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AZ CORP COMMISSION  
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Arizona Corporation Commission

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March 1, 2012

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

RE: Demand Side Management Semi-Annual Progress Report  
Docket No. E-000007-12-0068

Pursuant to the Electric Energy Efficiency Standards, A.A.C. R14-2-2409(A):

"By March 1 of each year, an affected utility shall submit to the Commission, in a Commission established docket for that year, a DSM progress report providing information for each of the affected utilities Commission-approved DSM programs..."

Pursuant to Decision No. 59601:

"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:

"APS is required to file mid-year and end-year reports on each DSM program. All DSM year-end reports filed at the Commission by APS must be certified by an Officer of the Company."

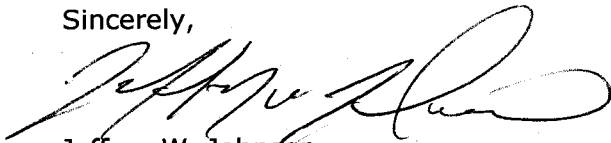
Pursuant to Decision No. 68648:

"Staff has recommended that APS include a description of its DSM marketing activities for all Residential programs included in the Portfolio Plan and provide Staff with examples of marketing materials in its semi-annual reports filed with the Commission."

Enclosed, please find the DSM Semi-Annual Report covering the period of July 1, 2011, through December 31, 2011. In this filing, APS is voluntarily responding to the Arizona Administrative Code ("AAC") Section R14-2-2410(J). The Company is also required to provide its updated Energy Conservation Plan pursuant to the AAC, Section R14-2-213. This DSM Semi-Annual Report also satisfies that requirement and includes consumer education and conservation information.

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

Sincerely,



Jeffrey W. Johnson

JJ/cd  
Attachment

cc: Brian Bozzo  
Terri Ford  
Barbara Keene  
Laura Furrey



**ARIZONA PUBLIC SERVICE COMPANY**

**Demand Side Management  
Semi-Annual Report**

**July through December 2011**

**March 1, 2012**

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

This Demand Side Management Semi-Annual Progress Report ("Progress Report") includes the following information for all Arizona Public Service Company ("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 2011 DR load reduction and savings values.

The Electric Energy Efficiency Standards ("EE Rules") became effective on January 1, 2011, so this report includes the Reporting Requirements contained in R14-2-2409. This Progress Report has also been updated to meet the 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>.

This report does not include Staff recommended reporting requirement changes that might be approved in APS's 2012 Implementation Plan. At the time of this writing, APS's 2012 Implementation Plan has not been approved by the Commission.

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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:  
JULY THROUGH DECEMBER 2011**

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**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JULY THROUGH DECEMBER 2011**

**TABLE 1  
DSM Program Expenses: July 2011 – December 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	\$2,598,691	\$0	\$20,704	\$929,474	\$671,324	\$130,240	\$4,350,433
Existing Homes	\$4,468,766	\$90,391	\$70,325	\$1,562,632	\$236,288	\$64,874	\$6,493,276
New Construction	\$470,800	\$19,589	\$178	\$240,955	\$273,853	\$58,801	\$1,064,176
Appliance Recycling	\$158,970	\$0	\$0	\$423,787	\$124,322	\$25,134	\$732,213
Behavioral	\$0	\$0	\$0	\$193,440	\$0	\$36,742	\$230,182
Multi-Family	\$213,975	\$1,150	\$101	\$534,762	\$4,204	-\$107,908	\$646,284
Shade Trees	\$39,353	\$0	\$244	\$136,018	\$9,906	\$6,964	\$192,485
Low Income	\$2,140,050	\$11,981	\$148	\$0	\$477	\$60,525	\$2,213,181
<b>Totals for Residential</b>	<b>\$10,090,605</b>	<b>\$123,111</b>	<b>\$91,700</b>	<b>\$4,021,068</b>	<b>\$1,320,374</b>	<b>\$275,372</b>	<b>\$15,922,230</b>
<b>Non-Residential:</b>							
Lg. Existing Facilities	\$6,439,247	\$111,689	\$7,585	\$1,528,125	\$209,876	\$150,698	\$8,447,220
New Construction	\$1,054,735	\$53,145	\$1,160	\$231,617	\$79,911	\$31,886	\$1,452,454
Small Business	\$1,169,895	\$38,414	\$1,291	\$271,114	\$65,886	\$19,971	\$1,566,571
Energy Information Services	\$10,169	\$0	\$0	40,102	\$3,190	\$311	\$53,773
Schools <sup>2</sup>	\$621,117	\$39,091	\$1,226	\$479,968	\$168,140	\$74,074	\$1,383,616
<b>Total Non-Residential</b>	<b>\$9,295,163</b>	<b>\$242,339</b>	<b>\$11,262</b>	<b>\$2,550,926</b>	<b>\$527,003</b>	<b>\$276,940</b>	<b>\$12,903,633</b>
<b>Segment Totals</b>	<b>\$19,385,768</b>	<b>\$365,450</b>	<b>\$102,962</b>	<b>\$6,571,994</b>	<b>\$1,847,377</b>	<b>\$552,312</b>	<b>\$28,825,863</b>
				<b>Program Costs</b>			<b>\$28,825,863</b>
				<b>Measurement, Evaluation &amp; Research</b>			<b>\$927,748</b>
				<b>Performance Incentive<sup>3</sup></b>			<b>NA</b>
				<b>TOTAL</b>			<b>\$29,753,611</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.

**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 EE training and technical assistance.

**Consumer Education** – Dollars that are used to support general consumer education about energy efficiency (“EE”) 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.

**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 EE 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:  
JULY THROUGH DECEMBER 2011**

**TABLE 2  
Year-to-Date: DSM Program Expenses: January 2011 – December 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	\$5,728,220	\$32	\$21,260	\$1,510,426	\$978,985	\$253,496	\$8,492,419
Existing Homes	\$8,989,912	\$177,477	\$142,852	\$3,193,110	\$495,942	\$156,195	\$13,155,488
New Construction	\$820,200	\$30,495	\$1,219	\$384,532	\$410,685	\$136,407	\$1,783,538
Appliance Recycling	\$272,910	\$0	\$0	\$739,740	\$257,943	\$34,463	\$1,305,056
Behavioral	\$0	\$0	\$0	\$331,454	\$0	\$99,460	\$430,914
Multi-Family	\$213,975	\$1,150	\$101	\$599,852	\$8,973	\$31,518	\$855,569
Shade Trees	\$43,948	\$0	\$244	\$239,323	\$12,872	\$9,976	\$306,363
Low Income	\$2,398,608	\$12,011	\$1,873	\$51,060	\$485	\$128,799	\$2,592,836
<b>Totals for Residential</b>	<b>\$18,467,773</b>	<b>\$221,165</b>	<b>\$167,549</b>	<b>\$7,049,497</b>	<b>\$2,165,885</b>	<b>\$850,314</b>	<b>\$28,922,183</b>
<b>Non-Residential:</b>							
Lg. Existing Facilities	\$10,650,804	\$281,275	\$43,218	\$3,110,796	\$503,988	\$306,889	\$14,896,970
New Construction	\$1,582,068	\$66,711	\$14,942	\$766,034	\$201,250	\$82,648	\$2,713,653
Small Business	\$2,510,297	\$43,932	\$2,249	\$588,779	\$93,159	\$56,855	\$3,295,271
Energy Information Services	\$23,992	\$0	\$0	\$50,701	\$4,112	\$905	\$79,710
Schools <sup>2</sup>	\$1,619,228	\$70,297	\$10,951	\$746,890	\$194,926	\$134,719	\$2,777,011
<b>Total Non-Residential</b>	<b>\$16,386,389</b>	<b>\$462,215</b>	<b>\$71,360</b>	<b>\$5,263,200</b>	<b>\$997,435</b>	<b>\$582,016</b>	<b>\$23,762,615</b>
<b>Segment Totals</b>	<b>\$34,854,162</b>	<b>\$683,380</b>	<b>\$238,909</b>	<b>\$12,312,697</b>	<b>\$3,163,320</b>	<b>\$1,432,330</b>	<b>\$52,684,798</b>
				<b>Program Costs</b>			<b>\$52,684,798</b>
				<b>Measurement, Evaluation &amp; Research</b>			<b>\$2,172,749</b>
				<b>Performance Incentive<sup>3</sup></b>			<b>\$8,777,191</b>
				<b>TOTAL</b>			<b>\$63,634,738</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.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JULY THROUGH DECEMBER 2011**

**TABLE 3  
Program-to-Date: DSM Program Expenses: January 2005 – December 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	\$18,546,826	\$4,596	\$72,177	\$7,090,735	\$3,085,071	\$902,567	\$29,701,972
Existing Homes	\$22,549,427	\$764,515	\$1,108,894	\$6,935,567	\$2,175,811	\$495,068	\$34,029,282
New Construction	\$4,249,706	\$599,296	\$129,336	\$1,402,529	\$2,180,902	\$608,600	\$9,170,369
Appliance Recycling	\$515,190	\$0	\$0	\$1,421,964	\$495,657	\$37,236	\$2,470,047
Behavioral	\$0	\$0	\$0	\$806,454	\$0	\$99,460	\$905,914
Multi-Family	\$213,975	\$1,150	\$101	\$599,852	\$8,973	\$45,571	\$869,622
Shade Trees	\$43,948	\$0	\$244	\$239,323	\$12,872	\$9,976	\$306,363
Low Income	\$8,849,609	\$85,209	\$22,972	\$619,860	\$49,405	\$712,428	\$10,339,483
<b>Totals for Residential</b>	<b>\$54,968,681</b>	<b>\$1,454,766</b>	<b>\$1,333,724</b>	<b>\$19,116,284</b>	<b>\$8,008,691</b>	<b>\$2,910,906</b>	<b>\$87,793,052</b>
<b>Non-Residential:</b>							
Lg. Existing Facilities	\$30,846,169	\$772,228	\$284,449	\$9,986,479	\$2,597,380	\$1,755,928	\$46,242,633
New Construction	\$7,841,212	\$180,843	\$56,000	\$4,451,412	\$1,140,969	\$684,695	\$14,355,131
Small Business	\$4,536,514	\$79,366	\$25,051	\$2,450,438	\$518,243	\$326,671	\$7,936,283
Building Operator Training	\$0	\$56,897	\$0	\$22,043	\$15,783	\$7,480	\$102,203
Energy Information Services	\$102,659	\$17,817	\$583	\$153,943	\$12,686	\$26,481	\$314,169
Schools <sup>2</sup>	\$4,554,445	\$101,654	\$25,242	\$1,605,564	\$654,140	\$293,919	\$7,234,964
<b>Total Non-Residential</b>	<b>\$47,880,999</b>	<b>\$1,208,805</b>	<b>\$391,325</b>	<b>\$18,669,879</b>	<b>\$4,939,201</b>	<b>\$3,095,174</b>	<b>\$76,185,383</b>
<b>Segment Totals</b>	<b>\$102,849,680</b>	<b>\$2,663,571</b>	<b>\$1,725,049</b>	<b>\$37,786,163</b>	<b>\$12,947,892</b>	<b>\$6,006,080</b>	<b>\$163,978,435</b>
				<b>Program Costs</b>			<b>\$163,978,435</b>
				<b>Measurement, Evaluation &amp; Research</b>			<b>\$9,104,700</b>
				<b>Performance Incentive<sup>3</sup></b>			<b>\$23,193,736</b>
				<b>TOTAL</b>			<b>\$196,276,871</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 PTD performance incentive amount is a summation of the performance incentive amount as calculated during each previous Reporting Period beginning with the January – June 2005 Progress Report.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

### TABLE 4

#### DSM Electric Savings: July 2011 – December 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	5.2	52,184	337,529	5.2	52,184	337,529
Existing Homes	7.3	13,634	160,617	7.3	13,634	160,617
New Construction	1.4	2,409	48,175	1.4	2,409	48,175
Appliance Recycling	1.2	7,972	47,834	1.2	7,972	47,834
Behavioral	1.5	12,580	12,580	1.5	12,580	12,580
Multi-Family	0.5	3,800	28,537	0.5	3,800	28,537
Shade Trees	0.5	702	21,072	0.5	702	21,072
Low Income <sup>3</sup>	0.2	2,226	38,957	0.2	2,226	38,957
<b>Totals for Residential</b>	<b>17.8</b>	<b>95,507</b>	<b>695,301</b>	<b>17.8</b>	<b>95,507</b>	<b>695,301</b>
<b>Non-Residential:</b>						
Large Existing Facilities	10.0	62,106	848,090	10.0	62,106	848,090
New Construction	1.6	11,143	175,564	1.6	11,143	175,564
Small Business	2.6	12,433	173,834	2.6	12,433	173,834
Energy Information Services	0.8	12	62	0.8	12	62
Schools	1.3	5,490	74,428	1.3	5,490	74,428
<b>Total Non-Residential</b>	<b>16.3</b>	<b>91,184</b>	<b>1,271,979</b>	<b>16.3</b>	<b>91,184</b>	<b>1,271,979</b>
<b>Segment Totals</b>	<b>34.1</b>	<b>186,691</b>	<b>1,967,279</b>	<b>34.1</b>	<b>186,691</b>	<b>1,967,279</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:  
JULY THROUGH DECEMBER 2011**

**TABLE 5**

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

<b>DSM Program</b>	<b>Gross Peak MW Capacity Savings</b>	<b>Gross Annual MWh Savings</b>	<b>Gross Lifetime<sup>2</sup> MWh Savings</b>	<b>Net<sup>5</sup> Peak MW Capacity Savings</b>	<b>Net<sup>5</sup> Annual MWh Savings</b>	<b>Net<sup>5</sup> Lifetime<sup>2</sup> MWh Savings</b>
<b>Residential:</b>						
Consumer Products	14.3	146,808	915,248	14.3	146,808	915,248
Existing Homes	15.1	27,366	354,083	15.1	27,366	354,083
New Construction	2.8	4,540	90,794	2.8	4,540	90,794
Appliance Recycling	2.1	14,168	85,008	2.1	14,168	85,008
Behavioral	1.5	12,580	12,580	1.5	12,580	12,580
Multi-Family	0.5	3,800	28,537	0.5	3,800	28,537
Shade Trees	0.5	772	23,158	0.5	772	23,158
Low Income <sup>3</sup>	0.2	2,437	42,653	0.2	2,437	42,653
<b>Totals for Residential</b>	<b>37.0</b>	<b>212,471</b>	<b>1,552,061</b>	<b>37.0</b>	<b>212,471</b>	<b>1,552,061</b>
<b>Non-Residential:</b>						
Large Existing Facilities	17.8	122,529	1,619,504	17.8	122,529	1,619,504
New Construction	2.6	17,483	266,241	2.6	17,483	266,241
Small Business	6.1	29,846	412,169	6.1	29,846	412,169
Energy Information Services	2.3	33	169	2.3	33	169
Schools	3.0	14,839	203,664	3.0	14,839	203,664
<b>Total Non-Residential</b>	<b>31.8</b>	<b>184,730</b>	<b>2,501,747</b>	<b>31.8</b>	<b>184,730</b>	<b>2,501,747</b>
<b>Segment Totals</b>	<b>68.8</b>	<b>397,201</b>	<b>4,053,808</b>	<b>68.8</b>	<b>397,201</b>	<b>4,053,808</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 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: JULY THROUGH DECEMBER 2011

