approved five of APS's Non-Residential DSM programs. Decision No. 70637 also included the following provision:

APS shall continually research and monitor other energy-efficiency rebates and incentives, including tax credits, that may be available to its Non-Residential DSM program participants throughout its service territory; and that the Company shall limit its incentive payments to program participants to ensure that the sum of all known monetary incentives, either paid or available to APS program participants from other entities for the same measure is limited to APS's established measure cap (such as 50 percent or 75 percent of incremental cost) unless a different cap is ordered by the Commission.

APS filed for an application for clarification with the Commission on May 8, 2009, as to whether ARRA funds needed to be considered a "known monetary incentive" under Decision No. 70637. The Commission decided in Decision No. 71243 that ARRA funds should not be subject to the existing DSM incentive caps, but that the sum of all incentives, including ARRA, should not exceed 100 percent of the incremental cost of the measure.

#### **ARRA Related Items:**

- Talking with the State Energy Office to establish what cities will be awarded grants and what type projects they will be implementing.
- Meeting with and calling cities and counties that have received ARRA dollars to establish what type of energy-efficient projects they are doing and the project timeline. Local governments have the option to use the funds for Residential or Commercial EE or RE and specific transportation projects.

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

- APS has partnered with City of Phoenix on Energize Phoenix. This project is targeted to energy-efficient retrofits with Residential and Non-Residential customers. The City of Phoenix is leveraging the incentives with the APS Home Performance Program and Solutions for Business program.

To date, over 25 businesses have benefited through the Energize Phoenix program.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### NON-RESIDENTIAL ENERGY EFFICIENCY FINANCING

On January 26, 2010, the Commission issued Decision No. 71460, which approved the Non-Residential Customer Repayment Financing option. The option was approved for schools, municipalities and small businesses. Decision No. 72088 expanded eligibility for the financing program to include all Non-Residential customers.

APS has partnered with National Bank of Arizona ("NBAZ") to offer this financing option. The Financing option was launched in May of 2010. More than half of the program trade allies have participated in financing training.

During this Reporting Period, APS posted additional financing information on the program website, including a contractor testimonial and details on the limited-time-offer reduced interest rate. The program developed educational materials for bankers, customers and trade allies to facilitate the process. Program staff meet regularly with NBAZ staff to discuss promotional opportunities. Several program print advertisements have featured financing.

Category	Number of Loans	Size of Loans	Amount in Default
Large Existing	3	\$96,458	0
Small	2	\$6,737	0
Schools	1	\$5,169	0
Total	6	\$108,364	0

In addition to the loans shown on the table above, one school started an APS financing program for over \$700,000, but NBAZ was able to work out a better financing option, so this loan is not included in the table above. The school is participating in the Solutions for Business program and the bank is taking on the risk of the total loan.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### RESIDENTIAL ENERGY EFFICIENCY FINANCING

On September 1, 2010, the Commission issued Decision No. 71866, which approved the REEF Program. Through this program APS customers who complete the \$99 Home Energy Checkup are eligible for financing.

APS has partnered with NBAZ to offer this financing option to APS customers. The Financing option was launched in February of 2011.

During this Reporting Period, APS posted additional financing information on the program website and developed educational materials for contractors and customers to facilitate the process. Program staff meets regularly with NBAZ staff to discuss opportunities and progress.

Category	Number of Loans	
Loans issued Jan. 1 - Jun. 30, 2011	11	\$37,024.61
Jobs in default	0	0
Jobs deemed unrecoverable	0	0

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

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

#### Description

On April 12, 2006 in Decision No. 68648, the ACC approved funding for Measurement, Evaluation, and Research ("MER") activities to assist in verifying the impact and cost effectiveness of APS's DSM programs. As required per Decision No. 68648, APS filed MER program plans for Staff's review on August 16, 2007, with the exception of the EIS MER research plan that was filed on June 24, 2008.

Navigant Consulting provides MER Services for the DSM programs. These Measurement and Evaluation activities include, but are not limited to:

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

The approach for measurement and evaluation of the DSM programs is to integrate data collection and tracking activities directly into the program implementation process.

#### Program Modifications

Per ACC Decision No. 69663, APS is required to "use measured savings obtained from APS customers by the MER contractor beginning no later than July 1, 2007; and that the averages of actual measured usage, for both standard and upgraded equipment, should be recalculated by the MER from usage samples for each prescriptive measure based on new measurements from the field no less frequently than every two years."

MER adjusted MW and MWh savings estimates are included throughout this Progress Report for the Reporting Period, as well as Year-To-Date and Program-To-Date results.

#### Program Goals, Objectives and Savings Targets

NA

#### Programs Terminated

NA

#### Levels of Participation

NA

#### Evaluation and Monitoring Activities and Results

Refer to each program section for this information

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2011

### **kW and kWh Savings**

See MER adjusted savings results in each program section, and in Tables 4, 5, and 6 above.

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

See MER adjusted Net Benefits in Table 7, 8, and 9 above.

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

NA

### **Costs Incurred**

Total costs incurred for measurement and evaluation during this Reporting Period were \$1,245,001.

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

NA

### **Other Significant Information**

Navigant conducted Net to Gross Ratios (NTGR) research for three DSM programs, and included a Market Influence Factor (MIF) in the NTGR equation:

$$NTGR = 1 - FRF + SPF + MIF$$

Where:

FRF = Free ridership factor

SPF = Spillover factor. This effect is comprised of two components defined as follows;

- Internal spillover is typically defined as other measures installed in the same facility.
- External spillover is typically defined as measures installed in other related facilities.

