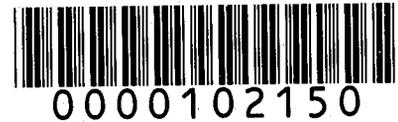


**APS ORIGINAL**



Leland R. Snook  
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Phoenix, Arizona 85072-3999

September 1, 2009

Docket Control  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

RE: DEMAND SIDE MANAGEMENT SEMI-ANNUAL REPORT  
DECISION 67744; DOCKET NO. E-01345A-03-0437 & E-01345A-05-0526

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 January 1, 2009 through June 30, 2009.

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

Sincerely,

Leland R. Snook

LS/dst

Attachments

CC: Brian Bozzo  
Terri Ford  
Barbara Keene

Arizona Corporation Commission  
**DOCKETED**

SEP - 1 2009

DOCKETED BY

AZ CORP COMMISSION  
DOCKET CONTROL

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# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

This Demand Side Management Semi-Annual Progress Report ("Progress Report") includes the following information for all APS Demand Side Management ("DSM") programs that were in place during this Reporting Period, including programs for residential, non-residential and low income customers:

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

Summary pages detailing the program expenses are provided in Tables 1, 2 and 3. Tables 4, 5 and 6 depict DSM program MW and MWh savings. Tables 7, 8, and 9 depict net benefits and the Performance Incentive calculation. Table 10 depicts the environmental benefits associated with the energy savings that resulted from DSM programs.

Items included in this Progress Report as a result of Arizona Corporation Commission ("Commission" or "ACC") Decision Numbers 70637 and 70666 are:

- Year-to-Date ("YTD") and Program-to-Date ("PTD") results reflected in Tables;
- DSM demand and energy savings are reported on both a gross and net basis
- Savings results are Measurement, Evaluation and Research ("MER") adjusted
- Estimated environmental benefits
- Non-Residential study applications are tracked for the current Reporting Period and for cumulative results since being offered in 2006; and
- Health and safety, and repair and replace results are now reported by measure type in the Low Income Program section of this report.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

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# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

**TABLE 1**  
**DSM Program Expenses: January 2009 – June 2009**

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation <sup>1</sup>	Program Marketing	Planning & Admin	Program Total Cost	
<b>Residential</b>								
Low Income	\$465,440	\$5,008	\$373	\$28,025	\$5,250	\$59,040	\$563,136	
Res Existing Homes HVAC	\$861,284	\$93,948	\$128,850	\$265,370	\$92,671	\$21,730	\$1,463,853	
Res New Home Construction	\$278,000	\$68,404	\$315	\$91,457	\$144,852	\$45,191	\$628,219	
Consumer Products	\$1,143,964	\$398	\$24,525	\$549,227	\$168,523	\$65,610	\$1,952,247	
<b>Totals for Residential</b>	<b>\$2,748,688</b>	<b>\$167,758</b>	<b>\$154,063</b>	<b>\$934,079</b>	<b>\$411,296</b>	<b>\$191,571</b>	<b>\$4,607,455</b>	
<b>Non-Residential</b>								
Large Existing Facilities	\$1,781,536	\$88,120	\$47,288	\$764,475	\$262,219	\$153,699	\$3,097,337	
Large Non Res New Const	\$844,691	\$16,698	\$16,254	\$250,788	\$168,161	\$49,077	\$1,345,669	
Small Business	\$30,631	\$5,690	\$332	\$103,719	\$46,644	\$15,763	\$202,779	
Energy Information Svcs	\$22,580	\$4,217	\$0	\$5,411	\$0	\$1,271	\$33,479	
Schools <sup>2</sup>	\$298,123	\$9,537	\$3,102	\$58,077	\$56,939	\$19,281	\$445,059	
<b>Total for Non-Residential</b>	<b>\$2,977,561</b>	<b>\$124,262</b>	<b>\$66,976</b>	<b>\$1,182,470</b>	<b>\$533,963</b>	<b>\$239,091</b>	<b>\$5,124,323</b>	
<b>Segment Totals</b>	<b>\$5,726,249</b>	<b>\$292,020</b>	<b>\$221,039</b>	<b>\$2,116,549</b>	<b>\$945,259</b>	<b>\$430,662</b>	<b>\$9,731,778</b>	
							<b>Program Costs</b>	<b>\$9,731,778</b>
							<b>Measurement, Evaluation, &amp; Research (MER)</b>	<b>\$950,815</b>
							<b>Performance Incentive<sup>3</sup></b>	<b>\$1,186,955</b>
							<b>TOTAL</b>	<b>\$11,869,548</b>

1. Includes costs for Implementation Contractor ("IC") 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 7, 8 & 9, (methodology/calculation was approved by the ACC in Decision No. 69663).

### **Definitions**

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

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

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

**Program Implementation** – Program delivery costs associated with implementing the program - includes implementation contractor 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-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 energy efficiency research.

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

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2009**

**TABLE 2  
Year-to-Date DSM Program Expenses: January 2009 – June 2009**

<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>Program Total Cost</b>	
<b>Residential</b>								
Low Income	\$465,440	\$5,008	\$373	\$28,025	\$5,250	\$59,040	\$563,136	
Res Existing Homes HVAC	\$861,284	\$93,948	\$128,850	\$265,370	\$92,671	\$21,730	\$1,463,853	
Res New Home Const	\$278,000	\$68,404	\$315	\$91,457	\$144,852	\$45,191	\$628,219	
Consumer Products	\$1,143,964	\$398	\$24,525	\$549,227	\$168,523	\$65,610	\$1,952,247	
<b>Totals for Residential</b>	<b>\$2,748,688</b>	<b>\$167,758</b>	<b>\$154,063</b>	<b>\$934,079</b>	<b>\$411,296</b>	<b>\$191,571</b>	<b>\$4,607,455</b>	
<b>Non-Residential</b>								
Large Existing Facilities	\$1,781,536	\$88,120	\$47,288	\$764,475	\$262,219	\$153,699	\$3,097,337	
Large Non Res New Const	\$844,691	\$16,698	\$16,254	\$250,788	\$168,161	\$49,077	\$1,345,669	
Small Business	\$30,631	\$5,690	\$332	\$103,719	\$46,644	\$15,763	\$202,779	
Energy Information Svcs	\$22,580	\$4,217	\$0	\$5,411	\$0	\$1,271	\$33,479	
Schools <sup>2</sup>	\$298,123	\$9,537	\$3,102	\$58,077	\$56,939	\$19,281	\$445,059	
<b>Total for Non-Residential</b>	<b>\$2,977,561</b>	<b>\$124,262</b>	<b>\$66,976</b>	<b>\$1,182,470</b>	<b>\$533,963</b>	<b>\$239,091</b>	<b>\$5,124,323</b>	
<b>Segment Totals</b>	<b>\$5,726,249</b>	<b>\$292,020</b>	<b>\$221,039</b>	<b>\$2,116,549</b>	<b>\$945,259</b>	<b>\$430,662</b>	<b>\$9,731,778</b>	
							<b>Program Costs</b>	<b>\$9,731,778</b>
							<b>Measurement, Evaluation, &amp; Research (MER)</b>	<b>\$950,815</b>
							<b>Performance Incentive<sup>3</sup></b>	<b>\$1,186,955</b>
							<b>TOTAL</b>	<b>\$11,869,548</b>

1. Includes costs for Implementation Contractor (IC) 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 7, 8 & 9, and the methodology/calculation was approved by the ACC in Decision No. 69663.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2009**

**TABLE 3  
Program-to-Date DSM Program Expenses: January 2005 – June 2009**

<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>Program Total Cost</b>	
<b>Residential</b>								
Low Income	\$4,167,416	\$47,394	\$16,670	\$334,877	\$18,063	\$393,144	\$4,977,564	
Res Existing Homes HVAC	\$4,114,908	\$289,212	\$713,685	\$1,497,545	\$1,140,804	\$199,471	\$7,955,625	
Res New Home Const	\$2,376,706	\$349,916	\$100,419	\$618,598	\$1,360,960	\$325,170	\$5,131,769	
Consumer Products	\$8,005,674	\$3,710	\$48,202	\$2,961,054	\$1,138,395	\$432,249	\$12,589,284	
<b>Totals for Residential</b>	<b>\$18,664,704</b>	<b>\$690,232</b>	<b>\$878,976</b>	<b>\$5,412,074</b>	<b>\$3,658,222</b>	<b>\$1,350,034</b>	<b>\$30,654,242</b>	
<b>Non-Residential</b>								
Large Existing Facilities	\$9,802,045	\$262,732	\$122,319	\$4,004,096	\$1,037,772	\$1,013,746	\$16,242,710	
Large Non Res New Const	\$3,798,212	\$70,101	\$33,970	\$2,457,116	\$503,022	\$401,101	\$7,263,522	
Small Business	\$325,372	\$7,565	\$19,909	\$1,209,579	\$151,287	\$190,644	\$1,904,356	
Bldg Operator Training	\$0	\$56,898	\$0	\$22,043	\$15,783	\$7,480	\$102,204	
Energy Information Svcs	\$32,294	\$4,217	\$583	\$61,879	\$0	\$23,189	\$122,162	
Schools <sup>2</sup>	\$900,797	\$15,328	\$9,149	\$480,369	\$149,333	\$97,627	\$1,652,603	
<b>Total for Non-Residential</b>	<b>\$14,858,720</b>	<b>\$416,841</b>	<b>\$185,930</b>	<b>\$8,235,082</b>	<b>\$1,857,197</b>	<b>\$1,733,787</b>	<b>\$27,287,557</b>	
<b>Segment Totals</b>	<b>\$33,523,424</b>	<b>\$1,107,073</b>	<b>\$1,064,906</b>	<b>\$13,647,156</b>	<b>\$5,515,419</b>	<b>\$3,083,821</b>	<b>\$57,941,799</b>	
							<b>Program Costs</b>	<b>\$57,941,799</b>
							<b>Measurement, Evaluation, &amp; Research (MER)</b>	<b>\$4,248,416</b>
							<b>Performance Incentive<sup>3</sup></b>	<b>\$6,927,599</b>
							<b>TOTAL</b>	<b>\$69,117,814</b>

1. Includes costs for Implementation Contractor (IC) 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 7, 8 & 9, and the methodology/calculation was approved by the ACC in Decision No. 69663. The program to date performance incentive amount is a summation of the performance incentive amount as calculated during each previous Reporting Period beginning with the January – June 2005 Semi-Annual Report.