**TABLE 6**  
**Program-to-Date: DSM Electric Savings: January 2005 – December 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>3</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	100.5	830,242	4,812,208	91.0	740,175	4,286,944
Existing Homes	45.8	75,944	1,050,370	41.0	69,321	953,387
New Construction	18.8	34,827	696,531	18.2	33,497	669,929
Appliance Recycling	4.1	28,115	168,686	3.3	22,676	136,052
Behavioral	1.5	12,580	12,580	1.5	12,580	12,580
Multi-Family	0.5	3,800	28,537	0.5	3,800	28,537
Shade Trees	0.5	772	23,158	0.5	772	23,158
Low Income <sup>3</sup>	1.2	7,346	137,618	1.2	7,346	137,618
<b>Totals for Residential</b>	<b>172.9</b>	<b>993,626</b>	<b>6,929,688</b>	<b>157.2</b>	<b>890,166</b>	<b>6,248,205</b>
<b>Non-Residential:</b>						
Large Existing Facilities	56.4	457,111	6,183,665	52.6	423,123	5,720,370
New Construction	14.1	177,160	2,544,739	11.8	144,564	2,084,722
Small Business	11.5	61,945	882,313	10.9	58,238	832,240
Building Operator Training	0.2	1,001	12,447	0.1	701	8,713
Energy Information Services	2.8	2,807	41,780	2.8	2,807	41,780
Schools	7.7	53,426	774,649	6.9	48,769	705,332
<b>Total Non-Residential</b>	<b>92.7</b>	<b>753,450</b>	<b>10,439,593</b>	<b>85.1</b>	<b>678,203</b>	<b>9,393,157</b>
<b>Segment Totals</b>	<b>265.6</b>	<b>1,747,076</b>	<b>17,369,281</b>	<b>242.3</b>	<b>1,568,369</b>	<b>15,641,362</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 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:  
JULY THROUGH DECEMBER 2011**

**TABLE 7  
DSM Societal Benefits and Performance Incentive  
July 2011 – December 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	\$4,350,433	\$16,393,214	\$4,356,698	\$12,036,516
Existing Homes	\$6,493,276	\$14,264,251	\$10,916,037	\$3,348,214
New Construction	\$1,064,176	\$4,089,167	\$2,239,069	\$1,850,098
Appliance Recycling	\$732,213	\$2,507,523	\$573,243	\$1,934,280
Behavioral	\$230,182	\$592,009	\$230,182	\$361,827
Multi-Family	\$646,284	\$1,531,452	\$794,200	\$737,252
Shade Trees	\$192,485	\$1,623,804	\$762,143	\$861,661
Low Income <sup>1,2</sup>	\$2,213,181	\$1,887,318	\$1,887,318	\$0
<b>Totals for Residential</b>	<b>\$15,922,230</b>	<b>\$42,888,738</b>	<b>\$21,758,890</b>	<b>\$21,129,848</b>
<b>Non-Residential:</b>				
Large Existing Facilities	\$8,447,220	\$50,025,878	\$17,365,273	\$32,660,605
New Construction	\$1,452,454	\$11,081,833	\$3,720,819	\$7,361,014
Energy Information Services	\$53,773	\$111,056	\$90,354	\$20,702
Schools	\$1,383,616	\$4,650,971	\$2,894,695	\$1,756,276
<b>Total Non-Residential</b>	<b>\$12,903,634</b>	<b>\$76,510,452</b>	<b>\$26,985,492</b>	<b>\$49,524,960</b>
<b>Segment Totals</b>	<b>\$28,825,864</b>	<b>\$119,399,190</b>	<b>\$48,744,382</b>	<b>\$70,654,808</b>
Measurement, Evaluation & Research	\$927,748		\$927,748	(\$927,748)
Performance Incentive <sup>3</sup>	NA		NA	NA
<b>Total</b>	<b>\$29,753,612</b>	<b>\$119,399,190</b>	<b>\$49,672,130</b>	<b>\$69,727,060</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. APS has an Annual MWh savings goal, and therefore, has not estimated the Performance Incentive for this 6-month Reporting Period. The Performance Incentive amount is shown in Tables 8 & 9 for annual and program-to-date results.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JULY THROUGH DECEMBER 2011**

**TABLE 8  
DSM Societal Benefits and Performance Incentive  
Year-to-Date: January 2011 – December 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	\$8,492,419	\$43,225,019	\$8,842,095	\$34,382,924
Existing Homes	\$13,155,488	\$29,465,833	\$24,254,792	\$5,211,041
New Construction	\$1,783,538	\$8,020,436	\$3,679,589	\$4,340,847
Appliance Recycling	\$1,305,056	\$4,456,400	\$1,032,146	\$3,424,254
Behavioral	\$430,914	\$592,009	\$430,914	\$161,095
Multi-Family	\$855,569	\$1,531,452	\$1,003,485	\$527,967
Shade Trees	\$306,363	\$1,793,085	\$931,708	\$861,377
Low Income <sup>1,2</sup>	\$2,592,836	\$2,084,066	\$2,084,066	\$0
<b>Totals for Residential</b>	<b>\$28,922,183</b>	<b>\$91,168,300</b>	<b>\$42,258,795</b>	<b>\$48,909,505</b>
<b>Non-Residential:</b>				
Large Existing Facilities	\$14,896,970	\$93,616,688	\$31,274,751	\$62,341,937
New Construction	\$2,713,653	\$16,346,836	\$5,885,273	\$10,461,563
Small Business	\$3,295,271	\$25,405,489	\$5,733,105	\$19,672,384
Energy Information Svcs.	\$79,710	\$302,880	\$183,219	\$119,661
Schools	\$2,777,011	\$12,737,631	\$6,126,210	\$6,611,421
<b>Total Non-Residential</b>	<b>\$23,762,615</b>	<b>\$148,409,524</b>	<b>\$49,202,558</b>	<b>\$99,206,966</b>
<b>Segment Totals</b>	<b>\$52,684,798</b>	<b>\$239,577,824</b>	<b>\$91,461,353</b>	<b>\$148,116,471</b>
Measurement, Evaluation & Research	\$2,172,749		\$2,172,749	(\$2,172,749)
Performance Incentive Amount	\$8,777,208		\$8,777,208	(\$8,777,208)
<b>Total</b>	<b>\$63,634,755</b>	<b>\$239,577,824</b>	<b>\$102,411,310</b>	<b>\$137,166,251</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.

**DSM Goal**

2011 Total Energy Resources	30,629,164
DSM % Goal	1.25%
DSM MWh Goal	382,865

**2011 Annual DSM MWh Savings**

From EE Programs (Table 5)	397,201
From DR Programs (at 10% of Total)	44,133
<b>Total DSM Savings</b>	<b>441,334</b>

<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%

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

Achievement relative to the Company's EE goal equals 441,334 MWh / 382,865 MWh, or 115% achieved, which placed APS in the 106% to 115% PI range shown above. The 2011 Performance Incentive amount is the minimum of Net Benefits or 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>
106% to 115%	8%	16%
Net Benefits, Program Costs (prior to PI)	\$145,943,722	\$54,857,547
Calculated PI Amount	\$11,675,498	\$8,777,208

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JULY THROUGH DECEMBER 2011**

**TABLE 9  
DSM Societal Benefits and Performance Incentive  
Program-to-Date: January 2005 – December 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	\$29,701,972	\$223,697,206	\$48,080,750	\$175,616,457
Existing Homes	\$34,029,282	\$73,019,918	\$54,713,577	\$18,306,342
New Construction	\$9,170,369	\$47,064,634	\$13,666,337	\$33,398,297
Appliance Recycling	\$2,470,047	\$7,689,854	\$1,954,856	\$5,734,998
Behavioral	\$905,914	\$592,009	\$905,914	\$(313,905)
Multi-Family	\$869,622	\$1,531,452	\$1,017,538	\$513,914
Shade Trees	\$306,363	\$1,793,085	\$931,708	\$861,377
Low Income <sup>1,2</sup>	<u>\$10,339,483</u>	<u>\$8,774,207</u>	<u>\$8,774,207</u>	<u>\$0</u>
<b>Totals for Residential</b>	<b>\$87,793,052</b>	<b>\$364,162,365</b>	<b>\$130,044,886</b>	<b>\$234,117,749</b>
<b>Non-Residential:</b>				
Large Existing Facilities	\$46,242,633	\$265,310,870	\$88,066,427	\$177,444,443
New Construction	\$14,355,131	\$90,648,509	\$29,312,781	\$61,335,728
Small Business	\$7,936,283	\$52,288,370	\$11,110,164	\$41,178,206
Building Operator Training	\$102,203	\$424,302	\$183,392	\$240,910
Energy Information Services	\$314,169	\$1,694,660	\$602,400	\$1,092,260
Schools	<u>\$7,234,964</u>	<u>\$37,504,662</u>	<u>\$13,516,607</u>	<u>\$23,988,055</u>
<b>Total Non-Residential</b>	<b>\$76,185,383</b>	<b>\$447,871,373</b>	<b>\$142,791,771</b>	<b>\$305,079,602</b>
<b>Segment Totals</b>	<b>\$163,978,435</b>	<b>\$812,033,738</b>	<b>\$272,836,657</b>	<b>\$539,197,081</b>
Measurement, Evaluation & Research	\$9,104,700		\$9,104,700	\$(9,104,700)
Performance Incentive <sup>3</sup>	<u>\$23,193,752</u>		<u>\$23,193,752</u>	<u>\$(23,193,752)</u>
<b>Total</b>	<b>\$196,276,888</b>	<b>\$812,033,738</b>	<b>\$305,135,110</b>	<b>\$506,898,628</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.

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**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>July – December 2011</b>	624	8,754	166,333	1,769	48,592
<b>YTD: January 2011 – December 2011</b>	1,285	18,039	342,749	3,644	100,129
<b>PTD: January 2005 – December 2011</b>	4,750	66,681	1,266,943	13,471	370,118

1. *The environmental reductions are based on the net KWh energy savings of all program measures installed during the Reporting Period 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:  
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**TABLE 11  
Demand Response Program/Initiatives<sup>1</sup>  
2011 Load Reduction and Energy Savings: July – December, 2011**

<b>Program/Initiatives</b>	<b>Load Reduction (MW)</b>	<b>Energy Savings (MWh)<sup>2</sup></b>	<b>Energy Savings Year-to-Date (MWh)<sup>2</sup></b>
APS Peak Solutions®	75	164,250	293,460
Critical Peak Pricing	0.8	1,752	3,066
Time of Use Rates & Super Peak	118.1	258,639	517,278
<b>Total</b>	<b>193.9</b>	<b>424,641<sup>3</sup></b>	<b>813,804<sup>3</sup></b>

**Notes:**

1. No load reduction was 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 EE standard for any year.



## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 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) 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 EE 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 EE 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.

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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 Progress report for a detailed explanation.

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**

No 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 EE 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 7,867 rebates were paid through the HVAC portion of the program. That is 10% more than the same period in 2010. Specifically, APS has paid:
  1. AC Rebate Incentive Levels
    - a. 1,620 of the \$175 AC rebates for 13 SEER/10.8 EER equipment with QI to customer; \$50 to contractor
    - b. 4,739 of the \$425 AC rebates for 14 - 16 SEER/10.8 EER equipment with QI to customer; \$50 to contractor
    - c. 523 of the \$525 AC rebates for 17+ SEER/10.8 EER equipment with QI to customer; \$50 to contractor
    - d. 174 of the \$100 Residential Diagnostic rebates
  2. 811 Duct Test and Repair rebates made up of 974 total rebates and 163 tests without repairs. Only the repair (811) rebates are used for calculating the demand and energy savings shown in the savings table below.
- There are currently 212 contractors that can offer the APS AC Rebate of which 161 are APS Qualified Contractors. There are 51 Rebate Eligible contractors that entered the program

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

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 43 contractors that can offer the rebates outside the metropolitan ("metro") 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.

- 793 (contractor) 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 445 referrals to customers seeking HVAC service, repair or replacement of their home HVAC system in this Reporting Period. They also handled 1,915 AC Rebate related calls.
- There are currently 45 contractors with Building Performance Institute certificates that are receiving Duct Test and Repair referrals. 271 Duct Rebate calls were taken during this Reporting Period. There are eight such 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 8,820 visits this Reporting Period. The APS AC Rebate webpage had 15,626 visits, 5,129 visits for the Duct Test and Repair webpage and 5,722 for the Residential Diagnostic webpage.
- There were 99,976 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**

- Continued to review and update Residential HVAC Measure Analysis Spreadsheets and Analytic Database.
- Provided guidance on Residential HVAC components of program design tool to support implementation plan.
- Continued process of implementing end-use metering data collection study with a focus on HVAC Tune Up/Diagnostics and Duct Test and Repair measures.
- Continued research to determine effects and market influence of the program.
- Conducted research to update the incremental cost of HVAC equipment

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

#### 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	1,620	1,015	1,644	10	16,443	0.555	0.9
14 -16 SEER/10.8 EER w/ QI, \$425	4,739	1,303	6,175	11	67,924	0.708	3.4
17+ SEER/10.8 EER w/ QI, \$425	523	1,441	754	12	9,044	0.757	0.4
Residential Diagnostic	174	706	123	6	737	1.211	-
Duct Test and Repair <sup>1</sup>	811	1,064	863	18	15,532	0.564	0.5
Correction to Jan. - June 2011 Filing <sup>2</sup>			352		3,524		
<b>TOTAL</b>	<b>7,867</b>		<b>9,911</b>		<b>113,204</b>		<b>5.2</b>

1. 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.
2. The Annual kWh Savings Per Unit were inadvertently switched between the Duct Test and Repair and Residential Diagnostic program on the Jan. - June Semi-Annual Progress Report causing the reported kWhs to be understated. This adjustment corrects the energy totals for the year.

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 to EE.

#### 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 year. Several factors contributed to this including finding the right messages to explain the measure to the customer, contractors' limited experience marketing the measure, conservative initial marketing from APS, and 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. Contractors also had some challenges using the diagnostic equipment in the field. The diagnostic equipment maker is making some software changes this winter that should improve the field performance of the equipment.

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The HVAC section of the program passes the Societal Cost Test (“SCT”) for this Reporting Period. The incremental costs used for the SCT were updated during this Reporting Period by Navigant (MER consultant) and those changes improved the SCT results.

#### **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, RD)	\$3,458,280	\$74,135	\$70,224	\$714,342	\$99,383	\$42,718	\$4,459,082

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 year. As a result the overall spending for the program is under budget for this year.

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

NA

#### **Other Significant Information**

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 (23 different channels), Fox AZ, Fox Sports, KNXV, KTAZ (Telemundo Spanish), Telefutera and Univision (Phoenix and Yuma Spanish) and My45.
- Radio ads to promote the program ran on KTAR-AM, and Spanish stations KSUN, KHOT, KQMR, KOMR, KLNZ, KVVA, KNAI, KVIB and KCEC.
- Articles in: APS Lifestyles Newsletter for October (Residential Diagnostic), November (Ducts), December (Ducts). The e-newsletter featured the Residential Diagnostic measure in October.
- 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 EE and Renewable Energy (“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 EE 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.