MIF = Market influence factor. This factor is comprised of three components defined as follows;

- Market Development Factor – The influence of programs on developing infrastructure, pipeline of products and service in the market, trade and professional expertise from training and education.
- Market Maintenance Factor – The influence of programs in maintaining EE expertise and products and services in the market through ups and downs of business and economic cycles.
- Market Transformation Factor -- The influence of programs on transforming the market over time.

Based on Navigant's research and the results of including the MIF, it was determined that using an average NTGR of 1.0 for all programs was justified. By setting the NTGR to 1.0, APS will be reporting net and gross MW and MWh of the same value for each program. Navigant will continue to conduct

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

NTG research on the APS programs and the NTGR utilized by APS could change in the future based on the outcome of this research.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

**UNRECOVERED FIXED COSTS AND NET LOST INCOME/REVENUE**

Section R14-2-2410 (J) of the EE Rules states that "An affected utility, at its own initiative, may submit to the Commission twice-annual reports on the financial impacts of its Commission-approved DSM programs, including any unrecovered fixed costs and net lost income/revenue resulting from its Commission-approved DSM programs." APS views the topic of addressing unrecovered fixed costs resulting from its DSM activities as an important and essential component of its overall DSM Plan, and is pleased that the EE Rules recognize its importance. APS has quantified the financial impacts resulting from its Commission-approved DSM programs in its rate case application filed with the Commission on June 1, 2011 (Docket No. E-01345A-11-0224).

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2011**

**SAMPLE ADVERTISEMENTS**



## Free Workshops May 14th and May 21st City of Glendale Main Library

### APS Shade Tree Program Workshops

11:00am, 12:30pm and 2:00pm

APS customers can attend a workshop to receive up to three free shade trees. Workshop participants will learn where to plant the trees for energy savings and how to select, plant and maintain the trees. For additional information and to pre-register, visit [aps.com/trees](http://aps.com/trees) or call 602 357 0032

### Simple Savings 101

12:30pm

Attend and receive free energy saving devices! Learn from the experts on simple ways to lower your electric bill. City of Glendale residents will receive FREE CFLs, high-efficiency showerheads, and programmable thermostats. To register, call 623 930 3760 or email [bpatrick@glendaleaz.com](mailto:bpatrick@glendaleaz.com)

### Solar: A Brighter Future

1:30pm

Learn about rebates and incentives and whether solar is right for you. To register, call 623 930 3760 or email [bpatrick@glendaleaz.com](mailto:bpatrick@glendaleaz.com)

These free workshops are presented in partnership with APS and the City of Glendale Conservation and Sustainable Living.



APS REFRIGERATOR RECYCLING

**Less fridge. More dough.**

**aps.com/turnitin**



This program is funded by APS customers and approved by the Arizona Corporation Commission.

**Recycle your  
old fridge  
or freezer.**

- **FREE pickup**
- **\$30 cash back**

**877 514 6654**

Call or visit  
[aps.com/turnitin](http://aps.com/turnitin) to  
schedule a pickup.