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2009**

**TABLE 4  
DSM Electric Savings: January 2009 – June 2009<sup>1</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 Peak MW Capacity Savings</b>	<b>Net Annual MWh Savings</b>	<b>Net Lifetime<sup>2</sup> MWh Savings</b>
<b>Residential</b>						
Low Income <sup>3</sup>	0.0	197	3,949	0.0	197	3,949
Res Existing Homes HVAC	2.3	2,943	40,771	2.0	2,466	33,447
Res New Home Construction	1.3	1,877	37,535	1.2	1,689	33,782
Consumer Products	7.1	50,980	305,880	5.5	39,764	238,586
<b>Totals for Residential</b>	<b>10.7</b>	<b>55,997</b>	<b>388,135</b>	<b>8.7</b>	<b>44,116</b>	<b>309,764</b>
<b>Non-Residential</b>						
Large Existing Facilities	4.9	33,591	433,919	4.0	28,258	366,038
Large Non Res New Const	1.8	22,778	282,521	1.5	19,647	245,396
Small Business	0.4	1,855	7,466	0.3	1,396	5,875
Energy Information Svcs	0.1	802	12,024	0.1	802	12,024
Schools	0.8	4,593	63,179	0.6	3,744	51,342
<b>Total for Non-Residential</b>	<b>8.0</b>	<b>63,619</b>	<b>799,109</b>	<b>6.5</b>	<b>53,847</b>	<b>680,675</b>
<b>TOTAL</b>	<b>18.7</b>	<b>119,616</b>	<b>1,187,244</b>	<b>15.2</b>	<b>97,963</b>	<b>990,439</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.

**Definitions**

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

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

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

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

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

**TABLE 5**  
**Year-to-Date DSM Electric Savings: January 2009 – June 2009<sup>1</sup>**

DSM Program	Gross Peak MW Capacity Savings	Gross Annual MWh Savings	Gross Lifetime <sup>2</sup> MWh Savings	Net Peak MW Capacity Savings	Net Annual MWh Savings	Net Lifetime <sup>2</sup> MWh Savings
<b>Residential</b>						
Low Income <sup>3</sup>	0.0	197	3,949	0.0	197	3,949
Res Existing Homes HVAC	2.3	2,943	40,771	2.0	2,466	33,447
Res New Home Construction	1.3	1,877	37,535	1.2	1,689	33,782
Consumer Products	7.1	50,980	305,880	5.5	39,764	238,586
<b>Totals for Residential</b>	<b>10.7</b>	<b>55,997</b>	<b>388,135</b>	<b>8.7</b>	<b>44,116</b>	<b>309,764</b>
<b>Non-Residential</b>						
Large Existing Facilities	4.9	33,591	433,919	4.0	28,258	366,038
Large Non Res New Const	1.8	22,778	282,521	1.5	19,647	245,396
Small Business	0.4	1,855	7,466	0.3	1,396	5,875
Energy Information Svcs	0.1	802	12,024	0.1	802	12,024
Schools	0.8	4,593	63,179	0.6	3,744	51,342
<b>Total for Non-Residential</b>	<b>8.0</b>	<b>63,619</b>	<b>799,109</b>	<b>6.5</b>	<b>53,847</b>	<b>680,675</b>
<b>TOTAL</b>	<b>18.7</b>	<b>119,616</b>	<b>1,187,244</b>	<b>15.2</b>	<b>97,963</b>	<b>990,439</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.

### Definitions

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

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

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

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

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

**TABLE 6**  
**Program-to-Date DSM Electric Savings: January 2005 – June 2009<sup>1</sup>**

DSM Program	Gross Peak MW Capacity Savings	Gross Annual MWh Savings	Gross Lifetime <sup>2</sup> MWh Savings	Net Peak MW Capacity Savings	Net Annual MWh Savings	Net Lifetime <sup>2</sup> MWh Savings
<b>Residential</b>						
Low Income <sup>3</sup>	0.5	3,323	66,462	0.5	3,323	66,462
Res Existing Homes HVAC	12.4	24,944	368,636	9.5	18,747	276,067
Res New Home Construction	11.2	23,194	463,871	10.0	20,875	417,484
Consumer Products	62.9	466,479	2,591,128	49.6	368,009	2,043,932
<b>Totals for Residential</b>	<b>87.0</b>	<b>517,940</b>	<b>3,490,097</b>	<b>69.6</b>	<b>410,954</b>	<b>2,803,945</b>
<b>Non-Residential</b>						
Large Existing Facilities	20.8	169,235	2,311,591	17.2	140,843	1,924,506
Large Non Res New Const	7.5	110,580	1,621,324	6.2	92,523	1,356,602
Small Business	1.2	8,534	107,864	1.0	6,940	89,205
Bldg Operator Training	0.2	1,001	12,447	0.1	701	8,713
Energy Information Svcs	0.3	1,730	25,942	0.3	1,730	25,942
Schools	1.7	11,820	179,902	1.3	9,742	148,222
<b>Total for Non-Residential</b>	<b>31.7</b>	<b>302,900</b>	<b>4,259,070</b>	<b>26.1</b>	<b>252,479</b>	<b>3,553,190</b>
<b>TOTAL</b>	<b>118.7</b>	<b>820,840</b>	<b>7,749,167</b>	<b>95.7</b>	<b>663,433</b>	<b>6,357,135</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.

### Definitions

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

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

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

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

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2009**

**TABLE 7  
DSM Electric Benefits and Performance Incentive  
January 2009 – June 2009**

<b>DSM Program</b>	<b>Program Cost</b>	<b>Societal Benefits</b>	<b>Societal Costs</b>	<b>Net Benefits</b>
<b>Residential</b>				
Low Income <sup>1</sup>	\$563,136	\$427,410	\$427,410	\$0 <sup>2</sup>
Res Existing Homes HVAC	\$1,463,852	\$2,936,578	\$2,046,244	\$890,334
Res New Home Construction	\$628,217	\$2,565,940	\$819,344	\$1,746,596
Consumer Products	\$1,952,247	\$10,144,227	\$2,604,443	\$7,539,784
<b>Totals for Residential</b>	<b>\$4,607,452</b>	<b>\$16,074,155</b>	<b>\$5,897,441</b>	<b>\$10,176,714</b>
<b>Non-Residential</b>				
Large Existing Facilities	\$3,097,335	\$13,617,520	\$4,312,479	\$9,305,041
Large Non Res New Const	\$1,345,668	\$7,846,013	\$1,809,616	\$6,036,397
Small Business	\$202,778	\$332,616	\$80,258	\$252,358
Energy Information Svcs	\$33,479	\$328,400	\$34,487	\$293,913
Schools	\$445,060	\$1,793,242	\$456,135	\$1,337,107
<b>Total for Non-Residential</b>	<b>\$5,124,320</b>	<b>\$23,917,791</b>	<b>\$6,692,975</b>	<b>\$17,224,816</b>
<b>Subtotal</b>	<b>\$9,731,772</b>	<b>\$39,991,946</b>	<b>\$12,590,416</b>	<b>\$27,401,530</b>
Measurement, Evaluation & Research	\$950,815		\$950,815	(\$950,815)
Performance Incentive	\$1,186,954		\$1,186,954	(\$1,186,954)
<b>TOTAL</b>	<b>\$11,869,541</b>	<b>\$39,991,946</b>	<b>\$14,728,185</b>	<b>\$25,263,761</b>
<b>Performance Incentive Calculation:</b>				
Spending Before PI / Total Net Benefits	\$10,682,587			\$26,450,715
10% of Spending / Net Benefits	\$1,186,954			\$2,645,072
<b>Performance Incentive This Period<sup>3</sup></b>	<b>\$1,186,954</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.*
- 3. The Performance Incentive equals the minimum of either 10% share of net benefits, or 10% of total period program expenditures. The ACC approved the incentive calculation in Decision No. 69663. The Maximum Performance Incentive allowed is 10% of the total spending level, including the performance incentive, as ordered in Decision No. 67744.*

**ARIZONA PUBLIC SERVICE COMPANY**

**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2009**

**TABLE 8  
DSM Electric Benefits and Performance Incentive  
Year-to-Date, January 2009 – June 2009**

<b>DSM Program</b>	<b>Program Cost</b>	<b>Societal Benefits</b>	<b>Societal Costs</b>	<b>Net Benefits</b>
<b>Residential</b>				
Low Income <sup>1</sup>	\$563,136	\$427,410	\$427,410	\$0 <sup>2</sup>
Res Existing Homes HVAC	\$1,463,852	\$2,936,578	\$2,046,244	\$890,334
Res New Home Construction	\$628,217	\$2,565,940	\$819,344	\$1,746,596
Consumer Products	\$1,952,247	\$10,144,227	\$2,604,443	\$7,539,784
<b>Totals for Residential</b>	<b>\$4,607,452</b>	<b>\$16,074,155</b>	<b>\$5,897,441</b>	<b>\$10,176,714</b>
<b>Non-Residential</b>				
Large Existing Facilities	\$3,097,335	\$13,617,520	\$4,312,479	\$9,305,041
Large Non Res New Const	\$1,345,668	\$7,846,013	\$1,809,616	\$6,036,397
Small Business	\$202,778	\$332,616	\$80,258	\$252,358
Energy Information Svcs	\$33,479	\$328,400	\$34,487	\$293,913
Schools	\$445,060	\$1,793,242	\$456,135	\$1,337,107
<b>Total for Non-Residential</b>	<b>\$5,124,320</b>	<b>\$23,917,791</b>	<b>\$6,692,975</b>	<b>\$17,224,816</b>
<b>Subtotal</b>	<b>\$9,731,772</b>	<b>\$39,991,946</b>	<b>\$12,590,416</b>	<b>\$27,401,530</b>
Measurement, Evaluation & Research	\$950,815		\$950,815	(\$950,815)
Performance Incentive YTD <sup>3</sup>	\$1,186,955		\$1,186,955	(\$1,186,955)
<b>TOTAL</b>	<b>\$11,869,542</b>	<b>\$39,991,946</b>	<b>\$14,728,186</b>	<b>\$25,263,760</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 Staffs' analysis in Decision No. 68647, the societal benefit is equal to the societal cost, resulting in a benefit to cost ratio of 1.00.
3. The ACC approved the incentive calculation in Decision No. 69663. The Maximum Performance Incentive allowed is 10% of the total spending level, including the performance incentive, as ordered in Decision No. 67744. The year to date performance incentive amount is a summation of the performance incentive amount, as calculated during this Reporting Period and the previous Reporting Period of January – June 2008.