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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.

#### **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 and has met both of these objectives.

APS's 2011 DSM Implementation Plan estimated that the EE 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 2,067 contractor rebates were paid through HPwES for completed and approved energy audits. The number of direct install components installed during this Reporting Period are as follows:
  - a. 1,240 1.5 gpm low-flow shower heads with a shower start valve.
  - b. 3,103 1.0 gpm faucet aerators.
  - c. 16,536 compact florescent bulbs.
- The APS HPwES program paid rebates for measures installed in 821 participating homes. This indicates that 39.7% 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 1,831, which averages about two rebates per home. Specifically, APS has paid:
  - a. 1,000 of the \$250 rebates for duct sealing and repair.
  - b. 165 of the \$250 rebates for the air sealing only.
  - c. 554 of the \$500 rebates for air sealing and attic insulation.
  - d. 112 of the \$250 rebates for shade screens.
- There are currently 80 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. Also, 200 hours of mentorship were completed to further aid in quality improvement and enhanced

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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 1,789 referral inquiries by telephone.
- There were 8,079 visits to the HPwES website from July – December 2011.

#### Evaluation and Monitoring Activities and Results

- Continued to review and update program Measure Analysis Spreadsheets and Analytic Database.
- Provided guidance on Home Performance components of the program design tool in support of the implementation plan.
- Reviewed program implementation data and provided preliminary MER updates to APS program managers.
- Initiated billing records analysis to determine possible impacts from audit only participants.
- Conducted interviews with Home Performance participants to determine customer satisfaction, actions taken, and process improvements.
- Began 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
Direct Install Low-Flow Showerheads with Shower Start	1,240	237	294	10	2,940	0.023	0.0
Direct Install Low-Flow Faucet Aerators	3,103	80	249	10	2,495	0.013	0.1
Direct Install CFLs	16,536	43	711	6	4,266	0.006	0.1
HPwES Duct Sealing	1,000	1,064	1,064	18	19,144	1.211	1.2
HPwES Air Sealing Only	165	1,654	273	13	3,548	0.904	0.2
HPwES Air Sealing and Attic Insulation	554	1,669	925	14	12,945	0.793	0.4
HPwES Shade Screens	112	1,852	207	10	2,074	1.318	0.1
<b>TOTAL</b>	<b>22,710</b>		<b>3,723</b>		<b>47,413</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 to EE.

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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

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 Implement	Program Marketing	Planning & Admin.	Program Total Cost
Res. Existing HVAC (AC Rebates & DTR)	\$3,458,280	\$74,135	\$70,224	\$714,342	\$99,383	\$42,718	\$4,459,082
HPwES	\$1,010,486	\$16,256	\$101	\$848,290	\$136,905	\$22,156	\$2,034,194
<b>Res. Existing HVAC Total</b>	<b>\$4,468,766</b>	<b>\$90,391</b>	<b>70,325</b>	<b>\$1,562,632</b>	<b>\$236,288</b>	<b>\$64,874</b>	<b>\$6,493,276</b>

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Res. Existing HVAC	\$693,484	\$20,858	\$714,342
HPwES	\$785,704	\$62,586	\$848,290
Res. Existing HVAC Total	\$1,541,774	\$196,276	\$1,738,050

#### 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 ran on Cox Cable, Fox AZ, Fox Sports, KNXV, KTAZ-TV (Telemundo Spanish), Telefutura and Univision (Spanish) from July to August and then again in November through December in 2011.
- "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 KMXP, KPKX, KNIX, KSLX, KESZ, KMLE, KOOL, KUPD in Phoenix, and sister stations in Coconino and Yavapai counties.



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- 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 included information on the HPwES and other APS Residential programs.

The aps.com homepage prominently features APS 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 EE standards. The program emphasizes the whole building approach to improving EE 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 EE 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 EE 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 EE upgrades will be sustained for the life of the home to produce cost-effective savings.

APS's analysis of this program, as filed in the 2011 APS DSM Implementation Plan, estimates that the EE 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 3,671 homes that are committed to being built to ENERGY STAR® program standards and to being built to the ENERGY STAR® Plus (HERS 70) program standards. At the end of this Reporting Period, there were 40 homebuilders and 147 subdivisions currently participating. The program currently includes ENERGY STAR® communities throughout the APS service territory including the Phoenix metro area, Yuma, Casa Grande, Florence, Prescott, Verde Valley, and Flagstaff.

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APS paid homebuilder incentives for 137 APS ENERGY STAR® homes at the first savings tier level, and 416 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 9,328 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

- Continued to review and update Residential New Construction Measure Analysis Spreadsheets and Analytic Database.
- Provided guidance on the Residential New Construction components of the program design tool in support of the implementation plan.
- Provided support on data requirements of the implementation tracking system to support MER needs.
- Finalized research to determine net-to-gross effects and market influence of the program.

#### 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 Per Home	Total MW Savings
APS Energy Star Homes	137	2,922	400	20	8,006	2.4	0.9
Second Tier - HERS 70	416	4,828	2,008	20	40,169	2.5	0.5
<b>TOTAL</b>	<b>553</b>		<b>2,409</b>		<b>48,175</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.

#### 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 its January - June 2008 Semi-

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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, resulting in 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	\$470,800	\$19,589	\$178	\$240,955	\$273,853	\$58,801	\$1,064,176

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Res. New Home Construction	\$0	\$240,955	\$240,955

#### Findings from all Research Projects

No findings to report at this time.

#### Other Significant Information

In recognition of the ongoing success of the APS EE program portfolio and the APS ENERGY STAR® Homes Program, APS was selected by the U.S. Environmental Protection Agency ("EPA") as a 2012 ENERGY STAR® Partner of the Year, 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 EE and whose organization is a national model of best practices in advancing EE. APS has now earned ENERGY STAR® awards for six 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, 2011, and 2012.

In January 2012, the national EPA ENERGY STAR® Homes program increased its minimum EE specifications. During this Reporting Period, APS continued to work to proactively position the Arizona market for the transition to ENERGY STAR® Version 3. APS has worked closely with participating homebuilders and home performance rating organizations to ensure that builders are ready to meet the new program standards. In October, APS participated in the Southwest Builder Show trade expo and met with builders, HERS raters, and other industry partners. APS also worked to schedule and plan a January 2012 event with the Homebuilders Association of Central Arizona ("HBACA") to discuss the new ENERGY STAR® Version 3 specifications and the benefits of building homes that meet the new requirements.

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.

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APS has been 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. APS hopes to incorporate the new materials into the builder workshops in 2012.

To better document program participation and the EE performance of participating homes under the new Version 3 specifications, APS is currently working with Pivotal Energy Solutions to develop a new homes program tracking database.

The APS ENERGY STAR® and Solar Homes program combines DSM and RE incentives to encourage builders to offer both EE 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 prerequisite 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:

- Added the Energy Scale to online marketing toolkit allowing builders to customize and upload their logo and plan information. The Energy Scale is designed 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.
- 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. APS is currently working on a new version of the sales book to better highlight the new features and benefits of Version 3 ENERGY STAR® Homes.
- 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 EE 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 – 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 components – 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 EE 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.

APS's analysis of the overall Consumer Products program, including both the CFL and pools elements of the program, estimates that the EE 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 per Year	Hours Per Year	Est. Measure Life (years)	Annual MWh Savings	Lifetime MWh Savings	kW Demand Savings	
1,933	1,631	7	33	10	876	6	52	312	4	
41,040	34,631	9	31	9	876	6	1,036	6,218	84	
6	5	9	36	11	876	6	0	1	0	
17,571	14,827	10	30	9	876	6	429	2,576	35	
5,626	4,747	11	29	9	876	6	133	797	11	
37	31	11	34	10	876	6	1	6	0	
1,223	1,032	11	39	12	876	6	39	233	3	
1,742	1,470	12	48	15	876	6	68	409	6	
302,058	254,889	13	47	14	876	6	11,565	69,388	937	
323,489	272,973	14	46	14	876	6	12,121	72,730	982	
10,890	9,189	14	51	15	876	6	452	2,715	37	
8,755	7,388	15	45	14	876	6	321	1,926	26	
40,720	34,361	15	50	15	876	6	1,659	9,951	134	
1,001	845	15	60	18	876	6	49	294	4	
99	84	16	44	13	876	6	4	21	0	
11,039	9,315	16	49	15	876	6	441	2,644	36	
16	14	18	52	16	876	6	1	4	0	
17,170	14,489	18	57	17	876	6	797	4,783	65	
40,627	34,283	19	56	17	876	6	1,853	11,120	150	
19,070	16,092	20	55	17	876	6	854	5,126	69	
278	235	20	65	20	876	6	15	88	1	
2,095	1,768	23	67	20	876	6	114	686	9	
127,296	107,417	23	77	23	876	6	7,985	47,907	647	
2,704	2,282	26	64	19	876	6	141	846	11	
205	173	26	69	21	876	6	12	69	1	
33,134	27,960	26	74	22	876	6	1,997	11,984	162	
6,081	5,131	27	73	22	876	6	362	2,170	29	
47	40	27	98	30	876	6	4	23	0	
93	78	29	121	37	876	6	9	55	1	
64	54	30	95	29	876	6	5	30	0	
1,228	1,036	32	118	36	876	6	118	708	10	
83	70	33	117	35	876	6	8	47	1	
1,142	964	42	108	33	876	6	100	603	8	
1,018,562	859,503						<b>SUBTOTAL</b>	<b>42,745</b>	<b>256,471</b>	<b>3,462</b>
							Line Loss Factors	7.0%	7.0%	11.7%
							Reserve Capacity Factor			15%
							<b>TOTAL</b>	<b>46,079</b>	<b>276,476</b>	<b>4,386</b>



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#### Levels of Participation

During this Reporting Period, the energy-efficient lighting element of the program resulted in sales of 974,099 CFLs through participating retail locations. In addition, APS distributed 44,463 CFLs during community events and consumer education seminars, for a combined total of 1,018,562 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 155 participating pool retailers, distributors, and pool builders. During this Reporting Period, a number of pump calibration training seminars were held with a total of more than 230 pool professionals trained. In addition, program representatives attended pool industry association meetings and conducted over 435 retail visits to inform pool professionals about the APS rebate program.

During this Reporting Period, the program provided rebates for 1,388 variable speed pool pumps, 17 dual-speed pool pumps, and 79 seasonal pool timers.

#### 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	1,388	0.46	4,036	10	5,602	56,020	639
2-Speed Pump	17	.16	1,445	10	25	246	3
Timers	79	.12	1,005	10	79	794	10
<b>Subtotal</b>					<b>5,706</b>	<b>57,059</b>	<b>651</b>
Line Losses					7.0%	7.0%	11.7%
Capacity Reserve							15%
<b>TOTAL</b>					<b>6,105</b>	<b>61,053</b>	<b>836</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	46,079	276,476	4,386
Pools	6,105	61,053	836
<b>TOTAL</b>	<b>52,184</b>	<b>337,529</b>	<b>5,222</b>

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#### Evaluation and Monitoring Activities and Results

- Continued to review and update CFL, Pool Pump, and Seasonal Pool Timer Measure Analysis Spreadsheets and Analytic Database.
- Provided guidance on Consumer Products Program components in the design tool to support the implementation plan.
- Continued research on Residential lighting run-time hour study. Updating the study to examine topics such as in-service rate, operating hours of specialty lamps and other factors.
- Initiated research on power consumption and runtime behavior of dual-speed and variable speed pumps, as well as seasonal timers to inform savings assumptions.
- Finalized research to determine net-to-gross effects and market influence for CFL component of the program.
- Initiated research to determine net-to-gross effects and market influence for pool components of the program.

#### 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 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	\$2,182,468	\$0	\$20,577	\$815,409	\$655,937	\$112,279	\$3,786,670
Pools	\$416,223	\$0	\$127	\$114,065	\$15,387	\$17,961	\$563,763
<b>Consumer Products Total</b>	<b>\$2,598,691</b>	<b>\$0</b>	<b>\$20,704</b>	<b>\$929,474</b>	<b>\$671,324</b>	<b>\$130,240</b>	<b>\$4,350,433</b>

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Consumer Products	\$898,384	\$31,090	\$929,474

#### 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

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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 (two 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:

- July 8, Home Depot #422, Payson
- July 13, Home Depot #423, Cottonwood
- July 13, APS Call Center training, Deer Valley
- July 15, APS Call Center training, Phoenix
- July 15-17, Diamondbacks games, Phoenix
- July 21, Latino Institute Back to School Fair, Phoenix
- July 23, Home Depot #421, Flagstaff
- August 5-7, Maricopa Home and Garden Show, Glendale
- August 6, Creative Energy Fair, Prescott
- August 11, Mercury Game, Phoenix
- August 18, IPSSA (Independent Pool Pros) Meeting, Mesa
- September 2-5, Coconino County Fair, Flagstaff
- September 16, ROC Presentation, Phoenix
- September 17-19, Best Fest, Prescott
- September 30-October 2, Maricopa Home and Garden Show, Phoenix
- October 2, Desert Botanical Garden, Phoenix
- October 8, Home Depot #401, Phoenix
- October 9, Tempe Tardeada, Tempe
- October 14, Home Depot #423, Cottonwood
- October 15, Home Depot #446, Prescott Valley
- October 17, IPSSA Meeting, Scottsdale
- October 18, IPSSA Meeting, Phoenix
- October 19, IPSSA Meeting, Phoenix
- October 20, IPSSA Meeting, Mesa
- October 20, National Bank of Arizona Info Fair, Phoenix
- October 21, Arizona Solar Challenge, Yuma
- October 22, Arizona Humanities Festival, Phoenix
- October 22, Chili Cook Off, Parker

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- October 23, Festival Telemundo, Phoenix
- October 27, USAA Green Out Day, Phoenix
- October 27, City of Phoenix Energy Awareness Day, Phoenix
- October 29, ASU Football Game, Tempe
- October 29, Westbrook Village Home and Garden Show, Peoria
- November 2, Home Depot #482, Flagstaff
- November 5, Scottsdale Air Fair, Scottsdale
- November 5-6, Scottsdale Home and Garden Show, Scottsdale
- November 13, Stonegate Arts and Crafts Show, Scottsdale
- November 14, Lowes, Show Low
- November 15, Home Depot #441, Avondale
- November 18, APS retirees luncheon, Phoenix
- November 19, Home Depot #488, Phoenix
- December 2, Parade of Lights, Phoenix
- December 2-3, Phoenix Urban Expo
- December 3, US Army Reserve, Buckeye
- December 10-11, Carefree Christmas Fest, Carefree
- December 28, Home Depot #472, Scottsdale
- December 29, Home Depot #464, Phoenix
- December 30, Home Depot #480, Phoenix

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 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](http://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.