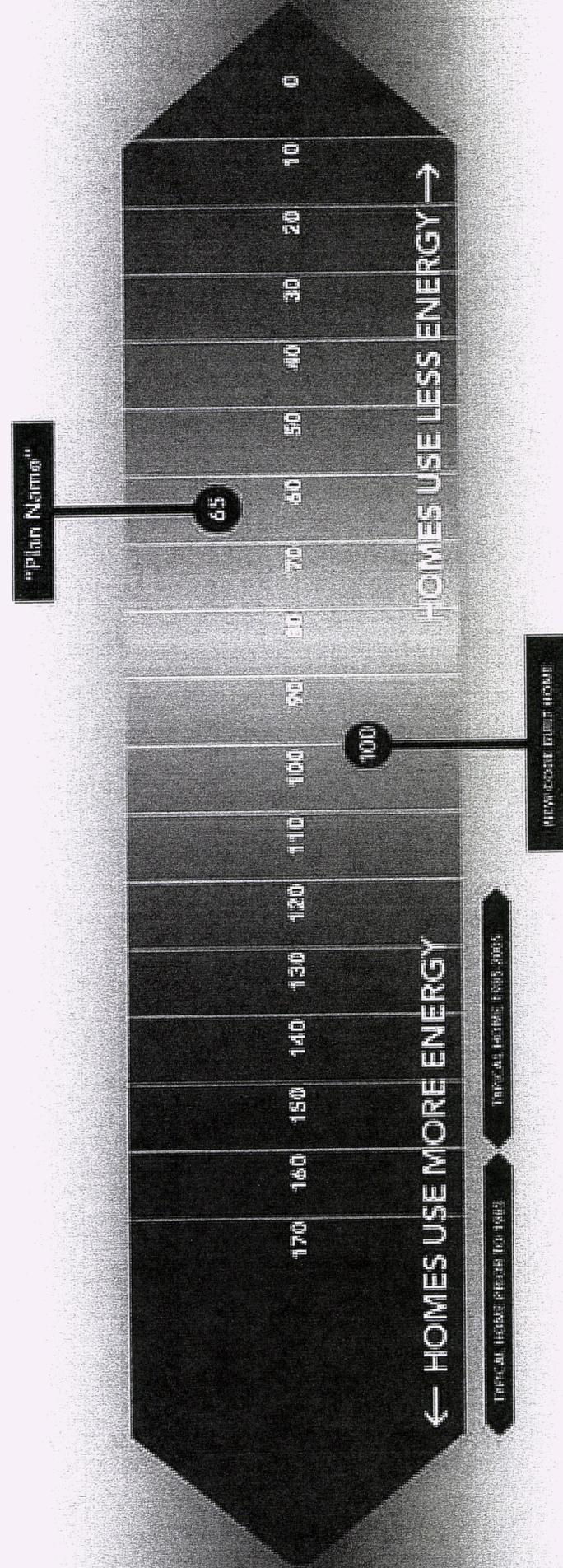


BUILDER LOGO HERE

Community Name  
Plant Name and/or Number

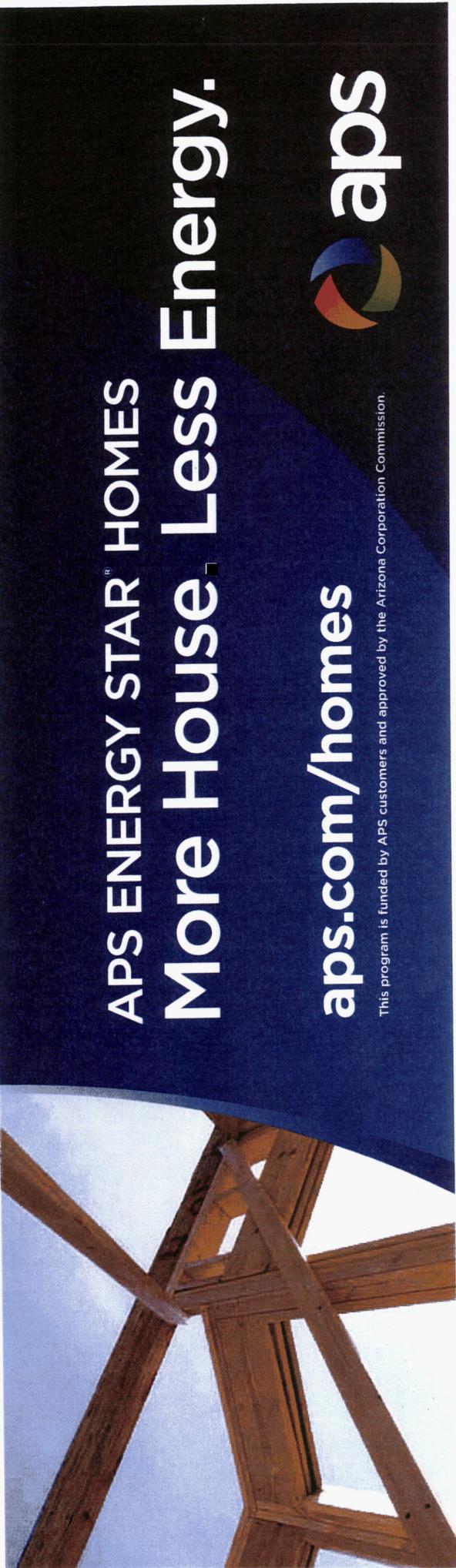
## How does your home compare on the EnergyScale?

The EnergyScale helps you compare the energy efficiency scores of new and/or existing homes. Lower HERS Score numbers mean less energy costs to operate the home.



The EnergyScale is based on the well-established Home Energy Rating System (HERS) index, a scoring system established by the Residential Energy Services Network (RESNET). For more information please visit [www.energyscale.com](http://www.energyscale.com).





APS ENERGY STAR<sup>®</sup> HOMES  
More House. Less Energy.

[aps.com/homes](http://aps.com/homes)

This program is funded by APS customers and approved by the Arizona Corporation Commission.



## Your New Energy-Efficient Products

Congratulations! Your property has chosen to participate in the APS Multifamily Energy Efficiency Program (MEEP). Three different energy-efficiency products have been installed in your home – at absolutely no cost to you. You will immediately start using less energy while showering, rinsing or washing dishes, and lighting your home as a result of the following product installations:



### Kitchen and Bathroom Faucet Aerators (1.5 gallons per minute)

- They use 31 percent\* less water compared to the standard 2.5 gpm faucet
- Lower flow means less energy is used for water heating for normal use
- The aerators have flow-control construction of long-lasting Celcon plastic



### Energy-efficient Showerheads (1.5 gallons per minute)

- ShowerStart™ technology lets you know when your shower is warm and ready
- 54-nozzle, full face spray pattern provides maximum coverage for warmth and comfort
- Saves up to \$246 in utility bills and 8,212 gallons of water per year



### Compact Fluorescent Light Bulbs (CFLs)

- CFLs last up to 10 times longer than traditional incandescent bulbs
- CFLs use up to 75 percent less energy
- They're safe and better for the environment

\*Savings are approximate and will vary with efficiency of heating and water heating system, temperature of incoming and outgoing water, and number of occupants per unit.



If you have questions about the products you received, please call 855-733-1117.

## Save money without sacrificing

This showerhead saves you money  
by stopping water from accidentally  
running down the drain.

### HOW IT WORKS

- 1 Turn shower on and let  
water run.
- 2 Water flow stops  
when water reaches  
bathing temperature.
- 3 Restart the flow by  
pulling the cord to  
resume showering.



Program funded by APS customers and approved by the  
Arizona Corporation Commission.

## Congratulations!

Your property chose to participate in the APS Multifamily Energy Efficiency Program (MEEP). Energy-efficient compact fluorescent light bulbs (CFLs) were installed in your home - at absolutely no cost to you. You will immediately begin saving energy while lighting your home.

### Why CFLs?

- CFLs last up to 10 times longer than traditional incandescent bulbs.
- CFLs use up to 75 percent less energy and can save \$40 in energy costs over the life of each bulb.
- They're safe and better for the environment.



### Are they safe?

While it is true that CFLs contain trace amounts of mercury, CFL bulbs actually prevent more mercury from entering the environment by helping to reduce coal-fired power plant emissions. Experts agree that given a choice between CFL bulbs and incandescent bulbs, CFLs are better for your home and the environment. If a bulb should break, however, follow the cleanup instructions included below.