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2009**

**TABLE 9  
DSM Electric Benefits and Performance Incentive  
Program-to-Date, January 2005 – June 2009**

<b>DSM Program</b>	<b>Program Cost</b>	<b>Societal Benefits</b>	<b>Societal Costs</b>	<b>Net Benefits</b>
<b>Residential</b>				
Low Income <sup>1</sup>	\$4,977,561	\$4,172,848	\$4,172,848	\$0 <sup>2</sup>
Res Existing Homes HVAC	\$7,955,625	\$17,666,368	\$13,197,506	\$4,468,862
Res New Home Construction	\$5,131,768	\$23,673,406	\$6,571,628	\$17,101,778
Consumer Products	\$12,589,284	\$124,163,910	\$28,600,500	\$95,563,410
<b>Totals for Residential</b>	<b>\$30,654,238</b>	<b>\$169,676,532</b>	<b>\$52,542,482</b>	<b>\$117,134,050</b>
<b>Non-Residential</b>				
Large Existing Facilities	\$16,242,710	\$65,942,303	\$27,404,886	\$38,537,417
Large Non Res New Const	\$7,263,522	\$50,935,689	\$16,384,609	\$34,551,080
Small Business	\$1,904,354	\$2,020,010	\$1,937,350	\$82,660
Bldg Operator Training	\$102,204	\$424,302	\$183,392	\$240,910
Energy Information Svcs	\$122,162	\$826,932	\$227,273	\$599,659
Schools	\$1,652,609	\$4,402,105	\$1,685,455	\$2,716,650
<b>Total for Non-Residential</b>	<b>\$27,287,561</b>	<b>\$124,551,341</b>	<b>\$47,822,965</b>	<b>\$76,728,376</b>
<b>Subtotal</b>	<b>\$57,941,799</b>	<b>\$294,227,873</b>	<b>\$100,365,447</b>	<b>\$193,862,426</b>
Measurement, Evaluation & Research	\$4,248,416		\$4,248,416	(\$4,248,416)
Performance Incentive PTD <sup>3</sup>	\$6,927,599		\$6,927,599	(\$6,927,599)
<b>TOTAL</b>	<b>\$69,117,814</b>	<b>\$294,227,873</b>	<b>\$111,541,462</b>	<b>\$182,686,411</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.
3. The ACC approved the incentive calculation in Decision No. 69663. The Maximum Performance Incentive allowed is 10% of the total spending level, including the performance incentive, as ordered in Decision No. 67744. The program to date performance incentive amount is a summation of the performance incentive amount as calculated during each previous Reporting Period beginning with the January – June 2005, Semi-Annual Report.

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
JANUARY THROUGH JUNE 2009**

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

<b>Reporting Period:</b>	<b>Water<sup>2</sup> Mil Gal</b>	<b>SOx Lbs</b>	<b>NOx Lbs</b>	<b>CO2 Mil Lbs</b>	<b>PM10 Lbs</b>
<b>Jan. - June 2009 Reporting Period</b>	231	4,259	170,355	908	23,473
<b>YTD: January 2009 - June 2009</b>	231	4,259	170,355	908	23,473
<b>PTD: January 2005 - June 2009</b>	1,481	27,336	1,093,427	5,829	150,664

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

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

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

#### **Description**

The Residential Existing Homes Heating Ventilation Air Conditioning ("HVAC") program promotes energy-efficient equipment and proper installation and maintenance of residential heating and air conditioning systems. The program provides training and technical assistance for HVAC contractors and education for consumers about the benefits of energy-efficient heating and cooling systems. Through the APS Qualified Contractor program, APS provides customer referrals to contractors who meet strict program requirements for professional standards, technician training and customer satisfaction.

Currently, the Residential Existing Homes HVAC program has two measures with incentives; AC Rebate with Quality Installation and Duct Test and Repair. In June 2006, APS implemented the AC Rebate measure, which builds on the existing APS Qualified Contractor program and offers financial incentives to encourage upgrades to high-efficiency equipment.

On August 1, 2007, APS began offering the Quality Installation 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 home.

Home Performance with ENERGY STAR® was launched on October 4, 2008. APS partnered with the non-profit Foundation for Senior Living Home Improvements Department ("FSL"), ENERGY STAR® and Arizona contractors to offer comprehensive on-site home energy audits. Contractors that have received specialized building performance training through the FSL perform comprehensive home energy audits using state-of-the-art equipment. The audit provides recommendations for energy efficient home improvements that are tailored to the customer's home. The customer pays for the audit and any subsequent improvements.

On April 7, 2009, the ACC approved the combination of the AC Rebate and Quality Installation measures along with revised incentive levels. This change is described in the Program Modifications section.

#### **Program Modifications**

The September 30, 2008 MER report on this program indicated that rebates for high-efficiency equipment as a stand alone measure did not appear to be cost effective. This was due to: 1) the relatively high minimum federal efficiency standard (13 SEER) leading to lower energy and demand savings margins, 2) the incremental costs for high efficiency equipment remaining high, and 3) very high efficiency (17 SEER and above) equipment not having proportionately higher demand savings relative to energy savings.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

APS developed revisions to the program designed to improve its cost effectiveness and requested approval of them from the ACC on January 16, 2009. APS requested requiring a Quality Installation for every rebate through the combination of the equipment and Quality Installation rebates. The new combined rebate would only be offered through the APS Qualified Contractor network. The Duct Test and Repair rebate would remain as a stand-alone measure. Combining the equipment and Quality Installation measures would improve the program cost effectiveness by lowering free-ridership and improving the savings margins. The higher savings margin would offset part of the high incremental cost from the equipment. The avoided costs were also updated which would improve the program's cost effectiveness. APS also requested changing the availability of the Quality Installation rebate to include 13 SEER equipment. APS requested revised incentive levels for the new combined rebate and also a lower minimum EER requirement (10.8 EER).

The ACC approved the requested changes with a small revision to the 17+ SEER equipment incentive on April 7, 2009. Table 7 above shows that the net benefits (and therefore the TRC results) for the program have improved from the prior six months even with the new combined rebates only being in place since April. The TRC was 1.2 for Jun. – Dec. 2008, and it was 1.4 for this Reporting Period. This significant improvement was due to a high volume of duct test and repair activity and the impact of the revised program changes.

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

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

APS's analysis of this program, as filed on December 28, 2007 in the APS DSM Program Portfolio Plan Update 2008-2010, estimates that the energy efficiency savings expected to result from the Residential Existing HVAC Program could reduce peak demand by approximately 17.1 MW and 814,000 MWh over the life of the measures which are expected to be installed from 2008 - 2010.

### **Programs Terminated**

No programs were terminated during this Reporting Period.

### **Levels of Participation**

In the first half of 2009:

- A total of 3,900 rebates were paid through the Residential Existing Homes HVAC program. That is 47% more than the same period in 2008. Specifically, APS has paid:
  1. Old AC Rebate Incentive Levels
    - a. 1,690 of the \$250 AC rebates for 14 or 15 SEER/11.5 EER equipment
    - b. 340 of the \$400 AC rebates for 16 SEER/12.25 EER and above equipment
    - c. 475 Quality Installation rebates
  2. New AC Rebate Incentive Levels (Starting April 7, 2009)
    - d. 70 of the \$175 AC rebates for 13 SEER/10.8 EER equipment with QI
    - e. 350 of the \$425 AC rebates for 14 - 16 SEER/10.8 EER equipment with QI
    - f. 95 of the \$525 AC rebates for 17+ SEER/10.8 EER equipment with QI

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

3. 880 Duct Test and Repair rebates; made up of 550 repair rebates and 330 tests without repairs. Only the repair rebates are used for calculating the demand and energy savings shown in the savings table.
- There are currently 145 contractors participating in the APS Qualified Contractor program compared to 73 at the end of 2008. There are now 27 contractors outside the metro Phoenix area compared to 12 at the end of 2008. There are APS Qualified Contractors currently serving Arizona City, Aquila, Big River, Bouse, Casa Grande, Chino Valley, Clarkdale, Coolidge, Cornville, Cottonwood, Eloy, Flagstaff, Florence, Globe, Jerome, Kingman, Lake Havasu, Lake Montezuma, Parker, Payson, Prescott, Prescott Valley, Quartzite, Sedona, Waddell, Wickenburg, Whitman and Yuma. After the changes to the program were approved on April 7, 2009 APS and the Electric League of Arizona (“ELA”) held two condensed training classes in order to facilitate contractor’s efforts to become APS Qualified Contractors so they could offer the new combined rebates. Those classes were held on May 7 – 8 and, due to demand, again on June 17 – 18. Both classes were filled to capacity. These classes are normally held in the Spring and Fall and are held at night. Since the approval of the program changes came after the Spring class session was over APS offered the condensed classes.
  - Including both metro and non-metro training classes, 572 students participated in APS sponsored training courses in order to meet APS Qualified Contractor program training requirements from January – June 2009. This represents 33% more students trained during this Reporting Period than the same period in 2008.
  - Sponsored a Wrightsoft Manual J class at the ELA that had 29 students that received training on the Manual J calculations using the Wrightsoft software.
  - The APS Energy Answer Line provided over 5,100 referrals to customers seeking HVAC service, repair or replacement of their home HVAC system in this Reporting Period. That is 2,500 referrals less than the same period in 2008.
  - There are currently 35 Building Performance Institute certified contractors that are receiving Duct Test and Repair referrals. 1,645 referrals were provided to customers from January through June 2009. There are five contractors outside of the Phoenix. They serve Flagstaff, Yavapai County and Yuma.
  - Currently, we have 13 Home Performance with Energy Star® contractors. 289 customer referrals were given from January to June 2009.
  - There were 12,309 visits to the Residential HVAC section of aps.com. The APS Qualified Contractor list, which is posted on aps.com, had 5,227 visits from April – Jun. 2009.
  - There were 44,245 unique user visits to the APS Energy Survey home energy audit at aps.com. That is up from 9,291 visits from the prior six months.