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- 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.
- Conducted a summer campaign with the APS call center to inform associates about energy efficient pool pumps and provide them with a letter that they could send to prospective customers with pools who were interested in the pools program.
- Worked on customer segmentation research study to better target customers likely to participate in specific EE programs and develop better, more specific messaging which targets each customer segment.
- Working to develop new lighting program educational materials to help consumers understand the new Federal government lighting standards that will take effect in 2012 through 2014.

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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 it in, 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 an incentive to remove their old, inefficient appliances from the grid.

APS customers with an old operating extra refrigerator can receive a \$30 rebate with free pick up service at the customers' convenience that can be scheduled either online at [aps.com/turnitin](http://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 APS Refrigerator Recycling Program began on February 1, 2010. This program was approved by Decision No. 71444, December 23, 2009. The primary focus for 2011 has been on program awareness and marketing. The marketing strategy emphasizes education to the customer about the inefficiency of their second working refrigerator or freezer, the \$30 rebate, and the free pickup service provided.

As a result of creating 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, 20 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 the 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).
- 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**

No program/measures were modified during this time.

##### **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.

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The program goal is to recycle 10,000 units in 2011. APS's 2011 DSM Implementation Plan estimates that the EE savings expected to result from the Refrigerator Recycling Program could reduce peak demand by approximately 1.6 MW and 66,000 MWh 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 recycled 5,269 refrigerators and freezers, and paid \$158,970 in incentives to customers. Units were picked up across APS's service territory statewide. Year-end volume totals came in at 94% of target, which was very close to the 10,000 unit goal.

JACO Environmental entered into a partnership with Sears in November 2010. The purpose of the agreement was to add value and convenience to customers when they purchase a new refrigerator or freezer. At the point of sale, the customer will receive a special sticker to place on their old unit providing the ability to track APS 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 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 the stickered refrigerators and freezers once a week for recycling and processing. During this Reporting Period, APS recycled 122 units picked up through Sears.

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

- Continued to review and update program Measure Analysis Spreadsheets and the Analytic Database.
- Provided guidance on Appliance Recycling Program components in the design tool to support the implementation plan.
- Continued review of the implementation program tracking database.
- Initiated research to determine customer satisfaction, hours of use, and process improvements.

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#### 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	4,641	1,522	7,064	6	42,382	0.2	1.0
Freezers	628	1,447	909	6	5,452	0.2	0.1
<b>TOTAL</b>	<b>5,269</b>		<b>7,972</b>		<b>47,834</b>		<b>1.2</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 occasionally comment about the fact that the program doesn't pickup 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 extended.

#### 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
APS Refrigerator Recycling	\$158,970	\$0	\$0	\$423,787	\$124,322	\$25,134	\$732,213

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Refrigerator Recycling	\$413,417	\$10,370	\$423,787

#### Findings from all Research Projects

No findings to report at this time.

#### 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:



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- Newspaper advertising (English/Spanish)
  - Billboard advertising
  - July and September bill inserts
  - July, August and October newsletter articles
  - E-mail newsletter (September)
  - Radio advertising (English/Spanish)
  - Messaging on Telemundo, Univision, and Dispierta
  - Taped television segment for Sonoran Living Show
  - Filmed segment for ABC 15 News Smart Shopper (aired December)
  - Refrigerator magnets for community events
- Newspaper ads ran several times monthly in the following publications:
    - Prensa Hispana (Spanish)
    - Prescott Daily Courier
    - Yuma Sun
    - Flagstaff Arizona Daily Sun
  - Based on customer feedback, APS has developed and implemented a process that provides 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).

The process formally rolled out in July where language was added to the call center scripts and on the web page where customers set up their appointments. Also, the donation language was added to APS's bill insert to increase education and awareness of both programs. On average, 1% of participating customers (117 customers) donated their rebates for a total of \$3,510 donated to the Salvation Army in 2011 from this program.

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 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 that 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, is 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 were no program modifications to report this Reporting Period.

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

This program was approved by the ACC in Decision No. 71950, November 1, 2010 and launched with the first reports arriving in Pilot participant mailboxes in mid-May 2011. The program objective is to use scientifically proven normative messaging techniques to motivate program participants to save energy by changing their energy use behavior.

APS's 2011 DSM Implementation Plan estimated that the EE savings from the Behavioral Program could reduce peak demand by approximately 3.4 MW and save 25,000 MWh. Actual results indicate 1.5 MW and 12,580 MWh saved in this six-month Reporting Period.

##### **Programs Terminated**

No programs were terminated during this Reporting Period.

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

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

Two hundred and thirty-seven (237) participants have opted out of the program in this Reporting Period.

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#### Evaluation and Monitoring Activities and Results

- Continued to review and update program Measure Analysis Spreadsheets and the Analytic Database.
- Provided guidance on the Residential Behavioral components of the program design tool to support the implementation plan.
- Initiated analysis of hourly interval consumption data to determine energy and demand impacts from program participants.
- Conducted interviews with program participants to determine customer satisfaction.

#### MER Adjusted Gross kW and kWh Savings

Program	Number of Participants	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
Conservation Behavior	72,716	173	12,580	1	12,580	0.02	1.5

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 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	\$193,440	\$0	\$36,742	\$230,182

DSM Program	Implementation (Contractor)	Implementation (APS)	Tax Reimbursement*	Program Implementation
Conservation Behavior	\$208,600	\$4,362	-\$19,522	\$193,440

\* The tax reimbursement column includes the total footnoted in the January through June 2011 Progress Report (\$10,922) and an additional \$8,600 charged and then reimbursed in this Reporting Period. Both reimbursements were made in this Reporting Period.

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

A telephone survey was conducted among 282 customers who received the APS home energy report to gauge the impact of the reports. Significant findings include:

- About half (49%) of program recipients say the report provided new ideas on saving energy. Some energy ideas mentioned include using energy during off-peak hours, weather stripping, adjusting thermostat settings, and changing household energy usage habits.
- Over a quarter (26%) of customers indicate that they visited the [aps.com](http://aps.com) website as a result of receiving the report; the majority do so to get more detailed information about their energy usage and information about energy savings.

#### **Other Significant Information:**

##### **Participant Reduction:**

There is a variety of reasons for which the number of program participants is reduced in a given month including closed (inactive) accounts, opt outs, rate conflicts and returned mail. Of these different methods, closed (inactive) accounts comprises 3.69% of the total program participant reduction in this Reporting Period. Opt outs account for 0.31% of the total program participant reduction.

##### **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 the wide array of 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 is helping to increase participation in other efficiency programs by up to 25%. The realized impact of this increased participation in other programs will be identified as part of the one-year Pilot evaluation report.

##### **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 e-mailed reports) and has the opportunity to interact further using the web portal. Twenty-four customers opted to receive the reports via e-mail in this Reporting Period. 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 that encourages EE improvements in multifamily complexes within the APS service territory. The MEEP received ACC approval on January 6, 2011 in 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 will receive enough CFLs, low flow showerheads, and faucet aerators to retrofit every community dwelling. Facility personnel, with implementation contractor field support, will conduct all direct install installations.
- Track 2 will utilize 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® 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 peak demand and overall energy consumption 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 energy savings goals in the APS EE program portfolio.

The MEEP first year program goal is to enroll 5,240 total participants. This number includes 5,000 dwelling retrofits and 240 new construction/major renovation dwellings.

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The MEEP 2011 energy savings targets are as follows:

Annual Coincident Peak Demand Savings*	577 kW
Annual Energy Savings	3,978 MWh
Lifetime Energy Savings	35,826 MWh
<i>*Including line losses and reserve margin</i>	

#### Programs Terminated

No programs were terminated during this Reporting Period.

#### Levels of Participation

Direct Install participation in 2011 was strong. A total of 37 multifamily properties from all corners of the APS service area participated accounting for over 4,900 apartment dwellings. A total of 55,301 CFLs, 6,129 faucet aerators, and 3,937 showerheads were installed in multifamily dwellings.

The New Construction/Major renovation program also received strong interest. Outreach efforts identified multifamily projects underway and slated for completion in 2012. No projects were rebated in 2011, however, several of the projects identified are enrolled to participate in the program in 2012.

#### Evaluation and Monitoring Activities and Results

- Continued to review and update the program Measure Analysis Spreadsheets and Analytic Database.
- Provided guidance on MEEP components of the program design tool in support of the implementation plan.
- Initiated a review of the implementation program tracking database.
- In process of conducting customer and trade ally research to determine market influence of the program.

#### 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 Demand MW Savings
CFLs	55,301	43	2,367	6	14,201	0.006	0.33
Showerheads	3,937	238	935	10	9,352	0.02	0.09
Faucet Aerators	6,129	81	498	10	4,984	0.01	0.08
BOP 1	0	1,029	0	20	0	0.37	0.00
BOP 2	0	1,354	0	20	0	0.45	0.00
BOP 3	0	1,473	0	20	0	0.60	0.00
BOP Renovation	0	1,395	0	20	0	0.36	0.00
<b>Total</b>	<b>65,367</b>		<b>3,800</b>		<b>28,537</b>		<b>0.50</b>

The final savings are adjusted for line losses (energy 7.8%, demand 11.7%) and a capacity reserve factor of 15%.

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#### 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

NA

#### 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
Multifamily EE Program	\$213,975	\$1,150	\$101	\$534,762	\$4,204	(\$107,908)	\$646,284

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Multifamily EE Program	\$458,460	\$76,302	\$534,762

In the first half of 2011 implementation costs were incorrectly posted to program administration. During this Reporting Period, these costs were transferred back to implementation. This correction resulted in a negative program administration balance for the period.

#### Findings from all Research Projects

NA

#### Other Significant Information

MEEP marketing and consumer education efforts for this Reporting Period include:

- Distribution of a MEEP and MEEP New Construction brochures at community events.
- Direct Call outreach was utilized to get program messaging out in the market place and to secure many of the program's first participants.
- Maintained a presence on aps.com to give customers a point of reference for all program information.
- Provided customer educational leave behind materials promoting EE in all dwellings that were retrofitted.
- MEEP presentations at community events include but were not limited to the Arizona Housing Alliance, the Arizona Multi-housing Association, and the Surprise Coalition.

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

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

##### **Description**

The Shade Tree program provides free shade trees to APS's Residential customers that have attended an APS Shade Tree workshop. The tree planting workshop educates customers on successful tree planting and care techniques, and provides a customer specific site map indicating the ideal EE tree planting location(s) to help reduce customer cooling needs. 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 attend an APS Shade Tree workshop.

##### **Program Modifications**

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 (per Decision No. 72060), 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 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 was to distribute 5,000 trees in 2011. APS's 2011 DSM Implementation Plan approved by the ACC, in Decision No. 72215, estimated that the EE savings expected to result from the Shade Tree Pilot Program could reduce peak demand annually by approximately 0.40 MW and save 18,000 MWhs over the life of the measures installed in 2011. In this Reporting Period, APS distributed 5,203 trees realizing 0.47 MW and 21,072 MWh saved over the life of the measure.

##### **Programs Terminated**

No programs/measures were terminated during this Reporting Period.

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

During this Reporting Period, APS distributed 5,203 trees (5,718 trees in 2011) to Maricopa County Residential customers.



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#### Evaluation and Monitoring Activities and Results

- Continued to review and update the program Measure Analysis Spreadsheets and Analytic Database.
- Provided guidance on the Shade Tree components of the program design tool to support the implementation plan.
- Performed on-site inspections at program participant properties to determine compliance with suggested program planting requirements, and to inform impact analysis.
- Conducted an on-line survey with program participants to support impact analysis, assess customer satisfaction, and identify process improvements.

#### MER Adjusted Gross kW and kWh Savings

DSM Program	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	5,203	135	702	30	21,072	0.09	0.47

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 were 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	\$39,353	\$0	\$244	\$136,018	\$9,906	\$6,964	\$192,485

DSM Program	Implementation (Contractor)	Implementation (APS)	Program Implementation
Shade Trees	\$111,793	\$24,225	\$136,018

#### Findings from all Research Projects

No findings to report at this time.

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#### Other Significant Information

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

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 one bill message for metro Phoenix zip codes
- Contractor messaging to their member groups
- Local area sustainability program newsletter publications
- Press release to west valley small market newspapers
- Targeted direct mail campaign to limited income customers
- Flyers sent home with students of Academia Del Pueblo School (event site)
- Short video segment on Cronkite News.

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).

In this Reporting Period, APS hosted five summer workshop series at various locations throughout the metro Phoenix service territory. These customers completed the workshop requirement at these events and then visited the fall events to pick up their trees. Trees were not distributed at summer events to maximize the survivability of the trees. Not all of the summer participants returned to pick up their trees in the fall.

In the fall, APS hosted six events that included both the workshop and the tree distribution. These workshops were held at various locations throughout the metro Phoenix service territory.

One event, held at the Academia Del Pueblo school site, was a joint marketing partnership with the E-3 Limited Income Rate and included three workshop options, two in Spanish and one in English, to ensure program access to all eligible customers. All workshop and event materials (including forms, signs, curriculum, etc.) were available in English or Spanish. The E-3 rate was promoted at the

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beginning of each workshop. Five hundred and seventy-nine trees (579 out of 5,203 in this Reporting Period) were distributed at this event.

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#### **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 were made during 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 electric bills 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 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 expected to be installed.

##### **Programs Terminated**

No programs were terminated during this Reporting Period.

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

A total of 1,359 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	575
Health and Safety	0
Repair and Replace	4
Weatherization	780
<b>Total</b>	<b>1,359</b>

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#### **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 Governor's Office of Energy Policy ("OEP"), (formerly the Arizona Commerce Authority Energy Office) with information from APS, is analyzing the electric energy used in weatherized homes before and after the weatherization measures are implemented. It takes a year of data before the weatherization and another year of data after the weatherization to get an accurate gauge of the impact of the measures. As the data base grows over time, a more accurate picture of the impact of the weatherization activities will emerge.

Information from the OEP report for fiscal year 2011, submitted January 2011 is provided below:

#### **Utility Bill Analysis**

An analysis of 235 homes has been completed from July 2007 through January 2011, utilizing APS, Tucson Electric Power, Unisource Gas and Electric and Southwest Gas utility data. 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 1,355 households participating in the program, a total of 780 homes received weatherization services that contributed to the energy savings.

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No. of Homes	Annual kW Savings	Annual kWh Savings	Lifetime kWh Savings
780	234	2,226,120	38,957,100

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

The kW factor used to calculate the savings are based on data from the OEP 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 OEP 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, spending for the Energy Wise Low Income Weatherization Program is included in APS's total DSM spending.

#### **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 the current Reporting Period are listed below:

Activity	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin.	Program Total Cost
Bill Assistance	\$50,805	-			\$122	\$21,065	\$71,992
Health & Safety		-	-	-	-	-	\$0
Repair and Replace	\$7,266	-	-	-	-	-	\$7,266
Weatherization	\$2,081,979	\$11,981	\$148		\$355	\$39,460	\$2,133,923
Third Party Manager - Arizona Community Action Association	-	-	-		-	-	\$0
APS Program Support	-	-	-		-		\$0
<b>Total</b>	<b>\$2,140,050</b>	<b>\$11,981</b>	<b>\$148</b>	<b>\$0</b>	<b>\$477</b>	<b>\$60,525</b>	<b>\$2,213,181</b>

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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.