### Before cleanup

- Have people and pets leave the room.
- Air out the room for 5-10 minutes by opening a window or door to the outdoor environment.
- Shut off the central forced air heating/air-conditioning system, if you have one.
- Be thorough in collecting broken glass and visible powder.
- Place cleanup materials in a sealable container.

### After cleanup

- Promptly place all bulb debris and cleanup materials outdoors in a trash container or protected area until materials can be disposed of properly.
- Avoid leaving any bulb fragments or cleanup materials indoors.
- For several hours, continue to air out the room where the bulb was broken and leave the HVAC system shut off.

### How do I properly dispose of them?

Dispose of compact fluorescent light bulbs (CFLs) safely and properly. Once a CFL bulb burns out, most of the mercury has been used up. However, it's still important that the bulb remain intact - you should not break or crush it. Return the CFL bulb to its original packaging and take it to your county's solid waste facility or your local The Home Depot store for proper disposal. Visit [energystar.gov](http://energystar.gov) for more information on  recycling.

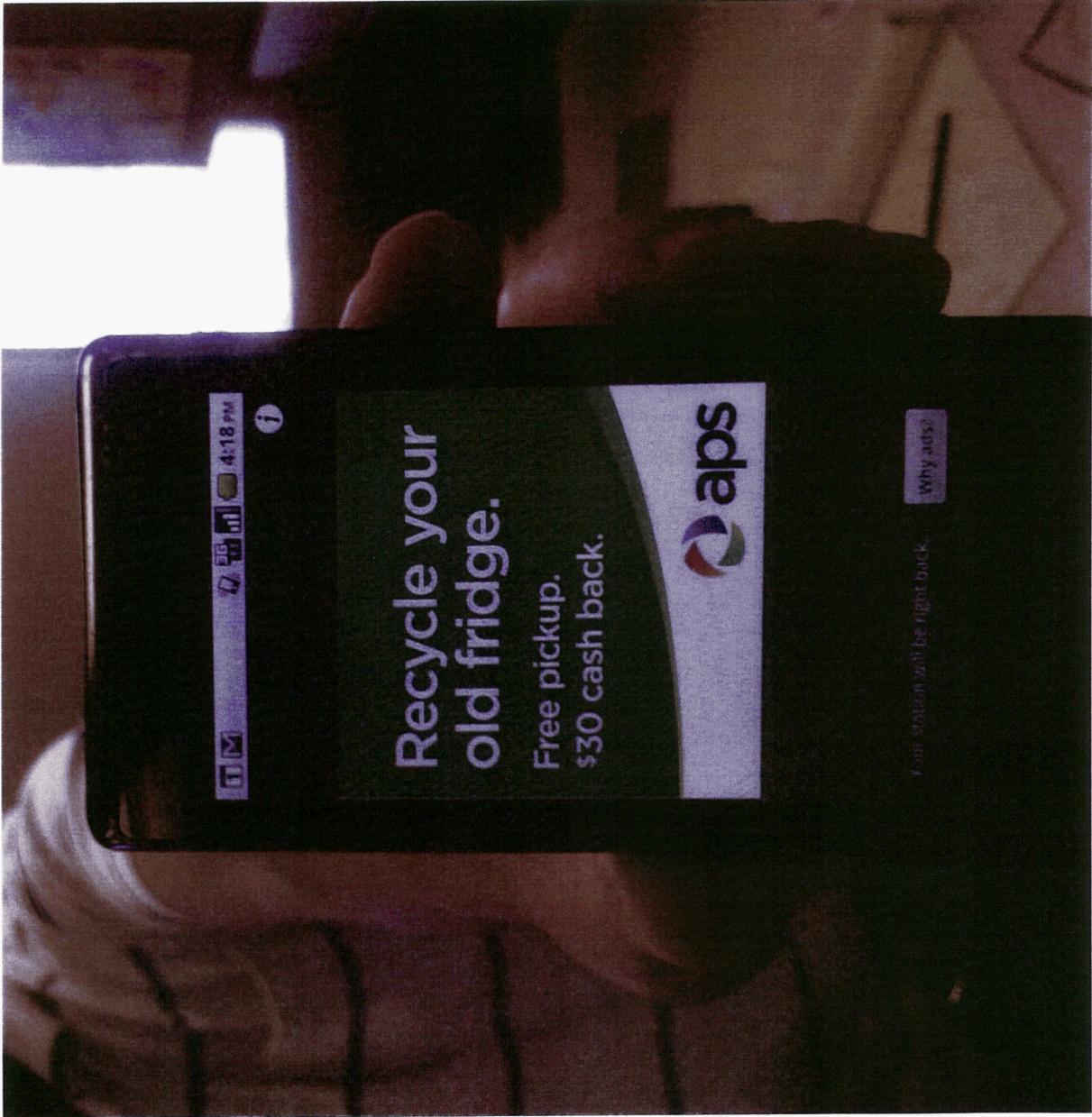
### Where can I find participating retailers and recycling centers near me?

APS has over 500 retailers that participate in their CFL program. To find participating retailers to purchase new bulbs or a recycling center near you visit [aps.com/cfl](http://aps.com/cfl).

Footnote: Savings are approximate and depend on usage.

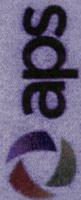


If you have questions about the products you received, please call 855-733-1117.



4:18 PM

Recycle your  
old fridge.  
Free pickup.  
\$30 cash back.



Why ads?

Your station will be right back.

# Goodbye Old Fridge. Hello Cold Cash.

Old refrigerators and freezers waste a lot of energy and money. Recycle yours with APS today. You don't have to radically change your life to make an impact. You don't even have to break a sweat. We'll haul that fridge away for **FREE**. And you'll get a \$30 rebate. Plus, you'll save up to \$100 a year in utility costs.