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

During this Reporting Period the Residential HVAC program MER research data collection and analysis activities conducted by Summit Blue Consulting included:

- Revised and updated residential HVAC engineering analysis model to include performance of current state-of-the-art in HVAC equipment like dual compressors and very high SEER equipment.
- Revised and updated analysis methodology for estimating savings from quality installation and duct leakage measures.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

- Continued fielding end-use metering data collection for sample of high-efficiency equipment rebate participants. Results of the study will be available by the end of 2009 and will be used to calibrate savings models and update savings for residential HVAC measures for the 2009 MER report.
- Currently conducting pre- and post-retrofit monitoring of residential HVAC system energy use as part of the AZ DOE home performance study.

### MER Adjusted Gross kW and kWh Savings<sup>1</sup>

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
14 SEER/11.5 EER, \$250	1,690	510	862	15	12,929	0.378	0.6
16 SEER/12.25 EER, \$400	340	1,052	358	15	5,365	0.308	0.1
Quality Installation, \$100	475	735	349	15	5,237	0.712	0.3
13 SEER/10.8 EER w/ QI, \$175	70	707	49	15	742	0.525	0.0
14 SEER/10.8 EER w/ QI, \$425	178	1,149	205	15	3,068	0.841	0.1
15 SEER/10.8 EER w/ QI, \$425	97	1,413	137	15	2,056	1.010	0.1
16 SEER/10.8 EER w/ QI, \$425	75	1,559	117	15	1,754	0.889	0.1
17 SEER/10.8 EER w/ QI, \$525	61	1,857	113	15	1,699	1.005	0.1
18 SEER/10.8 EER w/ QI, \$525	19	2,156	41	15	614	1.119	0.0
19+ SEER/10.8 EER w/ QI, \$525	15	2,455	37	15	552	1.233	0.0
Duct Test and Repair <sup>2</sup>	550	1,228	675	10	6,754	1.716	0.9
<b>TOTAL</b>	<b>3,570</b>		<b>2,943</b>		<b>40,771</b>		<b>2.5</b>

1. Includes adjustments to savings as described in the Residential Existing HVAC Program Impact and Evaluation MER Report.
2. Duct Test and Repair total number of units only shows the number of rebates paid for repair work. The rebates paid for just the Duct test are not included.

The final savings are adjusted for line losses (Energy 7.8%, Demand 11.7%).

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

### Benefits and Net Benefits/Performance Incentive Calculation

The MER Adjusted net benefits are provided in Tables 7, 8, and 9, as are the details for the MER Adjusted Performance Incentive Calculation.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

### Problems Encountered and Proposed Solutions

The ACC approved revisions to the program on April 7, 2009 that included allowing only APS Qualified Contractors to offer the new combined equipment and quality installation rebate. One of the requirements to being an APS Qualified Contractors' is membership in both the ELA and its Heat Pump Council. Many contractors have expressed their concern about this requirement since the change was implemented. In response to contractor concerns and also a letter from Commissioner Pierce, APS reached a compromise with the contractors on this issue and submitted it to the ACC for consideration and approval on June 12, 2009. Currently, that request is pending ACC action.

### 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	\$861,284	\$93,948	\$128,850	\$265,369	\$92,671	\$21,730	\$1,463,852

### Findings from all Research Projects

NA

### Other Significant Information

APS again sponsored a Wrightsoft Manual J sizing calculation class that was promoted and managed by the ELA. It continues to be a very successful class and we plan on offering it again in the Fall 2009.

Home Performance with EnergyStar® was launched on October 4, 2008. It utilizes home energy efficiency contractors to provide customers a detailed audit of ways they can improve their homes' energy efficiency. It serves as a delivery mechanism for the Residential HVAC Duct Test and Repair and other AC rebates, plus it also supports the usage of CFLs and other energy efficiency measures. It is being marketed to customers and also being used to give customers with high bill complaints an option to lower their bills. The following is an example of how the process works when a customer calls in with a high bill complaint. The customer gets referrals to several contractors who can come to their house and do a full home energy audit that is based on EPA Home Performance with Energy Star® specifications. The audit provides the customer with a comprehensive list of potential improvements to make their home more energy efficient. The customer has the option of which improvements, if any, that they want to make to their home. A key part of the EPA's Home Performance with Energy Star® audit is duct testing and repair work. The contractor will provide a recommendation on how the home can be repaired to reduce its energy usage and how the customer's cost can be mitigated with the existing APS HVAC rebates. Home Performance with Energy Star® can also serve as a good platform to expand into a comprehensive home retrofit program that was included in the July 15, 2009 APS 2010 Implementation Plan filing.

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

## ARIZONA PUBLIC SERVICE COMPANY

### DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

- TV ads promoting the program ran on Cox Cable, Fox Sports, KASW, KAZT, KNXV, KPNX, KSAZ, KTVK, KUTP, KTAZ-TV (Telemundo Spanish).
- Filmed a video describing the Duct Test and Repair process and rebate that was posted on aps.com in April 2009. It was viewed 639 times from April to June 2009.
- Radio ads to promote the program ran on KTAR-FM in Phoenix.
- Articles in: APS Lifestyles Bill Insert for January - February (Duct Test and Repair, Home Performance with Energy Star®); March - April (Spring AC Check-up, Duct Test and Repair); April - May (Spring AC Check-up); and May - June (Duct Test and Repair, AC Rebates).
- An ad placement in the May HVACR Today newspaper targeted to the HVAC industry. The ad promoted the APS AC Rebate, Quality Installation and Duct Test and Repair rebates to contractor and manufacturer/distributor trade allies.
- Presentations on the APS Residential DSM programs to numerous community groups.
- The homepage of aps.com prominently features APS energy efficiency and renewable energy 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.

# ARIZONA PUBLIC SERVICE COMPANY

## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

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

#### **Description**

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

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

#### **Program Modifications**

On June 29, 2009, APS filed with the ACC for approval of a "second-tier" Energy Star® Plus measure that proposes offering a higher incentive of \$1000 per home for builders who meet a higher energy efficiency standard than the current measure. The new measure would be equivalent to a savings of at least 30% compared to typical new construction – approximately double the 15% savings of the current Energy Star® homes program measure. This program enhancement will represent a significant step on the road to Net-Zero Energy Homes, as ordered by the ACC in the December 2008 Decision No. 70666.

On April 8, 2009, APS kicked-off a new program promotion to homebuilders (APS Energy Star® and Solar Homes) that combines demand side management and renewable energy incentives that will encourage builders to offer both energy efficiency and solar features in their new home communities. The program requires builders to meet the standards of the APS Energy Star® Homes program as a pre-requisite for being able 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. To participate, builders commit that all of the homes in a community will be APS Energy Star® homes, and that all will be "solar ready" (pre-wired and plumbed to accommodate future solar PV panels and/or water heaters). In addition, they must commit to installing PV and/or solar hot water systems included in at least 50% of the homes in a participating subdivision. At the end of this Reporting Period, the Shea Homes Trilogy at Vistancia project was the first builder to sign an agreement to participate in the combined APS Energy Star® and Solar program beginning with July 1st home starts.

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

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

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

efficiency upgrades will be sustained for the life of the home to produce very cost-effective savings.

APS's analysis of this program, as filed on December 28, 2007 in the APS DSM Program Portfolio Plan Update 2008-2010, estimates that the energy efficiency savings expected to result from the Residential New Construction Program could reduce peak demand by about 9.7 MW and 457,632 MWh over the life of the measures which are expected to be installed from 2008 - 2010.

### **Programs Terminated**

No programs were terminated during this Reporting Period.

### **Levels of Participation**

During this Reporting Period, APS signed up 1,328 homes that are committed to being built to program standards. At the end of this Reporting Period, there were 35 homebuilders and 137 subdivisions with 21,743 future lots signed up to participate in the program. However, due to the ongoing recession and its impact on the housing market, nine participating APS Energy Star® homebuilders (Countrywalk Homes, David Weekly Homes, Elite Communities, EnviroGreen Solar Homes, Equus Development, Ericksen Custom Homes, John Laing Homes, Nicholas Homes, and Richmann Construction) declared bankruptcy during this Reporting Period, removing 708 lots that had previously been committed to the program from participation. 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.

APS paid homebuilder incentives for 695 APS Energy Star® homes 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 5,774 homes.

APS is currently partnering with Unisource Energy and the Energy and Environmental Building Alliance ("EEBA") to bring the "Houses That Work" building science training to Prescott on August 7, 2009. The training for homebuilding industry professionals will cover important home construction details (including framing, insulation and ductwork) and proper installation techniques for maximizing energy efficiency, comfort, and building durability. It will also include information about rebates and incentives available to builders for incorporating energy efficiency and renewable energy into their construction projects.

In March, APS conducted the second annual Home Energy Rating System ("HERS") rater workshop and luncheon. The HERS raters are an essential trade ally to the new homes program; they are the independent home testing and inspection companies that certify that homes in the program meet the Energy Star® standards. The annual all-day workshop provides an opportunity to discuss APS program plans, get feedback from raters on challenges they are facing in the field, and have a general dialogue about ways to recruit builder participants and expand the reach of the program. All of the HERS raters in Arizona who work on this program were in attendance for this valuable workshop.

APS held several days of detailed training with participating APS Energy Star® homebuilders. The training, called "Success with Energy Star®", teaches builders and their subcontractors about

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techniques for improving construction details that impact efficiency and that allow the home to pass Energy Star® inspections. The training includes customized construction detail photos and process checklists to ensure implementation accuracy at the job site. During this Reporting Period, APS held Success with Energy Star® training sessions with Robson Communities (January), Ashton Woods (January), TW Lewis (March), Shea Homes Active Adult and Family divisions (May), Taylor Morrison Homes (June) and William Lyon Homes (June). APS also held one-day trade focused Success with Energy Star® training sessions for HVAC contractors in March. In addition, APS provided sales training and/or technical training assistance to numerous Arizona builders including Robson Communities, Newland Communities, Columbia Communities, TW Lewis, Richmond American, and Pulte Homes.

### Evaluation and Monitoring Activities and Results

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

- Conducting detailed review and analysis of HERS rater data and documentation to develop profiles and performance characteristics of participating homes.
- Accessing HERS rater data on non-participating homes and currently analyzing non-participating home energy performance to refine the baseline for savings calculations.
- Revising and updating residential new home building energy simulation models to reflect population of homes participating in the program.
- Conducting measurement and verification field research of the performance for non-participating builder homes.
- Conducting a study of residential HVAC run-time during peak days as part of the residential HVAC equipment sizing study. Results of this study expected to be available by the end of Summer 2009.