#### 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	3
Water Heaters	0	1

#### 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 December 30, 2011, the Navajo Nation Weatherization contract was still unsigned representing a total of \$69,554 of unobligated weatherization funds out of a total of \$1,444,000. Additionally, the agencies are still focused on spending American Recovery and Reinvestment Act funds before they run out in March 2012.

Program marketing efforts included:

- Weatherization outreach and field visits to participating CAP offices
- Presentation at Southeastern Arizona Limited Income Summit, Naco, Arizona, November 7, 2011
- Completed three multifamily projects, Fillmore Gardens in Phoenix, Eloy Village in Eloy, and Stone Creek Village Apartments in Phoenix.
- Presentation at Arizona United Way's Statewide Conference in Flagstaff, August 26, 2011

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#### **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 EE 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 EE 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 EE of their facilities.

##### **Program Modifications**

APS made the following implementation changes based on the approval of new measures per the ACC orders cited below.

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 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 high-efficiency washing machines to the prescriptive program.

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

- Promote and support EE 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 EE 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.



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#### Programs Terminated

No programs were terminated during this Reporting Period.

#### 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 \$6,439,247 in Large Existing program incentives. This represents a total of 705 active applications from 262 unique customers and includes projects implemented through Direct Install. Payments to School Districts and charter schools comprised 19 of the 705 applications.

Incentive Status by Fund for Active Applications	Incentives Paid
Large Existing – Prescriptive & Custom	\$6,389,485
Large Existing – Studies	\$29,762
Large Existing – Retrocommissioning Studies	\$20,000
<b>Total Large Existing Funds</b>	<b>\$6,439,247</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 to report the semi-annual and cumulative results of its program-to-date. During this Reporting Period, APS paid a total of \$49,762 for 11 study applications from 9 customers. Three of the 11 studies have already resulted in implementation of the associated measures. Since the program's inception, 187 studies have been completed. Of those 187 studies, 89 have resulted in EE project applications to date.

#### Self-Direction:

On January 23, 2009, the Commission issued Decision No. 71444, which approved Self-Direction.

In this Reporting Period one (1) customer participated in Self Direction. The installed measure was metal-oxide coated titanium anodes to replace conventional lead-tin-calcium alloy anodes for use in electrowinning tankhouse for a copper mining process. The entire project entails replacing all 2,548 lead anodes with catalyst-coated titanium anodes. This phase of the project entailed replacing 35 of the 52 cells within the tankhouse (1,715 anodes).

The total cost of this phase of the project was \$1,194,750. Since this change out was done solely for the purpose of saving kWh's and did not need to be changed out due to a replace on burnout situation, the incremental cost of the project is equivalent to the project cost.

Total Project Cost: \$1,194,750  
Incremental Cost: \$1,194,750  
Energy Savings: 1,593,808 kWh  
Demand Savings: 184 kW  
Environmental Savings (generation-side): 10,961 tons CO2  
Water Savings: 5,570,359 gallons

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There are also considerable environmental savings as a result of this project that will occur at the project site and have not been considered in this analysis. The removal of lead from the process allows for the elimination of cobalt addition (used to stabilize manganese in the electrolyte), greatly reduced waste-treatment (and water usage) downstream, and also eliminates harmful lead exposure to employees who operate the facility.

#### **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, 285 Direct Install projects for Large Existing Facilities were paid a total of \$1,318,924 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**

- Conducted ongoing review and analysis of participation database.
- Continued to review and update the Non-Residential Measure Analysis Spreadsheets and Analytic Database
- Provided guidance on Large Existing components of the program design tool to support the implementation plan.
- Reviewed and provided feedback on customer applications for the Bid for Efficiency Pilot.
- Conducted data mining of historic program implementation data to support market influence research.
- Completed research on retrocommissioning ("RCx") best practices and conducted interviews with RCx training participants.
- Initiated impact and process research on efficient motor rewind offering.
- In process, customer and trade ally research to determine 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
10,006	62,106,436	848,089,699

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%.

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### 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 this period.

### 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	\$6,439,247	\$111,689	\$1,528,125	\$7,585	\$209,876	\$150,698	\$8,447,220

\* 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 and program are:

DSM Program	IC- Implementation	IC- Marketing	IC- Education	IC- Technical Services	IC- Total Cost
Large Existing	\$1,528,125	\$209,876	\$7,448	\$111,689	\$1,857,138

### 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 a Benchmarking with ENERGY STAR<sup>®</sup> training; maintained active participation on Green Building Committee; and sponsored BOMA's Kilowatt Krackdown (ENERGY STAR<sup>®</sup> portfolio manager program) promotion.
- Participated in exhibit at Arizona League of Cities and Towns.
- Arizona Hotel & Lodging Association – presented at annual conference.
- 24/7 (IT-focused association) – delivered a presentation and served on local board
- Valley Forward – participated in meetings; staff to serve as 2012 Energy Committee co-chair.

**1. Trade Ally Network:** Trade allies are contractors and other industry professionals who deliver EE solutions to customers. The program incorporates 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.

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As a result of the program's focus on trade ally development and recruiting efforts, 41 new trade allies (companies) were approved during this Reporting Period; 73 were dropped for lack of participation. At the end of this Reporting Period the program had a total of 309 trade allies (companies).

#### **Trade Ally Outreach**

The Trade Ally program continues to generate interest from a variety of industry professionals. These professionals must attend a training meeting to learn about the Solutions for Business program and the benefits of becoming a program trade ally. This meeting is offered free of charge, as are "Office Hours," which represent designated hours set aside every two weeks so that contractors can drop-in for assistance with applications.

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 provided program updates, links to useful program information and information on upcoming events and training opportunities.

Additional trade ally development opportunities centered on technical support to new and existing trade allies with an enhanced focus on encouraging program participation, increasing program knowledge and improving the quality of incentive applications submitted by trade allies. To further promote quality improvement of the member applications submitted, a Prescriptive Application Training class was added.

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 regularly refreshed the Trade Ally Web portal with updates to information available on the portal. Training presentations, news updates and other announcements are posted on the portal.

#### **Trade Ally Events**

##### Participation in Trade Ally-Hosted Events

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

July	USGBC (United States Green Building Council) Meeting, 40 attendees Trade Ally Orientation, 11 attendees Solutions for Business Trade Alley scrub – Removed 73 Trade Allies from the program for non-participation
August	Bid for Efficiency meeting with Midstates Energy, 8 employees ESSCO Wholesalers, Trade Ally Orientation, 6 employees
September	Air Conditioning Contractors of America Trade Ally Orientation and Prescriptive Application Training, 13 contractors Trade Ally Orientation 17 attendees

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October	Trade Ally Orientation and Prescriptive Application Training, ATS, 28 employees Prescriptive Application <i>Training</i> 11 attendees Illuminating Engineering Society Chapter Lunch - Program overview, 50 attendees Trade Ally Orientation, 15 attendees Graybar Tradeshow 200+, attendees hosted booth Prescriptive Application <i>Training</i> , 7 attendees
November	International Facility Managers Association Mixer Customers, 50+ attendees National Association Energy Services Companies ("ESCOs") Conference, ESCOs, TA, Industry, 250 attendees <i>Trade Ally Orientation</i> , 11 attendees Trane – Retro Commissioning discussion, 5 attendees Go Green Conference, 200 + customers, hosted booth <i>Prescriptive Application Training</i> , 12 attendees Steering Committee meeting, 5 Trade Allies in attendance
December	REEis, Trade Ally Orientation, 2 employees Energy Systems Desgin Open house, customers and contractors, 150+ attendees <i>Prescriptive Application Training</i> 7 attendees Touch Green meeting on program, 4 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 applicable 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) – Green Resource web page
  - Arizona School Board Association Journal
  - Arizona Real Estate Magazine (AZRE)
  - Electric Times
  - HVACR Today (Heating, Ventilation, Air Conditioning and Refrigeration)
  - Flagstaff Business News
  - Phoenix Business Journal
  - Restaurateur Magazine
  - TechConnect
  - Valley Hotel and Resort Association (VHRA) Quarterly Newsletter
- Program information was provided in two issues of APS's Success Newsletter billing insert (October and December) during this Reporting Period.
- Customer awareness and interest were raised through a check presentation event at the City of Chandler in July.

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- A new website tool was implemented using the Street of Rebates illustration to provide customers ideas for energy savings by market segment and linked directly to the technology or market segment page online for further information.
- To assist customers and contractors in accessing the status of their rebate application, a new online tool called the Rebate Status Tool was developed and launched in September.
- Evites promoting training workshops and event were created and distributed to customers and members of the Trade Ally program.
- Program marketing materials and event display items were rebranded to bring the print collateral and exhibit materials into compliance with new APS brand standards.
- Two new case studies were developed promoting incentives for data centers and new office buildings.

#### **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 beneficial to their specific business.

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.

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:

- July 6 – United States Green Building Council Energy Modeling, three-part series (40 attendees)
- July 14 – Governor's Conference on Tourism
- July 20-22 – Arizona Association of School Business Officials (AASBO) (exhibit)

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- August 11 – Arizona Manufacturing Council/Arizona Chamber of Commerce Environmental Summit (exhibit and presentation)
- August 17 – Collaborative for High Performance Schools (CHPS) (participated in educational workshop)
- August 30-31 – League of Cities
- September 1 – Association for Construction Excellence Annual Dinner (100 people)
- September 23 – Aging Services Annual Fundraising Event (50 people)
- September 14 – Arizona Tech Summit (presenter)
- September 27– Scottsdale Area Chamber of Commerce (booth exhibit)
- October 6 – Illuminating Engineers Society Chapter Luncheon (presenter, 50 attendees)
- October 18 – Graybar Tradeshow (exhibitor, 200+ attendees)
- October 22 – American Institute of Architects Annual Awards Program (judge)
- October 27 – International Facility Managers Association World Workplace Expo (exhibit, 200+ attendees)
- November 1-3 – International Codes and Compliance Codes and Standards Conference
- November 15 – Go Green Conference (exhibit, 200 attendees)
- November 17 – Governor's Celebration of Innovation (exhibit, 200+ attendees)
- December 6 – 7X24 Member Program (presenter, 30 attendees)
- December 14-16 – Arizona School Boards Association (ASBA) Conference (exhibit, 300+ attendees)

#### **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 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 two trainings that occurred during this Reporting Period. Attendance remained strong during this Reporting Period with many repeat attendees.

The two classes held during this Reporting Period attracted 187 attendees:

- September 15 – Custom Solutions (98 attendees)
- October 19 and 20 – Energy Modeling with eQUEST (89 attendees)

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Materials were developed for each training session, including class materials on CDs for participants, class evaluations, invitation fliers, and certificates of completion. Electronic invitations and registrations links were sent to the program's contact list, the Association of Energy Engineers (AEE) member list, the OEP 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:

- Building Owners & Managers Association – Benchmarking with ENERGY STAR®
- Air Conditioning Contractors of America– Professional Air Conditioning Technician Certification
- Association of Energy Engineers (AEE) – Certified Energy Manager series
- IKOLOJI-Sustainability Collaborative – Sonoran Sustainable Building Advisor Program

APS held a full day training course for the revised HVAC Tune-up incentive. In addition, the program hosted a technical training on the Stargate testing device.

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 limited participation. APS will continue to search out educational efforts that support market transformation among both the public and the trades.

### **BID FOR EFFICIENCY PILOT**

#### **Description**

The Bid for Efficiency measure is designed to bridge any gaps of the current Solutions for Business program offerings and customer project initiatives. This Reporting Period was used to meet with potential bidders and introduce the program, issue a Request for Proposal (RFP), review incoming proposals and, finally, select winning bids. The period ended with contracts for the winning bidders being reviewed by technical and legal staff before finalizing; the projects should receive notice to proceed in early 2012.

#### **Program Modifications**

No modifications to Bid for Efficiency.

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

- Maximize the energy savings that can be attained with available DSM funds by providing incentives to innovative, comprehensive projects that found significant participation barriers in the classic program.
- Provide educational and training materials to facility managers and trade allies in order to aid in the development of proposals.
- Promote new, cost-effective energy savings for Solutions for Business based on realized energy-savings measurements.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.



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#### **Levels of Participation**

In this Reporting Period, one bid period was held. The bid package was released September 6, 2011, and a bidder's meeting held September 13, 2011. Thirty-one individuals attended in person or by webinar. This was followed by an e-mail distribution of all submitted and verbal questions to date. The deadline for submissions was October 7, 2011. Of the total 15 proposals received, 5 were selected for a Best & Final interview and four were notified of their selection. An additional proposal was offered acceptance with modifications; this negotiation continues as of the time of this filing.

The winning bids will be under contract to the Solutions for Business program to deliver a total of 2,915,000 kWh in savings at a specified cost that ranges from \$0.099 to \$0.105 per kWh. The Pilot program allows two years to complete the projects and verify savings.

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

A Request for Information (RFI) was released to gather information for the formal RFP. The findings helped to reword sections to clarify meanings and requirements in the document.

#### **Other Significant Information**

N/A

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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 EE 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 EE 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 EE 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 expected to be installed in 2011.

**Programs Terminated**

No programs were terminated during this Reporting Period.

**Levels of Participation**

The majority of new construction and major renovation projects under way are choosing the Whole Building application. Many of these new projects are highly energy efficient and will receive significant incentives. In this Reporting Period, APS paid a total of \$1,054,735 in New Construction incentives. This represents 31 applications from 20 unique customers. None of the 31 applications were from school districts.

<b>Incentive Status for Active Applications</b>	<b>Incentives Paid</b>
Large New Construction – Prescriptive & Custom	\$1,018,735
Large New Construction – Studies	\$36,000
<b>Total Large New Construction Funds</b>	<b>\$1,054,735</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, three design assistance studies were paid a total of \$26,000, and one commissioning study incentive was paid a total of \$10,000. One of

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these four applications has resulted in EE projects to date. Since program inception, 44 studies have been completed. Of those 44 studies, 25 resulted in applications for EE projects.

APS Solutions for Business launched the Whole Building incentive in January 2010. During this Reporting Period the program received 11 Pre-Notification applications and four Whole Building projects were paid incentives.

#### Evaluation and Monitoring Activities and Results

- Conducted ongoing review and analysis of the participation database.
- Continued to review and update the Non-Residential Measure Analysis Spreadsheets and Analytic Database.
- Provided guidance on New Construction components of the program design tool to support the implementation plan.
- Conducted data mining of historic program implementation data to support market influence research.
- In-process customer and trade ally research to determine 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

kW Savings <sup>1</sup>	Annual kWh Savings	Lifetime kWh Savings
1,642	11,143,095	175,564,212

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	\$1,054,735	\$53,145	\$231,617	\$1,160	\$79,911	\$31,886	\$1,452,454

\* 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	\$231,617	\$79,911	\$1,160	\$53,145	\$365,833

#### 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 agreed to sponsor 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 the APS training program and marketing opportunities.