877 514 6654

Call or visit [aps.com/turnitin](http://aps.com/turnitin)  
to schedule a pickup today.



Use this magnet to remind yourself how  
to save money and get money back.

This program is funded by APS customers and approved by the Arizona Corporation Commission. Refrigerators and stand-alone freezers must be in working condition and between 10 and 30 cubic feet using inside measurements. Additional restrictions may apply.





## A leaky duct system can cost up to \$200 each year on your energy bill.

Getting your home's duct system tested and repaired is an important part of keeping your heating and cooling costs low while making sure the air in your home is clean and healthy.

### Duct system overview

Most duct systems are installed in attics or building cavities—they are out of sight and out of mind. But, what you don't see might be costing you a lot of money and affecting your personal comfort and indoor air quality. The APS Duct Test and Repair Rebate Program offers rebates of up to \$250 for APS customers to have a contractor certified by the Building Performance Institute (BPI) test and repair air leaks in your heating/cooling duct system.

## Finding the leaks

It is often difficult to tell if you have a problem by just looking at your home's duct work. In many homes, insulation wrapped around metal ducts conceals the leaks. That is why it is important to have a contractor certified by BPI test your duct system.

### General indicators of duct leakage

- Discoloration on the insulation wrapped around the ducts.
- Your home has a room or rooms that are difficult to cool and heat.
- Your home has a room or rooms that always seem stuffy in the summer.
- During the winter, air coming from your heat pump feels lukewarm or cold.
- The inside of the ducts get dirty frequently.



### The certified contractor will:

- Test the duct system to determine amount of air leakage.
- Identify leakage locations.
- Make sure duct connections are securely fastened.
- Make sure duct connections are sealed with long lasting sealant.
- Repair unsealed or poorly fitting grills.
- Retest the duct system for leakage after the repairs and sealing are completed.
- Help you fill out the rebate application form.

After having a Certified Contractor test and repair your home's duct system, your home should use energy more efficiently. This should save you money every month, while making your home more comfortable. Using energy more efficiently also reduces greenhouse gases and helps preserve our environment.

## How to get a Duct Test and Repair Rebate

- 1 Have a contractor, certified by BPI perform the duct test and repairs. Call the APS Energy Answer Line at 602 371 3636 or 888 890 9730 for a free referral to a certified contractor or go to [aps.com/ductrepair](http://aps.com/ductrepair) to find a list of participating contractors.
- 2 The certified contractor will help you fill out the APS Duct Test and Repair Rebate application form.
- 3 Send the completed application and a copy of the paid invoice to:  
APS Residential Rebate Program, 2001 N. 3rd Street, Suite 106, Phoenix, AZ 85004

To qualify for the rebate, the work must be performed by a contractor certified by BPI; and your application must be received by APS within 6 months of your test and repair date.

## Why use an APS Rebate Eligible Contractor?

APS Rebate Eligible Contractors are licensed, bonded, insured and committed to rigorous on-going training to ensure your new energy-efficient AC system will:

### Save money

Rebate Eligible Contractors can ensure the airflow and refrigerant charge are correct which will save you money.

### Lower maintenance costs

Rebate Eligible Contractors will do a sizing calculation to determine the proper equipment size for your home and lifestyle.

### Increase your comfort

A properly sized and installed unit offers better humidity and temperature control to your home, which increases your comfort.



For more information about the APS Residential AC Rebate Program, help completing your rebate application form, or how to find a contractor that can offer the rebates, call the APS Energy Answer Line at 602 371 3636. If outside Phoenix, call 888 890 9730 or go to [aps.com/ac](http://aps.com/ac).

## Why get a new air conditioner or heat pump?

### Save money on energy bills

Since summer cooling costs can account for up to 40% of your annual electric bill, an old AC can mean you're spending far more than you should.

### Peace of mind

Less chance of summer breakdowns and expensive repairs.

### Peace and quiet

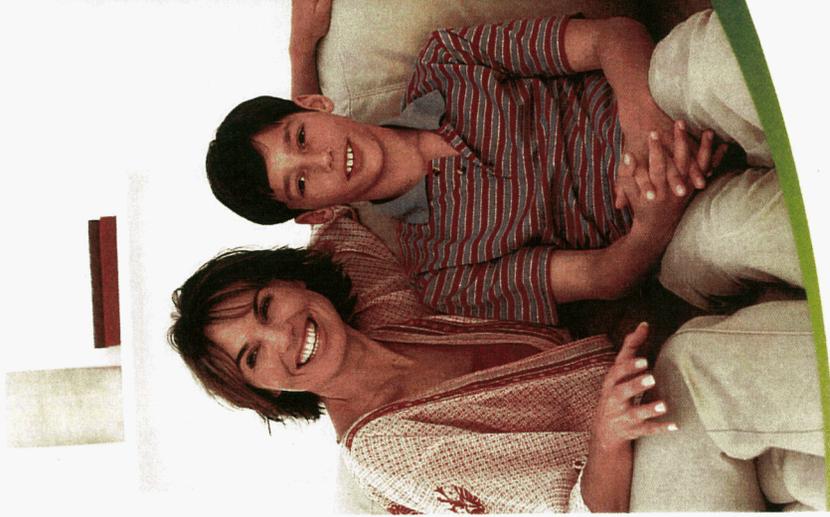
Today's AC equipment is typically quieter than older units.

### Benefits to the environment

Saving energy helps preserve our natural resources and reduces pollution.

### Did you know?

New electric heat pumps and air conditioning (AC) units are about 40 to 50% more efficient than units installed 15 years ago.



## Save Big on a Cooler Home

GET UP TO \$525 OFF AN EFFICIENT, NEW AC UNIT



Program funded by APS customers and approved by the Arizona Corporation Commission.