### 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	695	2,505	1,877	20	37,535	1.5	1.3

\* Includes adjustments to savings as described in the Residential New Construction Program Impact and Evaluation MER Report.

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 are provided in Tables 7, 8, and 9, along with the details for the MER Adjusted Performance Incentive calculation.

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### Problems Encountered and Proposed Solutions

This program has been successful to date, despite the residential new construction market decline over the past couple of years. APS first indicated the market downturn in our January - June 2006 Semi-Annual DSM Report, and this concern continues at a heightened level given the current economy. While the overall market has been down, the APS program has seen increasing market share, especially as the trend for energy efficient and "green" homes has grown. However, during this Reporting Period, there continued to be a lack of new home construction activity and lower than anticipated rebates being issued for this program. There are some indications that the market is beginning to rebound, so APS is hopeful that we will see more program activity in the second half of 2009 and into 2010.

### 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	\$278,000	\$68,404	\$315	\$91,457	\$144,852	\$45,191	\$628,219

### Findings from all Research Projects

No findings to report at this time.

### Other Significant Information

In recognition of the outstanding results from the APS Energy Star® Homes Program, APS was selected by the US Environmental Protection Agency ("EPA") and the US Department of Energy ("DOE") as a 2009 Energy Star® Partner of the Year Award winner for "Energy Efficiency Program Delivery". This is a highly coveted award that is bestowed upon less than 1% of all Energy Star® partners each year. It is earned by Energy Star® partners who do the best job of delivering energy efficiency programs. APS has now earned the award for three years running: In 2007 for the APS Consumer Products program (Energy Star® lighting), and in 2008 and 2009 for the APS Energy Star® Homes program.

Program marketing efforts during this Reporting Period include the following:

- Currently working on a new 5-minute video segment targeting potential homebuyers. The video will be available on aps.com and also made available for builders to use in their model homes or sales centers. The video is designed to help homebuyers understand the features and benefits of purchasing an energy efficient home that meets the standards of the Energy Star® program.
- Completed the APS Energy Star® + Solar builder's guide to help explain the various technologies and features of energy efficient and solar home measures.
- 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.
- Monthly 2-page placement in New Homes Today (magazine targeted to prospective homebuyers).

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- Energy Star® feature webpages on Newhomeswebzine.com – website targeted to prospective Arizona homebuyers.
- Homestore.com/Move.com – (website for Realtors and homebuyers).
- Distributed APS Energy Star® Home program book for builder sales agents to use in selling the features of Energy Star® Homes to prospective homebuyers. The books are being distributed through model home sales offices of participating APS Energy Star® builders.
- 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.
- Homebuyer brochure that is targeted to new buyers which discusses the features and benefits of an Energy Star® home. The brochures are being distributed at community events and at participating builder's model home sales offices.
- Information on aps.com. Website homepage has been updated to highlight APS energy efficiency and renewable energy programs. APS Energy Star® Homes program is now featured prominently on aps.com.
- Construction Corner at aps.com – webpages targeted to Arizona homebuilders.
- Article placement in the APS Lifestyles residential newsletter in March/April and April/May newsletters.
- Press release on APS Energy Star® Homes program accomplishments issued April 2, 2009.
- Radio ads aired as part of the "Better Tomorrow Starts Today" ad campaign. Focuses on the energy savings and environmental benefits of APS Energy Star® Homes.
- Sponsorship of the HBACA "Parade of Homes" spring 2009 promotion with the Arizona Republic – provided an opportunity to highlight the APS Energy Star® Homes communities that were included in the Parade.
- APS Energy Star® Homes TV commercial ran during sports and news segments, and as part of ongoing placement contract with Cox Cable.
- 2010 Homebuilder's Association member directory, back cover ad placement (January).

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

#### **Description**

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

#### **Program Modifications**

No modifications for this Reporting Period.

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

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.

APS's analysis of this program, as filed on December 28, 2007 in the APS DSM Program Portfolio Plan Update 2008-2010, estimates that the energy efficiency savings expected to result from the Consumer Products Program could reduce peak demand by about 43.7 MW and 2,016,000 MWh over the life of the measures which are expected to be installed from 2008 - 2010.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.

#### **Levels of Participation**

During this Reporting Period, the program resulted in sales of 1,005,982 CFLs through participating retail locations. In addition, APS distributed 14,564 CFLs during community events and consumer education seminars, for a combined total of 1,020,546. There were also approximately 315 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, Bashas/Food City, Costco, CVS, Do It Best, Dollar Tree, Family Dollar, Fry's Electronics, Grocery Outlet, Home Depot, Lightbulb Store, Lowe's, Sam's Club, True Value, Wal-mart.

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

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

- Conducting secondary research on key factors and performance variables affecting savings and cost-effectiveness, and planning primary field research and measurement activities to confirm and update key variables.
- Deploying residential lighting run-time hour study. Results of the study will be used to verify residential operating hours by space type (e.g., kitchen, living room) and home size, as well as demand coincidence factor. Results will be available by the end of 2009 and included in the July through December 2009 Report.

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- Continued reviewing and updating CFL Measure Analysis Spreadsheets.

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

Total No. of Units Sold	Units currently in service in APS territory	Wattage	Watts Saved	Hours Per Year	Est. Measure Life (yrs)	Annual MWh Savings	Lifetime MWh Savings	kW Demand Savings	
1334	1126	7	33	1000	6	40.94	246	5	
1739	1467	9	31	1000	6	50.13	301	6	
1354	1143	10	30	1000	6	37.77	227	4	
16,859	14,226	11	29	1000	6	454.64	2728	54	
316	267	11	34	1000	6	9.99	60	1	
297,133	250,733	13	47	1000	6	12,986.45	77,919	1536	
434,546	366,687	14	46	1000	6	18,588.11	111,529	2198	
26,050	21,982	14	51	1000	6	1235.43	7413	146	
35,203	29,706	15	45	1000	6	1473.11	8839	174	
74,537	62,897	15	50	1000	6	3465.64	20,794	410	
10,847	9153	16	49	1000	6	494.25	2966	58	
12,318	10,394	18	57	1000	6	652.92	3917	77	
5306	4477	19	56	1000	6	276.31	1658	33	
2403	2028	20	55	1000	6	122.90	737	15	
434	366	20	65	1000	6	26.23	157	3	
47,435	40,028	23	77	1000	6	3396.50	20,379	402	
15,161	12,793	23	97	1000	6	1367.54	8205	162	
1245	1051	26	64	1000	6	74.10	445	9	
68	57	26	69	1000	6	4.36	26	1	
35,107	29,625	26	74	1000	6	2415.83	14,495	286	
146	123	29	121	1000	6	16.43	99	2	
4	3	40	110	1000	6	0.41	2	0	
1001	845	42	108	1000	6	100.53	603	12	
<b>1,020,546</b>	<b>725,608</b>					<b>SUBTOTAL</b>	<b>47,291</b>	<b>283,746</b>	<b>5592</b>
						Line Loss Factors	7.8%		11.7%
						Reserve Capacity Factor			15%
						<b>TOTAL</b>	<b>50,980</b>	<b>305,880</b>	<b>7183</b>

\* Includes adjustments to savings as described in the Consumer Products Program Impact and Evaluation MER Report.

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### Benefits and Net Benefits/Performance Incentive Calculation

The MER Adjusted net benefits are provided in Tables 7, 8, and 9, along with the details for the MER Adjusted Performance Incentive calculation.

### 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
Consumer Products	\$1,143,964	\$398	\$24,525	\$549,226	\$168,523	\$65,610	\$1,952,246

### Findings from all Research Projects

No findings to report at this time.

### Other Significant Information

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

The program conducted 1066 retailer visits and 218 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 purchased a supply of CFLs to use for the low income program and for customer education and awareness building purposes. APS uses these bulbs for direct installation through the APS Low Income Weatherization program (2 bulbs provided for each home that is weatherized) and to hand out at local community events and other opportunities to educate the public about CFLs.

APS conducted extensive community education and customer outreach efforts to promote the CFL program and educate customers. Consumer education events during this Reporting Period included:

- 1/9 Phoenix Suns Game, Phoenix
- 1/30 Home Depot, Phoenix
- 2/3 Horizon High School
- 2/8 Chinese Cultural Center, Phoenix
- 2/9 Refugee Energy Workshop, Phoenix
- 2/20 Home Depot, Phoenix

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- 2/25 Home Depot, Glendale
- 3/7-8 Tres Rios Nature Festival
- 3/13-14 Southwest Build It Green Expo
- 3/17 Hunter Douglas Green Day
- 3/21-22 Luke AFB Air Show
- 3/28 Home Depot Payson
- 3/29 Glendale Green Festival
- 4/1 Phoenix Suns Game
- 4/16 National Guard Earth Day
- 4/16 Valley Forward Livability Summit
- 4/17 Friendly House Dinner
- 4/17 Dinner for Hispanic Business Students
- 4/18 March of Dimes March for Babies
- 4/19 AZLCV 2009 Earth Day Event
- 4/22 Keep Phoenix Beautiful Earth Day Event
- 4/22 Grand Canyon Earth Day
- 4/24-25 McDowell Mountain Music Festival
- 5/1-3 Maricopa County Home Show
- 5/5 Terravita Community Event
- 5/6 ARRA Stimulus Workshop
- 5/13 EduPrize Elementary School
- 5/14 AZ Coalition for Wilderness
- 5/15 Arizona Community Action Association Event
- 5/16 Verde Valley Home and Business Expo
- 5/19 Phoenix Suns Benefit Fair
- 5/20 APS Shareholders Meeting
- 5/20 Home Depot Casa Grande
- 5/26 Yavapai Green Building Council
- 5/29 Home Depot Surprise
- 6/5 Home Depot Surprise
- 6/6 Sam's Club Yuma
- 6/9 Home Depot Prescott Valley
- 6/10 Cornville Green Fair
- 6/13 Juneteenth Celebration, Phoenix
- 6/17 Easy Energy Workshop, Moon Valley
- 6/17 Home Depot Casa Grande
- 6/17 Sam's Club Phoenix
- 6/18 True Value Prescott
- 6/19 Home Depot Phoenix
- 6/19 Ace Casa Grande
- 6/20 Chino Valley Health and Business Expo
- 6/24 Anthem HOA Meeting
- 6/27 Home Depot Prescott
- 6/27 Lowes Casa Grande
- 6/30 Refugee Energy Workshop

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

- Ran "Green Choice" campaign TV spots featuring CFL program messages on Cox Cable, local sports broadcasts (Diamondbacks, Suns) and KNXV TV.
- CFL radio spot was aired on local sports broadcasts.
- Information on the homepage of [aps.com](http://aps.com).
- Extensive public relations and earned media including TV, radio and print articles.
- Article in the April/May APS Lifestyles newsletter
- Point of sale signage at all participating retail locations.