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 contacts with the contractor and design community, but new construction project starts have slowed and are primarily centered in the government, higher education and K-12 sectors at this time. Currently a pipeline of 25 new construction projects is being maintained. 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, the Building Owners and Managers Association (BOMA) and Leading Age (formerly Aging Services) meetings. This attendance is an important component of lead development for future projects, which could qualify for design assistance and other program incentives. It also helps to identify and recruit potential trade allies into the program.

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- 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 50 professionals to discuss program details and to identify potential energy-efficiency 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 EE improvements in lighting, HVAC, motors and refrigeration applications through a simple and straightforward mechanism for program participation. Small Business customers are also eligible for custom incentives to implement EE 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 EE 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 offerings. 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 EE 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 EE 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 EE 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 \$1,169,895 in Small Business program incentives, an increase of over 40 percent compared to the same period in 2010. APS paid incentives on 537 applications from 494 unique customers during this Reporting Period, an decrease of 8 percent compared with the number of Small Business program applications processed during the second six months of 2010.

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Of the 537 small business projects paid, 85 were conducted through the Classic prescriptive/custom program and 408 were conducted through Direct Install. Three of the 537 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	\$1,165,595
Small Business – Studies	\$4,300
Small Business – Retrocommissioning Studies	\$0
<b>Total Small Business Funds</b>	<b>\$1,169,895</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 EE projects.

### Direct Install

Direct Install incentives were paid on 408 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 408 projects paid to small businesses, an additional 286 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 21,700 MWh annually or 303,400 MWh over the lifetime of the measures. This is a 36 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 from approved contractors has remained consistent. During this Reporting Period, 27 approved contractors participated in Direct Install, an increase of 4 percent compared to the second six months of 2010. Contractors participating during the current Reporting Period include the following:

ACCEL ELECTRIC AZ LLC  
ACCEL ELECTRIC INC  
ATS ELECTRIC, INC.  
BURDEN ELECTRIC LLC  
DAK ELECTRIC  
DECA SOUTHWEST

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DEMAND DROP  
ECO POWER, LLC  
G & A SERVICES LLC  
GREEN FUEL TECHNOLOGIES  
GREENLIGHT ELECTRIC LLC  
HARMON ELECTRIC INC  
IES COMMERCIAL  
INLINE ELECTRICAL RESOURCES  
J & S ELECTRIC LLC  
JFK ELECTRICAL CONTRACTING  
KER ELECTRIC, INC  
LONE MOUNTAIN ELECTRIC LLC  
NUWEST TECHNOLOGIES INC  
REGROUP PERFORMANCE CONTRACTING LLC  
STONE KAT DEVELOPMENT  
SUPERMARKET ENERGY TECHNOLOGIES  
TEPCON CONSTRUCTION  
THE SIGNERY  
THUNDERBIRD MOUNTAIN FACILITIES  
US ENERGY SERVICES INC  
WILSON ELECTRIC SERVICES CORP

There were no new contractors added to the Direct Install contractor listing during this Reporting Period.

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

A total of 694 Direct Install projects were paid incentives during this Reporting Period.

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

During this Reporting Period, \$2,418,060 in Direct Install incentives was paid to contractors. This represents 70% 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 \$3,432,326. Customers paid \$1,014,267 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	20,063
T8 Lighting	15,649
Screw-in CFL	364
Occupancy Sensors	1,008
Exit Signs	871
Refrigerated Case Fan Motors	2,619
Anti Sweat Heater Controls	1,175
Refrigerated Novelty Case Controls	42
Refrigerated Case Evaporator Fan Controls	431
Hard-Wired CFL	9,779
Occupancy Sensors - Vending Machines	49

**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>
4,816	21,796,949	303,440,601

**Year to Date**

<b>kW Savings</b>	<b>Annual kWh Savings</b>	<b>Lifetime kWh Savings</b>
9,789	42,181,275	594,541,627

**Program-to-date**

<b>kW Savings</b>	<b>Annual kWh Savings</b>	<b>Lifetime kWh Savings</b>
16,196	72,169,509	1,078,495,650

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

<b>Direct Install Cost</b>	<b>Rebates &amp; Incentives</b>	<b>Training &amp; Technical Assistance</b>	<b>Consumer Education</b>	<b>Program Implementation</b>	<b>Program Marketing</b>	<b>Planning &amp; Admin</b>	<b>Subtotal</b>
Period Jan-June 2011	\$2,418,060	\$5,856	\$0	\$296,379	\$11,292		\$2,731,587
YTD Jan-Dec 2011	\$4,430,720	\$13,206	\$0	\$601,882	\$42,076	\$0	\$5,087,884
PTD Jan 2005- Dec 2011	\$9,309,752	\$251,553	\$638,997	\$925,691	\$75,205	\$70,166	\$11,271,364

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#### 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 34% 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	120
Grocery	8
Hotel/Motel	16
K-12 School	9
Medical	234
Miscellaneous	40
Office	8
Process Industrial	39
Restaurant	215
Retail	5
Warehouse	120

#### 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 over 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 \$0.014/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 \$5,144,080 over the 2008 program cost rate. [Reduced program costs =  $(\$0.25 - \$0.014) \times 21,796,949$  net annual savings.]

#### Evaluation and Monitoring Activities and Results

- Conducted ongoing review and analysis of the Small Business participation database.
- Continued to review and update the Non-Residential Measure Analysis Spreadsheets and Analytic Database.
- Provided guidance on Small Business components of the program design tool to support the implementation plan.
- Conducted data mining of historic program implementation data to support market influence research.
- Conducted interviews with small business customers to determine market barriers and decision making processes.

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- In process, customer and trade ally research to determine 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
2,575	12,433,372	173,834,220

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	\$1,169,895	\$38,414	\$271,114	\$1,291	\$27,273	\$19,971	\$1,566,571

\* 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	\$271,114	\$27,273	\$1,291	\$38,414	\$338,092

#### **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 Direct Install contractors and small business associations, such as Chambers of Commerce, and provided targeted program education and information. These activities included the following:

- Placed print advertisements in the Flagstaff Business News, the Phoenix Business Journal, Restaurateur Magazine and the Arizona School Board Journal;

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- Produced promotional materials for Direct Install and provided print materials to contractors for distribution. These materials included a re-designed tri-fold brochure highlighting the benefits of energy-efficient projects for the small business owner and an HVAC Tune-up postcard;
- A Voyager tabletop panel highlighting the Direct Install program was developed and used for exhibits.

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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 were made to the Schools Program during this Reporting Period.

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

- Maximize the energy savings that can be attained with available DSM funds by providing schools incentives to upgrade lighting, HVAC, 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 EE 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 71 applications from schools, representing 20 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 EE 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	Custom Measures - Retrofit, Prescriptive Measures - New Construction, Prescriptive Measures - Retrofit, Express Solutions	15	33,200
Metro	Prescriptive Measures - New Construction	1	27,244
Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	2	25,301
Non Metro	Prescriptive Measures - Retrofit, Express Solutions	17	9,518
Non Metro	Prescriptive Measures - Retrofit	3	8,931
Non Metro	Prescriptive Measures - New Construction	1	7,422
Metro	Prescriptive Measures - New Construction	1	7,031
Metro	Custom Measures - Retrofit	1	6,880
Non Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	8	5,977
Non Metro	Prescriptive Measures - Retrofit	18	4,216
Non Metro	Prescriptive Measures - Retrofit	1	4,085
Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	3	2,661
Non Metro	Technical Assistance and Studies, Express Solutions	5	2,404
Non Metro	Prescriptive Measures - Retrofit	4	2,381
Metro	Custom Measures - Retrofit, Express Solutions	3	1,450
Non Metro	Prescriptive Measures - Retrofit	1	418
Metro	Express Solutions	1	375
Non Metro	Express Solutions	1	337
Metro	Express Solutions	1	92
Non Metro	Custom Measures - Retrofit, Prescriptive Measures - Retrofit	2	73

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.

APS paid \$937,028 in incentives to schools during the Reporting Period, of which \$621,117 was paid from the Schools program budget. The remaining \$315,911 was paid to schools from the Large Existing program budget (see table below).

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Incentive Status by Fund for Active Applications	Incentives Paid
Schools Budget – Prescriptive, Custom, and Direct Install	\$601,117
Schools Budget – Feasibility, Commissioning Studies	\$20,000
Schools Budget – Retrocommissioning Studies	\$0
<b>Total School Funds</b>	<b>\$621,117</b>

Schools Funding Summary:	Incentives Paid
Schools – School Funds	\$621,117
Schools – Large Existing Funds	\$315,911
Schools – New Construction Funds	\$0
Schools – Small Business Funds	\$0
<b>Total Paid to Schools</b>	<b>\$937,028</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. Two study incentives were paid from school funds during this Reporting Period; 24 studies have been completed at schools since program inception. Of those 24 studies, 21 have resulted in EE projects at schools.

#### **Schools Direct Install**

Direct Install incentives were paid on 18 school projects during this Reporting Period. Of the 18 projects, 17 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**

- Conducted ongoing review and analysis of the participation database.
- Continued to review and update the Non-Residential Measure Analysis Spreadsheets and Analytic Database.
- Completed updates to the Schools components of the program design tool.
- Conducted data mining of historic program implementation data to support market influence research.
- In process, customer and trade ally research to determine 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.

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#### MER Adjusted kW and kWh Gross Savings

	kW Savings <sup>1</sup>	Annual kWh Savings	Lifetime kWh Savings
Schools – School Funds	1,260.9	5,490,101	74,428,391
Schools – Large Existing Funds	696.0	3,689,269	56,073,393
Schools – New Construction Funds	0.0	0	0
Schools – Small Business Funds	0.0	0	0
<b>Total Attributable to Schools</b>	<b>1,956.9</b>	<b>9,179,370</b>	<b>130,501,784</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:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Program Implementation*	Consumer Education	Program Marketing	Planning & Admin.	Program Total Cost
Schools	\$621,117	\$39,091	\$479,968	\$1,226	\$168,140	\$74,074	\$1,383,616

\* 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
Schools	\$479,968	\$168,140	\$1,226	\$39,091	\$688,425

#### 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 six areas of focus:



## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

- 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 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. Fifty-two contacts were made including phone calls, e-mails 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, Solutions for Business staff met with the SFB, continuing the momentum behind the Solutions for Business HVAC Tune-up Program. Solutions for Business and the SFB are looking to the spring to conduct more tune-ups as the standard RFP template is now available for school districts.

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

- 4. Coordination with the Arizona School Board Association ("ASBA"):** The program advertised in the ASBA newsletter, exhibited 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 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 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.

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

#### **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 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 were 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 EE 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 to 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 EE.
- 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 EE 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.

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

#### Levels of Participation

No customers were added to EIS during this Reporting Period; however, 22 meters were installed at existing customer locations. A total of 54 customers now participate in EIS, representing 258 meters.

#### Evaluation and Monitoring Activities and Results

- Conducted ongoing tracking and review of the EIS program participation data.
- Completed detailed participant research, data collection activities and analysis to assess savings achieved by the program.

#### 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>
22	5	12,000	62,000	845

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	\$10,169	\$0	\$0	\$40,102	\$3,190	\$311	\$53,772

\* 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	\$40,102	\$3,190	\$0	\$0	\$43,292

#### Findings from all Research Projects

NA

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JULY THROUGH DECEMBER 2011**

**Other Significant Information**

NA

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

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

##### **Description**

APS Peak Solutions® is a commercial and industrial DR program for APS's Yuma and Phoenix metro 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 and July 15 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 3,000 customers are enrolled in the program.

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

In 2011, a 75 MW load reduction provided 517,278 MWh of annual savings, and 258,639 MWh of this savings was realized from July through December 2011. Load reduction and savings targets are summarized in Table 11 – Demand Response Program/Initiatives: 2011 Load Reduction and Energy Savings: July – December 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 Thermostats. 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.

##### **Costs Incurred**

For this Reporting Period Peak Solutions® has spent \$4,698,400 and the YTD total is \$5,567,800 of the \$6,679,000 budget.

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**Market Outreach:**

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

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

#### **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 metro 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 six events and a maximum of 18 events.

Customers receive a kWh discount incentive off of 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 642 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 0.8 MW which is a decrease from the 3.6 MW reported in the APS 2011 DSM Implementation Plan. The 0.8 MW load reduction will provide 3,504 MWh of annual savings and 1,752 MWh of savings from July through December 2011. Load reduction and savings targets are summarized in Table 11 – DR Program/Initiatives: 2011 Load Reduction and Energy Savings: July – December, 2011.

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

Nine CPP events were called during this Reporting Period, on July 21<sup>st</sup>, August 3<sup>rd</sup>, 5<sup>th</sup>, 17<sup>th</sup>, 19<sup>th</sup>, 24<sup>th</sup>, 30<sup>th</sup>, September 2<sup>nd</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

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<sup>2</sup> Docket No. E-01345A-11-0250 (June 24, 2011).

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Critical Peak Programs Impact Study Results<sup>3</sup> which provided the impact of the 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.

#### **Market Outreach:**

The CPP market outreach is outlined below:

1. Residential
  - a. Call Center campaign (October)
2. Business
  - a. E-mail campaign (August)

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



## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 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 514,240 customers are enrolled in the TOU rates of which 404 are super peak customers. As of December 2011, five schools were enrolled in the new school rates.

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

The program is estimated to provide a 2011 load reduction amount of 117.6 MW from the Series 1 and 2 rates and 0.46 MW from the super peak rate. The 118.1 MW total load reduction will provide 517,278 MWh of annual savings and 258,639 MWh of savings from July through December 2011. Load reduction and savings targets are summarized in Table 11 – DR Program/Initiatives: 2011 Load Reduction and Energy Savings: July – December 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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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

#### **Costs Incurred**

Program implementation costs are not specifically tracked.

#### **Market Outreach:**

The TOU and CPP market outreach is outlined below:

1. Direct Mail (August)
2. Bill Message (August)
3. E-mail campaign (August)
4. Call Center campaign (October)

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 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 the 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. On November 4, 2011, the Company filed a request for the Pilot to be extended by one year (2013)<sup>5</sup>. The extension request has no budget changes and is to provide two successive summer seasons (2012 and 2013) in the measurement, evaluation and research (MER) study, providing the essential and comprehensive information to develop a future full-scale program.

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 been made during this Reporting Period.

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

No HEI customer enrollment has occurred to date. APS anticipates the customer recruitment to begin in Q-2 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.

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

<sup>5</sup> Docket No. E-10345A-10-0075.

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2011

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

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

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

APS continues to work with its project partners on software development and system integration efforts. Multiple internal and external systems are required to communicate in order to support all five Pilot categories and its corresponding technologies. The current schedule has been divided into three distinct phases.