## Save money in the comfort of your own home.

### APS ENERGY STAR Homes Feature:

- Improved insulation
- Energy-efficient low-E windows
- High-efficiency air conditioning
- Tight construction
- Energy-efficient appliances
- Fresh air ventilation

### APS ENERGY STAR + Solar Homes Feature:

- Reduced monthly utility bill
- Cleaner environment
- Energy independence
- Higher resale value

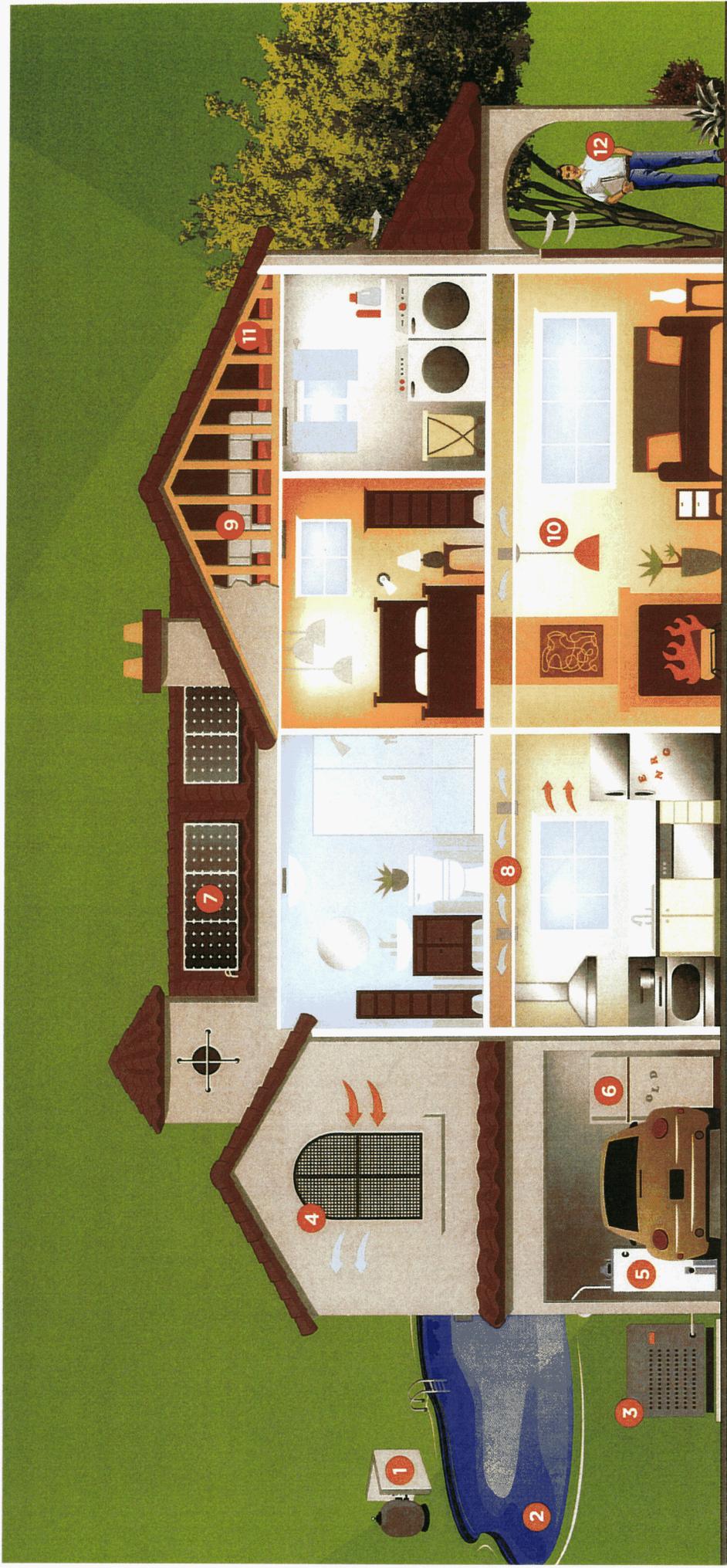
Learn more at [aps.com/newhomes](http://aps.com/newhomes)

These programs are funded by APS customers and are approved by the Arizona Corporation Commission.



ENERGY STAR®  
Homes Program





## Save money on home energy costs.

APS offers many rebates to upgrade or repair common problem areas in your home.

- 1 **SAVE UP TO 80%** on pool energy costs with an efficient pool pump.
- 2 **REBATES UP TO \$200** on efficient pool products.
- 3 **REBATES UP TO \$525** on high efficiency AC units.
- 4 **SAVE UP TO \$250** on window shade screens.
- 5 **SAVE UP TO 80%** on solar water heaters.
- 6 **REBATES OF \$30** to turn in your old fridge.
- 7 **SAVE UP TO 50%** on solar panels.
- 8 **SAVE UP TO \$250** on sealing air leaks.
- 9 **REBATES UP TO \$250** to seal leaky ductwork.
- 10 **SAVE UP TO 75%** on lighting costs by switching to CFLs.
- 11 **REBATES UP TO \$250** to improve your insulation.
- 12 **SAVE UP TO 30%** on energy costs with a Home Performance Checkup.

For more information on how to apply for these rebates and other energy-saving tips, visit [aps.com/rebatehouse](http://aps.com/rebatehouse).

Rebates are subject to change. These programs are funded by APS customers and are approved by the Arizona Corporation Commission.





## Energy savings starts here.

At APS, we believe sustainable communities are built one home at a time. We encourage and support the home builder community through programs and incentives that help builders sell more homes while offering customers more value. We offer incentives and rebates that make it easy for builders to create energy-efficient homes they can be proud to sell and customers want to buy.