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

#### **Description**

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

#### **Program Modifications**

No modifications for this Reporting Period.

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

- To improve the energy efficiency of homes for customers whose income falls within the defined poverty guidelines.
- To provide customers information on energy management and conservation.
- To provide assistance in paying the electric bill for qualified customers in crisis situations.
- Decision No. 68647 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.

APS's analysis of this program, as filed on December 28, 2007 in the APS DSM Program Portfolio Plan Update 2008-2010, estimates that the energy efficiency savings expected to result from the Low Income Program could reduce peak demand by about 0.9 MW and 39,000 MWh over the life of the measures, which are expected to be installed between the years 2008 – 2010.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.

#### **Levels of Participation**

A total of 203 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	111
Health and Safety	0
Repair and Replace	2
Weatherization	90
<b>Total</b>	<b>203</b>

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

Weatherization measures must pass the cost effectiveness test that is detailed in the federal government's Weatherization Assistance Program (WAP) rules. These rules allow certain

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prescriptive measures, which vary with the climate zone and type of housing construction. Measures not on the prescriptive list must be assessed by a computer analysis to determine the economic feasibility.

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

Once the sample size of the ongoing AEO study exceeds the previous sample size of 150 homes, APS will begin utilizing the new factors for evaluation purposes.

Information from the AEO report for fiscal year 2008 is provided below:

### **Utility Bill Analysis**

An analysis of 120 homes has been completed from July 2007 through December 2008, 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 15 years measure life, discount rate of 3% and a utility cost escalation rate of 3%.

On evaporative cooling conversions to air conditioning only, present value includes water saving of \$100 per year.

### **Results Summary**

The combined SIR of all jobs reviewed to date for funds spent on diagnostics, energy measures and health and safety measures was 0.9. Health and saving represented 13% of expenditures.

The combined SIR of all jobs reviewed to date for funds spent on energy measures and diagnostics was 1.04.

The average saving per home reviewed was 3,400 kWh and 50 therms of natural gas.

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

Of the 203 households participating in the program, a total of 90 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
90	30.0	197,442	3,948,847

The final savings are adjusted for line losses (Energy 7.8%, Demand 11.7%).

The kW and kWh factors used to calculate the savings are based on data from the AEO study of 150 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 and demand savings per home in this study are estimated to be 1,998 "equivalent kWh" and 0.3 kW.

### Benefits and Net Benefits/Performance Incentive Calculation

The net benefits for this program are provided in Tables 7, 8, and 9. The Performance Incentive calculation does not include the Energy Wise Program because, as indicated in Decision No. 68647, this program has a zero net benefit. Consequently, the net benefits for the Energy Wise Program for this Reporting Period as shown in Table 7 are \$0. However, the spending on the Energy Wise Low Income Weatherization Program is included in the total spending, on which the performance incentive is calculated.

### Problems Encountered and Proposed Solutions

The American Recovery and Renewal Act ("ARRA") weatherization funding has caused a temporary slowdown in the weatherization program activities as the agencies ramp-up to spend the ARRA funds. The level of APS funding exclusive of bill assistance, compared to the ARRA funding is shown below:

PY 2009 Weatherization Subgrantees	ARRA Program Operational Funds	ARRA Sub- Grantee Training & Tech Assist	ARRA Total DOE PY2009 Funding	APS Energy Wise Weatherization Program 2009 Funding	Service Areas do not include Indian Reservations which are funded by DOE Golden Field Office (Navajo Nation, Intertribal Council of Arizona)
NACOG	\$6,861,665	\$638,694	\$7,500,359	\$138,047	Yavapai, Coconino, Navajo, Apache
City of Phoenix	\$6,599,175	\$623,690	\$7,222,865	\$154,288	City of Phoenix exclusively
Maricopa County	\$11,037,220	\$874,767	\$11,911,987	\$167,576	Maricopa County less Phx. & City of Mesa
WACOG	\$5,358,024	\$553,418	\$5,911,442	\$85,000	Yuma, La Paz, Mohave
SEAHRC	\$4,168,298	\$486,148	\$4,654,446	\$19,932	Graham, Greenlee, Cochise, Santa Cruz
CAHRA	\$1,911,259	\$358,359	\$2,269,618	\$44,293	Pinal County exclusive of Indian Reservations
Gila County	\$1,414,357	\$330,100	\$1,744,457	\$60,000	Gila County
Subgrantee Totals	\$37,349,998	\$3,865,176	\$41,215,174	\$669,136	

Since ARRA funds must be leveraged with existing funds, APS funds should continue to be expended.

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### 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	\$135,726	-	-	-	-	-	\$135,726
Health & Safety	-	-	-	-	-	-	\$0
Repair and Replace	\$696	-	-	-	-	-	\$696
Weatherization	\$329,714	\$828	\$270	-	-	-	\$330,812
3rd Party Manager - Arizona Community Action Association	-	-	-	\$18,130	-	-	\$18,130
APS Program Support	-	\$4,180	\$103	\$9,895	\$5,250	\$59,040	\$78,468
<b>Total</b>	<b>\$466,136</b>	<b>\$5,008</b>	<b>\$373</b>	<b>\$28,025</b>	<b>\$5,250</b>	<b>\$59,040</b>	<b>\$563,832</b>

This table displays all Low Income 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	1
Evaporative Cooler	0	0
Refrigerators	0	0
Water Heaters	0	0

### Findings from All Research Projects

NA

### Other Significant Information

APS held a Limited Income Summit in May with a number of local social service agencies. This Limited Income Summit was designed to share information about APS's Limited Income Assistance Programs which includes weatherization and bill assistance.

APS continues to support the City of Phoenix Low Income Weatherization Multifamily Housing Project, which includes weatherization and renewable technology in the form of solar water heaters.

A Memo of Understanding ("MOU") with the Hopi tribe was signed for weatherization services. This first step will allow the Inter Tribal Council of Arizona to begin delivering weatherization services to the Hopi Nation.

APS received the National Weatherization Award winner for the Housing Authority of Maricopa County and Maricopa County Multifamily housing project.

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APS made a presentation to ACC Staff to meet the requirements of the ACC Order asking for a compliance review of the weatherization program. ACC staff concluded that the program was in compliance.

Navajo Nation Weatherization Workshop was held on January 27, 2009 in Tuba City for pre-qualified low income APS customers living on the Navajo Nation. Demonstration workshops were held and weatherization kits were distributed to customers completing the workshop. Kits included building envelop sealing materials, caulk, weather-stripping, CFL's, and insulation materials. Due to a lag in the invoicing, the costs for these measures are not included in this Progress Report.

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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 monthly demand) non-residential facilities for energy-efficiency improvements in lighting, HVAC, motors and refrigeration applications. For energy efficiency applications not covered through the prescriptive incentives, the program provides custom efficiency incentives to implement energy-efficiency measures that are evaluated on a case-by-case basis. The program also provides incentives for covering a portion of the cost of an energy study that identifies energy saving opportunities. The program provides educational and promotional pieces designed to assist facility and business owners and operators in making decisions to improve the energy efficiency of their facilities. The Direct Install family of measures; were integrated into the programs during this Reporting Period for facilities which are individually metered with a peak demand of 100 kW and less.

#### **Program Modifications**

The ACC on December 11, 2008 approved the DSM Non-Residential Programs (Solutions for Business) with Decision No.70637. Several program changes were made during this Reporting Period to comply with this decision.

Program changes made during January – June 2009, resulted from Decision No. 70637 and included:

- Changing the definition of a large customer from an aggregated demand of greater than 200 kW to greater than 100 kW.
- All applications were updated to include seven new Prescriptive Measures
  1. Hard-wired CFL measure
  2. Fluorescent Induction Lighting measure
  3. Cold Cathode Lighting measure
  4. Reduced Lighting Power Density measure (only offered for New Construction projects)
  5. Package Terminal Air-Conditioners/Heat Pumps measure
  6. Economizers measure
  7. High-Performance Glazing measure
- Allowing building owners who are not APS customers to receive incentives for qualifying energy efficient investments made in APS's service territory
- Modifying technical assistance incentive restrictions from one per customer per year to one per study. Also increased retro-commissioning incentive cap from a maximum of \$10,000 to \$20,000.

Other program changes this Reporting Period included:

- Developing a web-based proposal generation tool for Direct Install measures, and recruiting, training and approving contractors to provide these measures to all K-12 schools, and non-school premises equal to or less than 100 kW.
- Changing policies and procedures to allow prescriptive measures to be included in custom applications when there are cases where an integrated building energy simulation identifies energy savings opportunities from both prescriptive and custom measures.

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As a result of these changes, all program applications were revised, data tracking systems were expanded and program collateral was updated. A web-based proposal generation tool was developed for contractors participating in the direct install measures. Contractors were recruited, trained and approved to provide direct install measures to all K-12 schools, and non-school premises equal to or less than 100 kW.

In addition we introduced the Pump Test and Repair Initiative, which is a comprehensive pump efficiency improvement program that will be implemented through pump service companies. This program is designed to assist APS in cost effective kWh reduction through pump efficiency improvements such as pump repairs, impeller sizing, and in some cases piping changes. Incentives will be paid through the large existing custom program.

### Program Goals, Objectives and Savings Targets

- Promote and support energy efficiency opportunities for existing large non-residential customers.
- Promote the installation of high-efficiency technologies including, but not limited to lighting, HVAC equipment, motors, and refrigeration systems.
- Increase the efficiency of existing facilities through the testing and retro-commissioning of large central HVAC systems, as well as other end-use measures.

APS's analysis of this program, as filed on December 28, 2007 in the APS DSM Program Portfolio Plan Update 2008-2010, estimated that the energy efficiency savings expected to result from the Large Existing Program could reduce annual peak demand by about 25 MW and 2,464,000 MWh over the life of the measures that are expected to be installed from 2008 – 2010.

### Programs Terminated

No programs were terminated during this Reporting Period.