##### Pre-pay Phase

- Pre-pay Energy Services

##### Phase 1 – Broadband Communications

- Critical Peak Pricing with Customer Control Devices
- Direct Load Control

##### Phase 2 – AMI Communications

- Critical Peak Pricing with Customer Control Device
- In-Home Energy Information Display
- Direct Load Control
- Smart Communication devices

##### Schedule :

- Pre-pay will complete integration and end-to-end process flows Q1 2012, and will begin customer recruitment by the end of Q1 2012, and then begin customer deployment Q2 2012.
- Phase 1 (Broadband): Complete integration and end-to-end process flows Q1 2012, and begin field test in Q1 2012. APS will begin customer recruitment in Q2 2012, followed with customer deployment.
- Phase 2 (AMI): Design, development and integration discussion are currently on-going and implementation is expected to be completed Q4 2012, with field testing targeted for Q4 2012 / Q1 2013, for customer recruitment in Q2 2013, and for customer deployment Q2-3 2013. This schedule is dependent on Commission approval on APS's request for HEI Pilot schedule one-year extension.

#### **Costs Incurred**

HEI Pilot has spent \$350,723 of the \$3,681,000 budget, or approximately 9.5%.

#### **Market Outreach:**

Kicked off the Pre-Pay stakeholders collaborative workshops in June 2011 along with three other collaborative meetings this year. In September, APS also conducted four customer focus groups to gather customer feedback relating to marketing and customer educational messages for the prepay Pilot program.

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### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 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 EE funding. The primary objectives of the EE funding are to build jobs, save energy, and build EE infrastructure for the long term. The State Energy Program ("SEP") was allocated \$3.1 billion nationally.

The OEP 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 RE 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 EE 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.

#### ARRA Related Items:

- Talking with the OEP to establish what has been completed, and which entities may be requesting extensions.
- Meeting with and calling cities and counties that have received ARRA dollars to establish progress on project timelines
- To-date over 26 cities and schools have utilized ARRA funds and the Non-Residential programs.

Finally, 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. At the end of this Reporting Period, the boundaries of Energize Phoenix were expanded, increasing both the businesses and residences eligible for the program.

To date, over 224 businesses have benefited through the Energize Phoenix program.

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 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.

Category	Number of Loans	Total Loan Value	Amount in Default
Large Existing	4	\$573,438	0
Small	7	\$16,309	0
Schools	0	\$0	0
Total	11	\$589,747	0

#### RESIDENTIAL ENERGY EFFICIENCY FINANCING

On September 1, 2010, the Commission issued Decision No. 71866, which approved the Residential Energy Efficiency Financing (REEF) Program. Through this program, APS customers who participate in the Home Performance with ENERGY STAR® can gain access to financing for energy efficient home improvements.

Launching in February 2011, APS partnered with NBAZ to deliver the REEF program throughout the APS territory.

During this Reporting Period, APS introduced a promotional rate of 3.99% for the month of August. Under the promotional rate, APS experienced a steep increase in customer participation, equating to 26 new loans.

No customers are in default at this time and APS will continue to monitor defaults closely.

Category	Number of Loans	Total Loan Value
Loans issued July - Dec. 31, 2011	32	\$238,504.87
Jobs in default	0	0
Jobs deemed unrecoverable	0	0

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 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 APS's 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 EE;
- Performing and tracking savings measurements to monitor the actual program savings that are achieved; and
- Researching additional opportunities for EE.

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 YTD and PTD 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: JULY THROUGH DECEMBER 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 NTGR research for three DSM programs, and included a Market Influence Factor ("MIF") in the NTGR equation:

$$\text{NTGR} = 1 - \text{FRF} + \text{SPF} + \text{MIF}$$

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 NTG research on the APS programs.



## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 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).

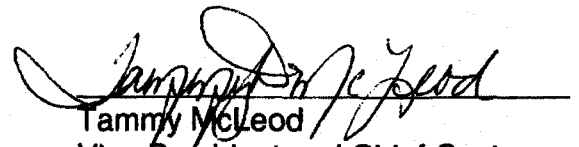
**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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**CERTIFICATION BY APS  
OF  
DSM SEMI-ANNUAL PROGRESS REPORT  
FOR THE PERIOD:  
JULY THROUGH DECEMBER 2011**

Pursuant to Decision No. 67744 (April 7, 2005), I certify that to the best of my knowledge and based on the information made available to me, the DSM Semi-Annual Progress Report is complete and accurate in all material respects.

28 February, 2012  
Date

  
\_\_\_\_\_  
Tammy McLeod  
Vice President and Chief Customer  
Officer

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JULY THROUGH DECEMBER 2011**

**SAMPLE ADVERTISEMENTS**



# Q. How much could your business save by:

- ✓ installing variable speed drives to motors
- ✓ changing overhead lighting to energy-efficient T8s
- ✓ adding occupancy sensors to control lighting
- ✓ switching to programmable thermostats
- ✓ scheduling an HVAC Advanced Diagnostic Tune-up

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

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

866 277 5605



On the go? Scan the QR code with your smart phone.

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

 **aps** | solutions for business



## SUBMIT YOUR PRE-APPLICATION FOR THE APS SOLUTIONS FOR BUSINESS PROGRAM IN 2012

Are you planning an energy improvement this year or working with a contractor on an energy efficiency project right now? The APS Solutions for Business Program encourages customers and contractors to submit pre-applications for any project planned in 2012. Pre-applications give you an estimate of your rebate amount and let you know when your project has been pre-approved.

Remind your contractor to include an estimated completion date on the pre-application. While many factors influence a project's completion, providing an estimated date allows program staff to anticipate when a project may be completed and when to expect a final application on the project.

Pre-applications and estimated completion dates make for timely reviews of final applications and processing of payment requests.

The APS Solutions for Business Program offers cash rebates to help non-residential customers improve their energy usage with installing energy efficiency projects.

## APS Solutions for Business Technical Training Calendar

APS Technical Training Workshops help business owners, facilities staff and others to make informed decisions about energy efficiency improvements. **Visit us online at [aps.com/s4btraining](http://aps.com/s4btraining) for a list of upcoming workshops.** Unless otherwise noted, training workshops are held in the Phoenix metropolitan area. Attendees are encouraged to bring laptops.

## PROJECT SNAPSHOT: CITY OF CHANDLER AWARDED INCENTIVES FOR ENERGY SAVINGS AT NEW CITY HALL

The City of Chandler received rebates totaling more than \$104,000 from the APS Solutions for Business Program for energy savings at the new Chandler City Hall. APS program representatives presented city officials with a ceremonial check on July 25. The check represented incentives paid for energy efficiency measures in the building's design that included heat-rejecting glazing on all windows, a high-performance lighting design and a high-efficiency HVAC system. Combined, these measures are expected to save 1,230,315 kWh over the life of the equipment, eliminate up to 8,287 tons of CO<sub>2</sub> and save more than 4 million gallons of water.



L to R: Chandler City Council Member Jeff Weninger; Stephanie Whyte, APS Community Development; Randy Clawson, APS Key Account Manager; Jerry Ufnal, APS Solutions for Business; and Chandler Mayor Jay Tibshraeny.

(CONTINUED ON OTHER SIDE)



## SAVE ENERGY WITH AN ADVANCED DIAGNOSTIC TUNE-UP

Did you know a typical Arizona business spends 30% to 50% of its electricity dollar on heating and cooling? An Advanced Diagnostic Tune-up from an approved contractor may help your business use less energy, save money, and avoid equipment failure.

The Advanced Diagnostic Tune-up is a system performance check of your commercial HVAC cooling equipment. Technicians use a digital device to measure equipment performance before and after service has been performed that includes:

- Verifying airflow and refrigerant charge
- Cleaning coils
- Tightening loose electrical connections
- Changing air filters

The APS Solutions for Business Program rebate pays 75% of the service cost, up to \$240 per system. For most customers, out-of-pocket costs range from \$75 to \$110. Certain restrictions apply:

- Commercial air conditioning (DX) systems must be at least three years old and four tons or greater with attached duct work.
- The work must be completed by an approved program trade ally.

**To find an approved contractor, visit [aps.com/hvactuneup](http://aps.com/hvactuneup) or call 866 277 5605.**



## COMMON AREA ENERGY ASSESSMENTS CAN ADD UP TO BIG SAVINGS FOR MULTIFAMILY PROPERTIES

Multifamily properties could realize big energy savings by participating in the APS Multifamily Energy Efficiency Program or MEEP. MEEP supports the multifamily market with energy solutions and technical expertise designed to help participants achieve real energy savings.

MEEP offers participating existing multifamily properties a complimentary energy assessment of all commercial facilities on the property. Multifamily commercial facilities include areas like the pool facilities, club houses, offices, vending areas, laundry and exterior lighting to name just a few. An APS MEEP representative will evaluate the commercial facilities on the property and look for opportunities to realize long term energy savings. Each MEEP participant receives an energy report that describes the recommended energy saving measures, measure cost and savings, payback, and identifies APS Solutions for Business rebates available that can help.

Efficiency improvements in key areas such as lighting or pool equipment can yield big dividends in energy savings. Replacing old inefficient pool pumps with new variable speed pumps can slash pool pump operating costs by as much as 80%. Likewise upgrading the lighting in office and public spaces could cut energy lighting costs by as much as 20%. Often several opportunities exist to achieve energy savings and APS offers a wide range of rebates that can make achieving higher levels of energy efficiency easy.

**To find additional information on APS Solutions for Business rebates or the APS Multifamily Program visit [aps.com](http://aps.com).**

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



## What do customers say about Express Solutions?

"The process was simple and everything went smoothly."  
- *Automotive store operator*

"We were thrilled with this program and can't wait to see the changes in our electric bills. It also encouraged us to find other ways to save energy."  
- *Charter school business manager*

"The installation went smoothly and didn't interfere with my business. I've already saved 30% on my energy bills."  
- *Furniture business owner*



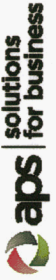
## Express Solutions

FAST TRACK TO ENERGY EFFICIENCY



Get more information online at  
[aps.com/express](http://aps.com/express) or  
call 866 277 5605.

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





# Express Solutions makes it easy to lower your energy costs with lighting and refrigeration improvement projects.

- Low up-front costs**  
APS rebates pay as much as 60% to 90% of the project costs directly to the contractor.
- Minimum hassle**  
An Express Solutions contractor conducts a free energy assessment, completes all rebate paperwork and installs equipment.
- Quick payback**  
Return on any out-of-pocket costs for most projects is less than one year.

## Did You Know?

Energy costs are the largest, controllable operating expense for most businesses?

## Express Solutions

The Express approach is designed to make saving energy easy and affordable for small and medium-size businesses.

### GET STARTED TODAY

1. Contact a Trade Ally from our online list of approved contractors.
2. Schedule your free assessment.
3. Review your energy-saving options with the contractor.
4. Complete and sign the proposal.

### EXPRESS SOLUTIONS TRADE ALLIES

Members of the Express Solutions Trade Ally program receive instructions on the program and training on the software used to provide an estimate of your energy efficiency potential.\*

### MORE COMPREHENSIVE SOLUTIONS

In addition to completing energy improvements covered by rebates from Express Solutions, customers can also take advantage of incentives on a range of more comprehensive projects including HVAC upgrades, variable speed drives (VSDs), energy studies and custom projects.

To learn more about other APS rebates, visit [aps.com/businessrebates](http://aps.com/businessrebates).

### REBATE-ELIGIBLE MEASURES

The following measures are eligible for rebates under the Express Solutions incentive program.

#### EXPRESS SOLUTIONS RETROFIT REBATES

##### Lighting Measures

- Hard-wired CFL retrofits
- Screw-in CFL
- Delamping
- Exit signs
- Occupancy sensors
- Occupancy sensor controls on vending machines
- T12 to standard T8
- T12 to premium T8
- T8 to premium T8

##### Refrigeration Measures

- Anti-sweat heater controls (medium temperature)
- Anti-sweat heater controls (low temperature)
- Refrigerated novelty case controls
- Refrigerated case fan motor retrofits

All incentives are capped at 90% of project costs.

### FINANCING OPTIONS

APS partners with National Bank of Arizona to offer a financing option for energy efficiency projects to help cover up-front project costs. In most cases, monthly savings in electricity costs are greater than the financing payments.

### Schedule Your Appointment

Find a Trade Ally member at  
[aps.com/express](http://aps.com/express) or call  
**866 277 5605.**

\*Express Solutions contractors are neither affiliates nor agents of APS, and APS assumes no liability for their products or services.



## Envelope

**Wall Insulation:** Refers to the total R-Value of the wall insulating system. Any insulating product may be used as long as the aggregate R-Value of all wall components meets or exceeds the minimum insulation values of each BOP.

**Ceiling Insulation:** Refers to the total R-Value of the ceiling insulating system. Any insulating product may be used as long as the aggregate R-Value of all ceiling components meets or exceeds the minimum insulation value of each BOP.

**Windows:** Window systems are designed to provide a view of the outdoors while limiting the amount of solar heat gain into the conditioned space. Window performance is rated using a U-Factor and a Solar Heat Gain Coefficient (SHGC). These values are an indicator of how much heat is allowed through the window and into the conditioned space. Windows that qualify for a MEEP incentive must meet the minimum qualifications as outlined in each BOP.

## Lighting and Power

**Lighting Power Density:** Refers to the maximum amount of power required by all hard wired light fixtures, if they were all on at the same time divided by the square feet of the conditioned space in each dwelling. Lighting power density requirements for each BOP can be met by installing ENERGY STAR® qualified lighting. BOP1 requires that at least 25% of the lights be ENERGY STAR® rated while BOPs 2, 3, and RED require at least 75%.

**Miscellaneous Power Density:** Refers to the maximum amount of power required for all hardwired appliances divided by the square feet of conditioned space in each dwelling. Miscellaneous power density requirements for each BOP can be met by installing only ENERGY STAR® qualified appliances, that includes ceiling fans.

## Heating and Cooling

**Cooling Air Conditioning Efficiency:** Refers to the efficiency of the cooling/air conditioning system. AC efficiency is measured using a Seasonal Energy Efficiency Ratio (SEER) or energy efficiency ratio (EER) which refers to the amount of power required to meet occupant requirements for temperature comfort.

**Thermostat Set Points:** BOPs require the installation of programmable thermostats programmed with minimum stay temperatures of 76 degrees and away setbacks of 8 degrees or 84 degrees during the hours of 9 a.m. and 4 p.m.

**Heating Options:** Refers to heating system types that are available for rebate. To qualify, the participating project must be heated with an electric heat pump or gas furnace. Minimum qualifying efficiency levels are included in each BOP.

## Domestic Hot Water

Multifamily water heating is often provided by small in-unit electric water heaters. Electric water heating efficiency is measured in efficiency factor (EF). Minimum qualifying water heater efficiencies are included in each BOP.