**To learn more about participating builders and incentives visit [aps.com/newhomes](http://aps.com/newhomes).**

These programs are funded by APS customers and are approved by the Arizona Corporation Commission.



**APS ENERGY STAR®  
Homes + Solar**



# Q. How much could your IT department save by:

- managing power usage with CPM software
- optimizing airflow and HVAC efficiency
- implementing virtualization strategies

Save as much as \$50 annually per computer when you install and use computer power management (CPM) software. Receive an \$8 rebate for each eligible computer.

A. Lower your energy costs and start saving today with an energy efficiency rebate from the APS Solutions for Business program.

Find more ways to save energy at  
[aps.com/businessrebates](http://aps.com/businessrebates) or call 866 277 5605

The Solutions for Business program is funded by APS customers and approved by the Arizona Corporation Commission.

 **aps** | solutions  
for business

## Q. How much could your restaurant save by:

- installing CFLs and LED exit signs
- updating compressors on refrigeration
- adding door closers to walk-in coolers

A. Refrigeration consumes as much as 14 percent of a restaurant's electricity costs. Update your equipment with an energy efficiency rebate from the APS Solutions for Business program.

Find more ways to save energy  
at [aps.com/businessrebates](http://aps.com/businessrebates).  
866.277.5605

The Solutions for Business program is funded  
by APS customers and approved by the Arizona  
Corporation Commission.



Solutions  
for Business

# Q. How much could your school save by:

- ✓ upgrading to premium T8 lights
- ✓ installing occupancy sensors
- ✓ adding programmable thermostats

A typical K-12 school spends on average 37% of its electricity costs on cooling and heating, and as much as 33% on interior lighting.

A. Lower your energy use and start saving today with an energy efficiency rebate from the APS Solutions for Business program.

Find more ways to save energy at  
[aps.com/businessrebates](http://aps.com/businessrebates) or call 866 277 5605

The Solutions for Business program is funded by APS customers and is approved by the Arizona Corporation Commission.



# More Reasons to Start Saving Energy Today.

Let's begin with rebates for carbon dioxide sensors and hotel room controls. Add to the list new incentives for LED traffic signals and computer power-management software. These new rebates and more are designed to help your business reduce energy use and cut operating costs.

## New Incentives Approved for 2011

APS business customers have even more options for improving energy efficiency. On January 19, 2011, the Arizona Corporation Commission approved APS's request to add a broad array of new measures to the Solutions for Business incentive program.

## Express Solutions Incentives Open to More Businesses

This year, customers with a peak monthly demand of 400 kW or less per premise are eligible to participate in the program that pays between 60 percent and 90 percent of qualifying projects.

## Low Interest-Rate Financing Available From National Bank of Arizona

Reduce up-front project costs with low interest-rate financing. In 2011, all customers who participate in the Solutions for Business program can apply for financing through National Bank of Arizona, an APS partner offering financing options to qualifying customers. Minimum loans start at \$1,000 and most investments pay back quickly through energy cost-savings. Take advantage of a special rate of 3.99 percent for a limited time only.

Find out how you can start saving energy today. Download a complete list of 2011 program enhancements and incentives, and find the rebates that meet your energy needs.

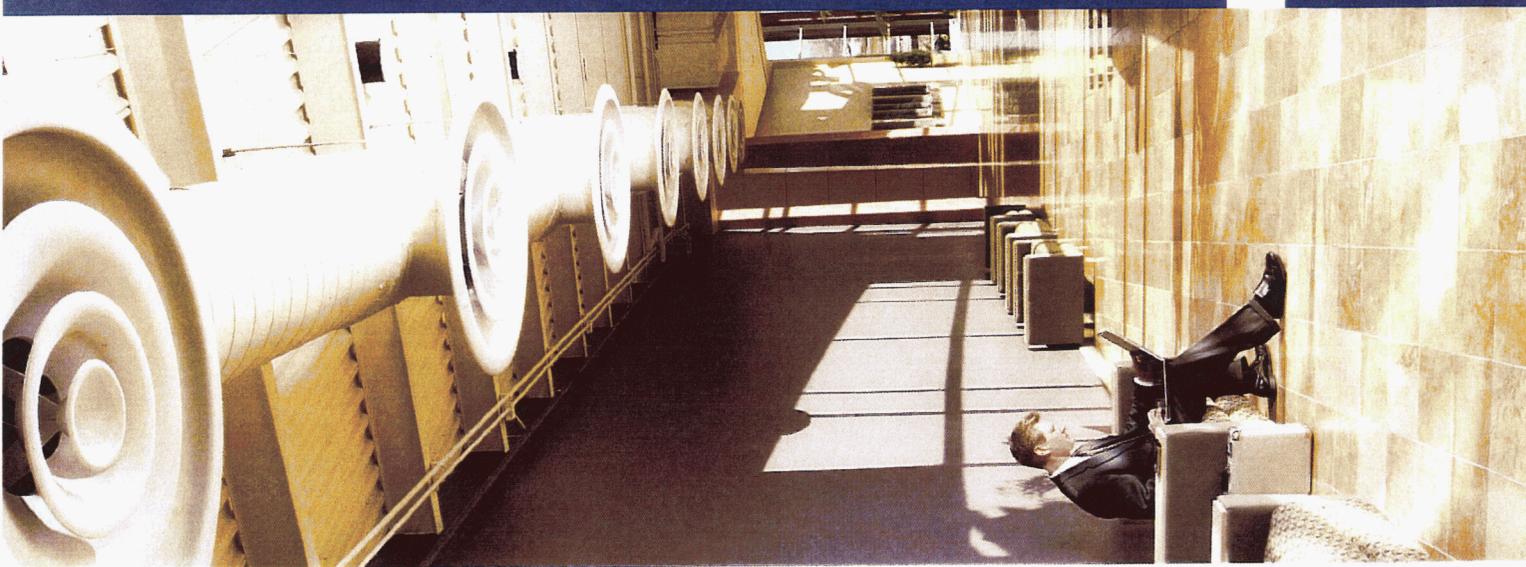
**CUT ENERGY COSTS AND BOOST YOUR BOTTOM LINE**

[aps.com/businessrebates](http://aps.com/businessrebates)  
**866.277.5605**

The Solutions for Business program is funded by APS customers and approved by the Arizona Corporation Commission.