### Levels of Participation

The Large Existing Facilities Program remains the strongest performing Non-Residential program since its inception. A total of 466 active applications for large existing incentives were received in this Reporting Period, from 156 unique customers. Applications from school districts comprise 55 of the 466 applications. During this Reporting Period, APS paid \$1,781,536 in Large Existing program incentives. 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 by Fund for Active Applications	Incentives Paid
Large Existing – Prescriptive & Custom	\$1,693,187
Large Existing – Studies	\$68,349
<b>Total Large Existing Funds</b>	<b>\$1,781,536</b>

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The ACC approved Decision No. 70637, which requested that APS 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. During this Reporting Period, there were 12 study incentives paid for a total of \$68,349. Four of the applications resulted in implementation for the associated measures. Due to lead times, the remaining eight projects have not yet applied for the program. There have been 30 studies completed since program inception. Of those 30 studies, 35 project applications, Program-to-Date, have resulted in energy efficiency projects, as multiple projects are often identified within a given study.

### **Direct Install**

Direct Install measures were available starting April 2009. Three Direct Install projects were initiated for Large Existing Facilities and none were completed. The following is a list of contractors who are approved and trained with the Direct Install measures:

- DECA Southwest
- Thunderbird Mountain Facilities Performance Services
- US Energy Services, Inc
- MRB Mgmt. Inc.
- Siemens Building Technologies Inc.

Two Direct Install training sessions were held with a total of 22 people from 13 firms trained on the Direct Install proposal generation and tracking web-based software. Of the 13 companies trained, 6 completed applications were received and approved to participate in Direct Install measures.

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

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

- Conducting ongoing review and analysis of Solutions for Business participation database.
- Continuing to review and update detailed program analysis database and calculation algorithms.
- Conducting ongoing primary and secondary research of key factors and performance variables that affect savings and cost-effectiveness of a wide range of measures.
- Currently conducting a field measurement and monitoring study of the performance of variable-speed drive measures.
- Completing the initial phase of a non-residential lighting runtime hour and coincidence factor study. This study is estimated to be completed in 2010.
- Conducted a review of the custom incentive level including a benchmarking analysis against custom incentives being offered by utilities around the country and an analysis of the appropriateness of the current incentive level based on custom incentive participants to date. The results of this analysis justified maintaining APS's current incentive level of \$0.11 per annual kWh saved for custom project applications in the Large Existing Facilities program.
- Currently conducting field inspections and monitoring of the performance of water pumping plant energy use as part of the pump test and repair measure initiative.

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- Ongoing updates to the Measure Analysis Spreadsheets including performance assumptions, incremental cost, cost-effectiveness tests and overall documentation of assumptions.

### MER Adjusted Gross kW and kWh Savings

The following table reflects the MER adjusted total energy and demand saving achievements in the first half of 2009 for the Large Existing Facilities. Only savings from projects that were completed and incentives paid are counted in this report.

#### MER Adjusted kW and kWh Savings<sup>1</sup>

kW SAVINGS <sup>2</sup>	ANNUAL kWh SAVINGS	LIFETIME kWh SAVINGS
4,895	33,590,573	433,918,790

1. Includes adjustments to savings as described in the Solutions for Business Impact and Evaluation MER Report.
2. kW Savings is coincident peak.

The final savings are adjusted for line losses of 7.8 % for energy and 11.7% for demand.

### Benefits and Net Benefits/Performance Incentive Calculation

The MER adjusted net benefits are provided in Tables 7, 8, and 9, along with the MER adjusted Performance Incentive calculation.

### Problems Encountered and Proposed Solutions

The ACC's Decision No.70637 (December 11, 2008) resolved previously reported problems. There are no new problems to report.

### Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Large Existing Facilities	\$1,781,536	\$88,120	\$47,288	\$764,475	\$262,219	\$153,699	\$3,097,337

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
Large Existing Facilities	\$764,475	\$262,219	\$24,663	\$59,423	\$1,110,780

### Findings from all Research Projects

NA

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### **Other Significant Information**

The focal point of program development activities centered on conveying program value to increase participation and leveraging program experience by developing technical resources and advertisements to engage and educate the public. These activities include the following:

**1. Trade Ally Development:** The Trade Ally program experienced significant growth during this Reporting Period. Recruitment efforts through strategic partnerships with professional associations within the energy and contracting industry, trade show and event participation and program advertisements are ongoing and continue to be effective methods for trade ally outreach. Special emphasis has been placed on providing educational and program support opportunities for both existing and potential program trade allies through bi-weekly in-house trade ally training meetings and one-on-one meetings.

Program trade allies received two quarterly editions of the Solutions for Business Trade Ally Newsletter. Newsletter articles provided trade allies with information on program updates, links to useful program information, and upcoming events and training opportunities

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

As a result of the program's focus on trade ally development and recruiting efforts, 46 new trade allies were approved, and at the end of this Reporting Period the program had a total of 103 trade allies.

### **Program and Technical Training Opportunities:**

A total of 26 in-depth training sessions were held with potential trade allies.

Strategic partnerships continue to play an important role in program outreach. During this Reporting Period APS worked closely with the Arizona Chapter of the Association of Energy Engineers ("AEE") to help promote and manage registration of the APS Technical Training series. In addition to providing access to their membership to promote both the trainings and the Solutions for Business program, the local chapter of AEE provided APS with turnkey registration support for the five trainings that occurred during the Reporting Period.

APS continued to work with the Air Conditioning Contractors' Association ("ACCA") board on the ACCA Professional Air Conditioning Contractor Certification Program. APS supported marketing efforts for the program by placing an advertisement in the March and June issues of HVACR. The second series took place in the Spring of 2009 and provided training to 46 air conditioning contractors representing 12 companies. In addition to obtaining valuable knowledge on diagnosing and correcting system problems in the commercial market, all attendees were provided with Solutions for Business trade ally training. These contractors will be on a special list to be referred to customers seeking contractors for Test and Repair projects. Over the course of this Reporting Period 19 of these contractors became Trade Allies.

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### Trade Ally Events

In February, the APS Solutions for Business program held a Trade Ally meeting where special emphasis was placed on program participation, quality requirements and program enhancements and updates. The meeting was attended by over 80 industry professionals representing more than 40 companies.

In May, thirteen program trade allies participated in the APS Stimulus Workshop for Local Governments. Trade allies staffed exhibit booths and tables at the event and were on-hand throughout the day to network with workshop attendees.

### Participation in Trade Ally Hosted Events

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

Miller Lighting Products – Directions for Saving Energy Event  
West-Lite Supply Open House  
Grainger Lighting Seminar  
Siemens Open House

**2. Customer Awareness and Advertising:** One-on-one meetings were held with 332 customers to identify potential projects, and help them move forward with existing ones. In addition to meetings in the Phoenix metro area, meetings were held with customers in Yuma, Flagstaff, and Navajo County.

Outreach efforts focused on finding high-value opportunities to provide the public with program information and energy efficiency education. This was accomplished with the purchase of advertising and editorial space in a number of publications.

Several print advertisements and articles were developed to promote the value of energy efficient projects. Advertisements and article placements for the APS Solutions for Business Program included the following publications:

- ACCA (Air Conditioning Contractors of America) Product Directory
- AIA (American Institute of Architects, Arizona) catalog
- AZRE (Arizona Commercial Real Estate) Magazine
- HVACR Today
- Commercial Executive magazine
- Electric Times
- Phoenix Business Journal
- Phoenix Business Journal – sustainability insert
- Phoenix Business Journal – Book of Lists
- Chamber of Commerce magazines in Phoenix and Flagstaff

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- Arizona Republic
- SBA Small Business Resource Guide
  
- Program information was provided in four issues of APS's Success Newsletter billing insert during this Reporting Period.

### **3. Generate Program Awareness through key events:** Trade shows and conferences included the following:

- Build It Green Tradeshow in March
- ACCA Tradeshow in April
- Chicanos por la Causa 40<sup>th</sup> Anniversary Dinner in April
- Chicanos por la Causa Small Business Expo in April
- APS Stimulus Conference for Local Governments in May
- Casa Grande Chamber of Commerce Lunch in June

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

APS's Technical Training Series offered five classes during the first half of 2009. Materials were developed for each training session, including class notebooks for participants, class evaluations, invitation fliers, and certificates of completion. Class fliers and registrations forms were sent out to the Program's contact list as well as through the AEE member list and Key Account Managers.

The Solutions for Business program was presented at each of these programs. Program staff members were available to answer questions and provide guidance on potential projects.

Classes held in the first half of 2009 included 125 paid attendees in the following courses:

- ***Energy Management Systems*** on February 26th & 27th
- ***Energy Modeling*** on February 27th
- ***Data Center Energy Management*** on March 19<sup>th</sup>
- ***Energy Management for Business (Yuma)*** on May 11th
- ***Energy Management for Restaurants*** scheduled for May 12<sup>th</sup> , but cancelled for lack of attendance
- ***Energy Management for Schools and Government*** on May 13<sup>th</sup>
- ***Energy Management for Business (Flagstaff)*** on May 14<sup>th</sup>

Training organizations and the related classes that were sponsored by the Solutions for Business program included:

- Green Ideas - LEED Trainings and Sustainable Building Advisor certification
- Aka Green – LEED Trainings
- ACCA – Professional Air Conditioning Technician Certification

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

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

#### **Description**

The Non-Residential New Construction and Major Renovations program includes three components: design assistance, custom efficiency, and prescriptive measures. Design assistance involves efforts to integrate energy-efficiency into a customer's design process to influence equipment/systems selection and specification as early in the design process as possible. Custom efficiency provides incentives for non-residential customers and provides feasibility studies to assess the savings from complex applications. Prescriptive incentives are available for energy-efficiency improvements in lighting, HVAC, motors and refrigeration applications.

#### **Program Modifications**

ACC Decision No.70637 (December 11, 2008), approved several program changes which were implemented during the 1<sup>st</sup> half of 2009.

These program changes included:

- Modified the prescriptive lighting measures to a lighting power density measure.
- Application was updated to include new Prescriptive Measures,
  - Package Terminal Air-Conditioners/Heat Pumps measure
  - Economizers measure
  - High-Performance Glazing measure
- Allowed building owners who are not APS customers to receive incentives for qualifying energy efficient investments made in APS service territory
- Modified design assistance incentive restrictions from one per customer per year to one per study.
- Changed Policies and Procedures to allow prescriptive measures to be included in custom applications when there are interactive effects between prescriptive and custom measures.