## Air Sealing/Duct Sealing

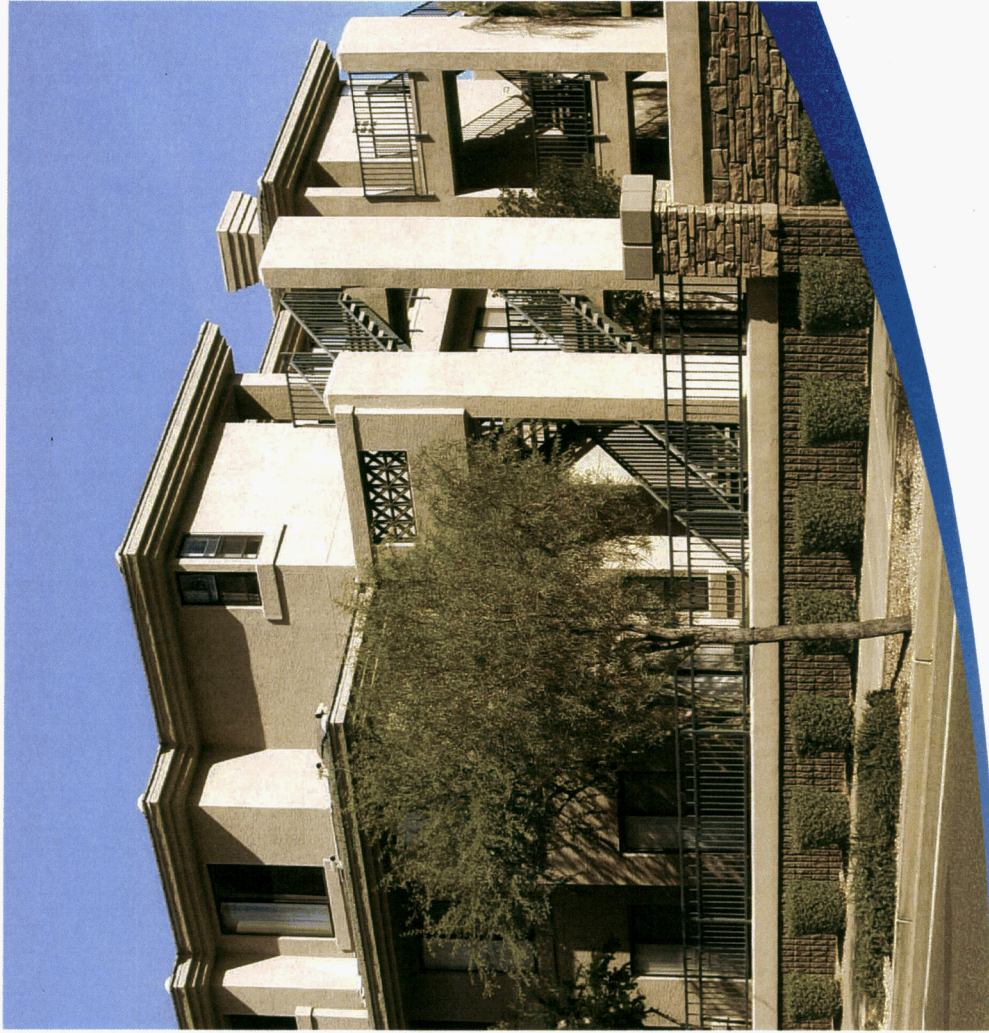
**Air Sealing/Infiltration Rate:** Infiltration refers to air that leaks into a building through cracks, crevices, and penetrations in walls that go to the outside. Infiltration can occur through any penetration in the building's envelope. Leaks are typically found in walls, electrical & plumbing penetrations, and around windows & doors just to name a few. Providing extra attention to air sealing during the construction process can yield big dividends in energy savings. Upon request, APS will assist with the air sealing process and help identify areas to be sealed. Once construction is complete, a blower door test is completed to verify infiltration rates. For additional information, reference the APS air sealing fact sheet.

**Duct Sealing:** The duct system is the air delivery system for the building's heating and air conditioning system. Often air cooled for delivery to a living space is lost through leaks in the duct system. When this occurs, conditioned or heated air leaks into an unconditioned space such as an attic or crawl space. Excessive duct leakage drives energy consumption up by making the heating or air conditioning equipment work harder and run longer. Upon request, APS can provide field support to assure proper sealing of all duct work. Once construction is complete, duct testing is performed to verify duct leakage rates.

**Additional information that may be requested to support your application include:**

- Architectural plans and specifications
- Mechanical plans and specifications
- Plumbing plans and specifications
- Lighting plans and specifications
- Hot Water heater cut sheets
- Thermostat cut sheets
- Appliance and other in unit equipment cut sheets
- Air sealing details in the architectural drawings
- Duct sealing details in the mechanical drawings

This information is typically provided during the design review and must be provided no later than the submittal of the prescriptive form.



# APS Multifamily Energy Efficiency New Construction Program

For more information call 855 733 1117 or email [apsmeep@franklinenergy.com](mailto:apsmeep@franklinenergy.com)

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



More house. Less energy bill.



ENERGY STAR®  
Homes Program



More house. Less energy bill.



ENERGY STAR®  
Homes Program



Solar makes sense for Arizona.



ENERGY STAR®  
Homes + Solar



Solar makes sense for Arizona.



ENERGY STAR®  
Homes + Solar







## 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







## 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





# Participating Builders

## Ashton Woods Homes

- 877 609 1187
- Estrella Mountain Ranch
  - Palm Valley
  - Verrado

## Avatar

- 480 306 4592
- Estrella Mountain Ranch ☀
  - Palm Valley ☀

## Beazer Homes

- 888 623 2937
- Canyon Trails ☀
  - Cortessa ☀
  - Glenmont Estates ☀
  - Surprise Farms ☀

## Cachet Homes

- 480 556 7000
- Grayhawk

## Centex Homes

- 480 747 6800
- Canyon Trails

## D.R. Horton

- 480 344 7000
- Sonoran Vista
  - Tuscany Ranch

## Del Webb

- 866 340 Webb
- Anthem at Merrill Ranch ☀
  - Arroyo Grande
  - Fireside at Desert Ridge
  - Sun City Festival ☀

## Dorn Homes

- 928 445 4530
- Prescott Lakes

## Elliott Homes

- 928 342 5253
- Araby Crossing ☀
  - Arroyo de Fortuna ☀
  - Estrella ☀
  - Scottsdale East Estates ☀
  - Sunset Terrace ☀

## Habitat for Humanity

- Central Arizona  
Flagstaff  
Prescott

## Homes by Towne

- 602 996 3800
- Surprise Farms ☀

## Jacobson Homes

- 928 782 1801
- Cielo Verde

## K. Hovnanian Homes

- 877 KHOV NOW
- Happy Valley Estates
  - Regency at Colina Del Sur
  - Regency at Eagle Heights
  - Stetson Valley
  - Verrado
  - Vistancia

## Keystone Homes

- 520 421 0999
- Ironwood Village ☀
  - Rancho Madera ☀

## Lennar

- 800 864 1058
- Asante
  - Lone Mountain
  - Stetson Valley

## Maracay Homes

- 480 346 2670
- Estrella Mountain Ranch ☀
  - Palm Valley ☀
  - Sonoran Foothills
  - Sonoran Mountain Ranch

## Mattamy Homes

- 480 302 6080
- Canyon Trails
  - Marley Park

## Meritage Homes

- 623 580 9183
- Cibola Vista ☀
  - Monterey at Mirabel Village ☀
  - Palm Valley ☀
  - Sedella ☀
  - Sunset Ranch ☀
  - Verrado ☀
  - Vistancia ☀

## Meritage Active Adult

- 623 386 8371
- Sundance ☀

## Monarch Communities

- 480 344 7025
- Privada ☀

## Perricone Development Group

- 928 329 1360
- Terra Bella

## Pulte Homes

- 866 to Pulte
- Anthem at Merrill Ranch
  - Cabrillo Point
  - Festival Foothills
  - Fireside at Norterra
  - Lone Mountain
  - Red Rock Village (Tucson)
  - Stetson Valley
  - Tierra Del Rio
  - White Tank Foothills

## Richmond American Homes

- 623 972 5005
- Estrella Mountain
  - Marley Park
  - Palm Valley
  - Savannah
  - Tramonto
  - Verrado

## Robson Communities

- 623 935 6700
- PebbleCreek ☀

## Rosewood Homes

- 480 922 6366
- DC Ranch
  - Estrella Mountain Ranch ☀
  - Vistancia ☀

## Shea Homes

- 480 348 6000
- Arroyo Mountain Estates
  - The Village at Litchfield Park ☀
  - Watson Estates

## Standard Pacific Homes

- 480 627 7500
- Blue Horizon Villages
  - Canyon Trails
  - Cortessa
  - Palm Valley

## Sun Pine Homes

- 800 778 6604
- Canyons at Granite Park

## Taylor Morrison

- 623 386 9327
- Estrella Mountain Ranch
  - Canyon Trails
  - Las Brisas
  - Norterra
  - Savannah
  - Surprise Farms
  - Sycamore Estates

## Trend Homes

- 623 297 1284
- Verrado ☀

## Trilogy by Shea Homes

- 623 215 6315
- Vistancia ☀

## T.W. Lewis Company

- 480 820 0807
- Portales
  - Sonoran Foothills
  - Vistancia

## William Ryan Homes

- 866 608 1468
- Estrella Mountain Ranch ☀
  - Serenity at Montécito ☀

## Woodside Homes

- 602 276 3350
- Sunset Ranch ☀

- Master Planned Community
- Subdivision
- ☀ This community includes solar
- ☀ Solar option available

For specific community information,  
please visit [aps.com/homes](http://aps.com/homes)



ENERGY STAR®  
Homes Program





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## APS Refrigerator Recycling Program

[Overview](#)   [How it Works](#)   [Eligibility](#)   [FAQ](#)



[Watch our video](#) about the benefits of refrigerator recycling.



**Change** their future

### Less Fridge. More Dough.

Turning in that old refrigerator or freezer in your garage can save you up to \$100 a year on your energy bill. Plus, we'll haul it away for free, recycle it and send you a \$30 rebate.

The refrigerator recycling procedure utilizes a state-of-the-art patented process that recycles 95 percent of the contents used to manufacture a refrigerator.

It is a simple way for you to save some money, use less energy and keep these appliances out of landfills which helps the environment.

### [Schedule a Free Pickup](#)

Turn It In and receive \$30 from APS. Schedule your free pick up online or call (877) 514-6654.

**Donate your rebate to [The Salvation Army's Project SHARE](#) - Service to Help Arizonans with Relief on Energy**



**[EPA Refrigerator Recycling Savings Calculator](#)**



SEARCH

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APS REFRIGERATOR RECYCLING

Less fridge. More dough.

[aps.com/turnitin](https://aps.com/turnitin)

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





## RECYCLE YOUR OLD REFRIGERATOR, POCKET \$30

Do you have an extra refrigerator or freezer humming away in your garage or store room? Old, inefficient refrigerators and freezers use a lot more electricity than newer models and can really run up your electric bill, costing you an extra \$100 every year. With APS's Refrigerator Recycling Program, you can have your old units hauled to a local recycling facility for **free**, and get \$30 from APS for your participation in the program. You'll save money on your electric bill, reduce energy use, help the environment and earn a little pocket change! The program is limited to the removal of two full-size units per household, and the refrigerator or freezer must be operable to be eligible for the program. **Visit [aps.com/turnitin](http://aps.com/turnitin) for more details or call 877 514 6654 to schedule your free pick-up service.**



## SAVE MONEY WITH HANDY TOOLS ON YOUR 'MY ACCOUNT' PAGE

Every craftsman knows the right tool can make the work easier. So if you are working on conserving energy and lowering your electric bill, check out the handy tools at your "**My Account**" page at [aps.com](http://aps.com).

These tools include:

- An at-a-glance overview of your bill
- Links to quickly view and pay your bill
- A "why my bill changed" feature that helps you identify reasons for higher or lower monthly bills
- Helpful charts including:
  - comparison of your electricity costs with those of similar homes
  - your previous year's energy usage
  - monthly appliance cost breakdown

**Log on to "My Account" today to take advantage of all the tools that help you take control of your energy use and costs. For more information and to view a video demonstration of these features, visit [aps.com/myaccount](http://aps.com/myaccount).**

## REGISTER AND GO PAPERLESS AT APS.COM

You can easily manage your APS account by registering at [aps.com](http://aps.com) and going paperless. By registering your account online and signing up for paperless billing, you are also helping the environment by reducing paper consumption and saving trees.

Once you have registered your account and set up your account preferences to receive your bill electronically, each month you'll receive an e-mail telling you your bill is ready. You can then log on and open your e-bill from your browser. Your e-bill will be presented in PDF format, so it looks exactly like the paper bill that's sent in the mail. You can even save it or print it if needed. **Register your account at [aps.com](http://aps.com) and go paperless today.**

(CONTINUED ON OTHER SIDE)





# Lowering your electricity costs starts with a commitment to energy efficiency.

APS customers are on track to realize more than \$640 million in lifetime bill savings through their participation in the Solutions for Business program.

Find ways your business can save with energy efficiency rebates from Solutions for Business.

[aps.com/businessrebates](https://aps.com/businessrebates)  
866 277 5605

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







## APS Shade Tree Workshop is Coming to Your Neighborhood!

Attend a free one hour workshop on selecting, planting, and taking care of your trees and you may receive **up to three free trees!**

### WORKSHOP AND TREE PICK-UP LOCATION:

**Saturday October 15, 2011**

**Friendly House, 201 E. Durango, Phoenix, AZ 85004**

**English**

**10:30 a.m. - 11:30 a.m.**

**Spanish**

**8:30 a.m. - 9:30 a.m.**

**12:30 p.m. - 1:30 p.m.**

You must be pre-registered to attend the free workshop.

**Register by visiting [aps.com/trees](http://aps.com/trees) or call  
602 357 0032 for more information.**

The APS Shade Tree Program is available only to APS residential customers in Maricopa County. The program is funded by APS customers and approved by the Arizona Corporation Commission.







## Learn how your family can get up to three free trees

Save up to \$50 per year on your cooling  
costs with mature shade trees.

[aps.com/trees](https://aps.com/trees)







## Ahorre dinero en costos de energía del hogar.

APS ofrece muchos reembolsos para mejorar o reparar áreas problemáticas comunes en su hogar.

- 1 AHORRE HASTA EL 80%** en los costos de energía de su alberca con una bomba eficiente para alberca.
- 2 REEMBOLSOS DE HASTA \$200** en productos eficientes para alberca.
- 3 REEMBOLSOS** disponibles en unidades nuevas de aire acondicionado de alta eficiencia si son instaladas por un Contratista Participante.
- 4 AHORRE HASTA \$250** en pantallas de sombra para ventanas.
- 5 REEMBOLSOS** Los incentivos de APS hacen más asequibles los calentadores solares de agua.
- 6 REEMBOLSOS DE \$30** por deshacerse de su refrigerador viejo.
- 7 REEMBOLSOS** Los incentivos de APS ayudan a que la energía solar sea una opción más asequible.
- 8 AHORRE HASTA \$250** en el sellado de fugas de aire.
- 9 REEMBOLSOS DE HASTA \$250** por sellar conductos con fugas.
- 10 AHORRE HASTA EL 75%** en costos de iluminación al cambiar a focos CFLs.
- 11 REEMBOLSOS DE HASTA \$250** por mejorar su material aislante.
- 12 AHORRE HASTA EL 30%** en costos de energía con el programa Home Performance.

Para más información sobre cómo solicitar estos reembolsos y para otros consejos para ahorrar energía, visite [aps.com/rebatehouse](https://aps.com/rebatehouse).

Los reembolsos están sujetos a cambios. Estos programas son financiados por los clientes de APS y aprobados por la comisión Arizona Corporation Commission.