**Solutions  
for Business**





## Cut energy costs and boost your bottom line.

Did you know energy costs are the largest, controllable operating expense for most businesses? Lower your energy costs with a rebate from the APS Solutions for Business program and start saving today.

Find more ways to save energy at [aps.com/businessrebates](http://aps.com/businessrebates) or call 866 277 5605

The Solutions for Business program is funded by APS customers and approved by the Arizona Corporation Commission.



# APS Solutions for Business

## 5 Easy Steps to Energy Efficiency Financing

- 1. Customer chooses APS Trade Ally contractor and determines energy efficiency project**
  - Customer and Trade Ally complete APS Solutions for Business rebate application
  - Customer and Trade Ally submit rebate application to APS
  - Customer submits NB|AZ loan application for review to NB|AZ
- 2. Project eligibility review**
  - APS reviews rebate application for project eligibility
  - NB|AZ reviews loan documents
- 3. APS Solutions for Business rebate application approved**
  - APS notifies customer and NB|AZ
- 4. Loan application approved**
  - NB|AZ notifies customer of loan approval
  - Customer contacts Trade Ally to proceed with project
- 5. Customer implements energy efficiency project**
  - APS conducts pre-inspection of customer's project site
  - Trade Ally installs equipment and notifies APS of project completion
  - APS conducts post-project inspection
  - APS contacts NB|AZ with notice of successful project completion
  - NB|AZ schedules closing date with customer
  - NB|AZ funds contractor invoice with customer authorization
  - Process complete

For more information: [aps.com/financing](https://aps.com/financing)

## The Fundamentals of Chillers

Facility managers, maintenance staff, plant engineers and building owners are invited to this workshop to learn from the experts about the fundamentals of chillers and chilled water systems.

Topics include:

- Refrigeration cycle review
- Chiller and compressor types
- Chilled water systems
- Cooling towers
- System control vs. individual control
- Chiller maintenance
- Absorption cycle
- Improving system/chiller efficiency

Get the information you need to select, understand and maintain chiller equipment, and learn how APS Solutions for Business energy efficiency rebates can help you to improve your systems.

### INSTRUCTORS

**Don Brandt, CEM**, brings more than 37 years of professional experience in the HVAC industry to his work. He holds a bachelor's degree in electrical engineering and has worked for Trane Company in a variety of capacities his entire career. Brandt specializes in large commercial, industrial and public assembly chilled-water projects and is a member of ASHRAE, AEE and IEEE. He also currently serves on the ASHRAE Professional Development Committee and is active in the AEE-AZ Chapter, CEM training program.

**Dave Palty** is the business development manager for Trane's Southwest district. He holds a bachelor's degree in industrial engineering and has worked for Trane for more than 30 years. Palty is a USGBC LEED® 2.0 Accredited Professional and currently serves as past president for the Arizona Chapter of the Association of Energy Engineers.

### UPCOMING WORKSHOPS

**Fans**

**Motors**

**Energy Controls**

**Energy Modeling**

**Custom Applications 101**

Registration-fee discounts are available to APS business customers and Trade Allies for other approved educational programs. Visit us online for a full schedule or to register for an event.

[aps.com/businessrebates](http://aps.com/businessrebates)

The Solutions for Business program is funded by APS customers and approved by the Arizona Corporation Commission.

**Wednesday, May 18, 2011**

Tempe Mission Palms  
60 East Fifth Street  
Tempe, AZ 85281

Registration: 7:30 a.m.  
Program: 8 a.m. - 4:30 p.m.

Breakfast and lunch included

Cost  
\$150 general public  
\$75 for APS customers and  
approved Trade Allies

[CLICK HERE TO REGISTER](#)

# How often does my AC need an Advanced Tune-up?

An Advanced AC Tune-up should be done once every three to six years using advanced diagnostic equipment to ensure the unit is running as efficiently as possible.

This Tune-up is different from the typical annual equipment tune-up because it requires the use of diagnostic equipment that verifies the refrigerant charge and airflow of the unit is correct. It is a more precise and reliable way to get your AC equipment back in top shape. The Advanced AC Tune-up is completed after any refrigerant leaks are repaired and all system components are operating properly. Your contractor may charge additional fees for cleaning the indoor coil or performing any repairs to get the equipment functionally operating. Your contractor could charge a service call fee as a substitute for the Tune-up charge if you do not repair refrigerant leaks or decline work necessary to get the unit running well enough for the diagnostic test.

## Don't miss your opportunity for a \$100 rebate

Call the following approved contractor for your Advanced AC Tune-up at:



Or call the APS Energy Answer Line at **602 371 3636** or **888 890 9730** for a **free referral** to an APS approved Advanced AC Tune-up contractor. **All of the AC Tune-up contractors are listed at [aps.com/tuneup](http://aps.com/tuneup).**

Note: Contractors approved by APS to participate in this Advanced AC Tune-up program are not affiliates or agents of APS, and APS assumes no liability for their products or services.



## Get More from Your AC Unit

ADVANCED TUNE-UP ENSURES YOU'RE NOT WASTING ENERGY AND MONEY



Program funded by APS customers and approved by the Arizona Corporation Commission.