As a result of these changes, all program applications were revised, data tracking systems were expanded and program collateral was updated.

Another significant change associated with the launch of program revisions associated with this Decision is that the baseline efficiency has been increased from ASHRAE 90.1, 1999 to ASHRAE 90.1, 2004.

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

- Promote integrated design and integrated analysis of alternative high-efficiency design packages through design assistance in new construction and major renovation applications.
- Assist the customer design team in examining alternative high-efficiency design packages through the provision of the design incentive.
- Encourage facility-specific efficiency improvements through custom incentives that are otherwise difficult to cover in a prescriptive program.
- Encourage the integrated systems approach to incorporating energy-efficiency improvements in new construction and major renovation projects.

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- Promote integrated energy efficiency solutions where possible to capture interactive effects and synergistic savings opportunities.

APS's analysis of this program, as filed on December 28, 2007 in the APS DSM Program Portfolio Plan Update 2008-2010, estimates that the energy efficiency savings expected to result from the Non-Residential New Construction Program could reduce annual peak demand by about 5 MW and 489,000 MWh over the life of the measures that are expected to be installed from 2008 - 2010. There have been 22 studies completed since program inception. Of those 22 studies, 8 project applications, Program-to-Date, have resulted in energy efficiency projects, as multiple projects are often identified within a given study.

### Programs Terminated

No programs were terminated during this Reporting Period.

### Levels of Participation

The New Construction program continued to experience strong participation during the first half of 2009, due to projects that were started before the current economic downturn. A total of 79 applications for New Construction incentives have been received, from 48 unique customers. Five of the 79 applications are from school districts. In the first half of 2009, \$844,691 in New Construction incentives were paid. This amount exceeds the annual budget by \$44,691. APS anticipates shifting funds from another program by year end. 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
Large New Construction – Prescriptive, Custom & Design Assistance	\$791,478
Large New Construction – Commissioning Studies	\$53,213
<b>Total Large New Construction Funds</b>	<b>\$844,691</b>

The ACC approved Decision No. 70637, which requested that APS 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. During this Reporting Period, there were six design assistance incentives paid for a total of \$35,213. Two of the applications resulted in implementation for the associated measures. Due to lead times, the remaining four projects have not yet applied for incentives in the program.

### Evaluation and Monitoring Activities and Results

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

- Conducted ongoing review and analysis of Solutions for Business participation database.
- Continued to review and update detailed program analysis database and calculation algorithms.
- Conducted ongoing primary and secondary research of key factors and performance variables affecting savings and cost-effectiveness of a wide range of measures.

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- Conducted review of the custom incentive level including a benchmarking analysis against custom incentives being offered by utilities around the country and an analysis of the appropriateness of the current incentive level based on custom incentive participants to date. This analysis resulted in APS proposing a tiered custom incentive for new construction projects that is paid-out at a higher incentive amount for higher performance levels achieved and also pays an incentive to the designer for including energy savings measures and design concepts in the planning stage.
- Conducted ongoing updates to the Measure Analysis Spreadsheets including performance assumptions, incremental cost, cost-effectiveness tests and overall documentation of assumptions.

### MER Adjusted Gross kW and kWh Savings

The following table reflects the MER Adjusted total energy and demand saving achievements in the first half of 2009 for the Large New Construction Program. Only savings from projects that were completed and incentives paid are counted in this report.

#### MER Adjusted kW and kWh Savings<sup>1</sup>

KW SAVINGS <sup>2</sup>	ANNUAL KWH SAVINGS	LIFETIME KWH SAVINGS
1,794	22,777,775	282,521,263

1. Includes adjustments to savings as described in the Solutions for Business Program Impact and Evaluation MER Report.
2. kW Savings is coincident peak.

The final savings are adjusted for line losses of 7.8 % for energy and 11.7% for demand.

### Benefits and Net Benefits/Performance Incentive Calculation

The MER adjusted net benefits are provided in Tables 7, 8, and 9, along with the MER adjusted Performance Incentive calculation.

### Problems Encountered and Proposed Solutions

The ACC's (December 11, 2008) Decision No.70637 resolved previously reported problems. No new problems are reported for this Reporting Period.

### Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Non Res New Const	\$844,691	\$16,698	\$16,254	\$250,788	\$168,161	\$49,077	\$1,345,669

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

DSM Program	IC - Implementation	IC - Marketing	IC - Education	IC - Technical Services	IC - Total Cost
Non Res New Const	\$250,788	\$159,709	\$13,304	\$12,302	\$436,104

### Findings from all Research Projects

NA

### Other Significant Information

During the first half of 2009, program development activities focused on follow up with projects in progress and increasing program participation. Specific activities are highlighted below.

#### Market Outreach:

In addition to many of the marketing outreach activities described for the Large Existing program, marketing activities associated with the New Construction program continue to 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 on a number of fronts. During this Reporting Period, the Solutions for Business program made significant contacts with the contractor community, and worked with developers and contractors throughout the project development cycle, and have been actively engaged in a pipeline list of 39 new construction projects. Some specific examples of New Construction outreach include:

- Monthly networking at construction industry association meetings, including the Central Arizona Society of Healthcare Engineers (CASHE), the Alliance for Construction Excellence (ACE), the Arizona chapter of the US Green Building Council, and Building Owners and Managers Association ("BOMA") meetings. This attendance is an important part of lead development for future projects which could participate in the program. It also helps to identify and recruit potential trade allies into the program.
- Solutions for Business participation in trade events and conferences including:
  - The Green Buildings and New Technology Conference- the Solutions for Business program was presented to an audience of approximately 250 real estate and development professionals
  - Build it Green - Solutions for Business program staff shared program information at the APS booth and provided attendees with informational handouts. Staff also presented a program in the conference track.
  - The Solutions for Business program had a tabletop display at the Compass Tour event organized by BOMA. Several hundred property managers and industry professionals attended the event and participated in a scavenger hunt intended to gain exposure for exhibitors

Project specific meetings with architecture and engineering firms, developers, contractors and customers continue to occur for projects at all stages of completion. In addition, industry

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professionals were provided with program updates and program-related support. In the first half of 2009, APS Solutions for Business program staff held approximately 108 meetings to discuss program details and identify potential incentive opportunities.

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

#### **Description**

The Small Non-Residential Program provides prescriptive incentives for small non-residential customers ( $\leq 100$  kW of aggregated demand) for energy-efficiency improvements in lighting, HVAC (heating, ventilation, and air conditioning), motors, and refrigeration applications through a simple and straightforward mechanism for program participation. In addition, Small Business customers are eligible for custom efficiency incentives to implement energy-efficiency measures. The program provides incentives for covering a portion of the cost of an energy study that identifies energy saving opportunities. The program also provides educational and promotional materials designed to assist building owners and lease-holders in making decisions to improve the energy-efficiency of their facilities. Finally, Direct Install measures were introduced to the Small Business market in April 2009.

#### **Program Modifications**

In the ACC's Decision No. 70637 (December 11, 2008), several program changes resulted.

The program changes during this Reporting Period include:

- Changed the definition of a Small Business customer in all program materials from an aggregated demand of less than or equal to 200 kW to 100 kW.
- All applications were updated to include seven new Prescriptive Measures
  1. Hard-wired CFL measure
  2. Fluorescent Induction Lighting measure
  3. Cold Cathode Lighting measure
  4. Reduced Lighting Power Density measure (New Construction projects)
  5. Package Terminal Air-Conditioners/Heat Pumps measure
  6. Economizers measure; and
  7. High-Performance Glazing measure
- Allowed building owners who are not APS customers to receive incentives for qualifying energy efficient investments made in APS service territory
- Changed program policies and procedures to make Small Business participants eligible for Custom measures and Technical Assistance.
- Modified technical assistance incentive restrictions from one per customer per year to one per study. Also increased retro-commissioning incentive cap from a maximum of \$10,000 to \$20,000.
- Direct Install measures are now available for small business customers. The program has recruited, trained and approved contractors to provide these measures to all K-12 schools, and non-school premises equal to or less than 100 kW.
- Changed policies and procedures to allow prescriptive measures to be included in custom applications when there are interactive effects between prescriptive and custom measures.

As a result of these changes, all program applications were revised, data tracking systems were expanded and program collateral was updated. A web-based proposal generation tool was also developed for Direct Install measures.

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### Program Goals, Objectives and Savings Targets

- Promote and support energy efficiency opportunities for small non-residential customers.
- Promote the installation of high-efficiency lighting, packaged HVAC equipment, motors, and refrigeration systems.
- Provide customers with direct energy saving opportunity identification and implementation services through the Direct Install family of measures.
- Promote cross-training and energy-efficiency assessment and referral opportunities among HVAC and lighting contractors.

APS's analysis of this program, as filed on December 28, 2007 in the APS Demand Side Management Program Portfolio Plan Update 2008-2010, estimates that the energy efficiency savings expected to result from the Small Business Program could reduce annual peak demand by about 4.9 MW and 227,000 MWh over the life of the measures which are expected to be installed from 2008 - 2010.

### Programs Terminated

No programs were terminated during this Reporting Period.

### Levels of Participation

A total of 42 applications for Small Business incentives were received from 34 unique customers. From January 1 through June 30, 2009, \$30,631 in Small Business program incentives were paid. While the program offers a pre-notification process to reserve incentive funds, final applications are only processed after the project is completed and all required documentation is submitted and approved.

Incentive Status for Active Applications	Incentives Paid
Small Business – Prescriptive	\$30,631
Small Business – Commissioning Studies	\$0
<b>Total Small Business Funds</b>	<b>\$30,631</b>

The ACC approved Decision No. 70637, which requested that APS 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 were no study incentives paid in the Small Business program during this Reporting Period. However, there have been 3 studies completed since program inception; and 2 project applications have resulted in energy efficiency projects.

### Direct Install

The Direct Install measure software and contractor recruitment infrastructure were available starting late April 2009. Twenty six (26) Direct Install projects were initiated for Small Business customers. While none of these projects were completed through June 2009, this new offering is expected to significantly grow participation in the future.

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The following is a list of contractors who are approved and trained with Direct Install:

- DECA Southwest
- Thunderbird Mountain Facilities Performance Services
- US Energy Services, Inc
- MRB Mgmt. Inc.
- Siemens Building Technologies Inc.

### Evaluation and Monitoring Activities and Results

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

- Conducted ongoing review and analysis of Solutions for Business participation database.
- Continued to review and update detailed program analysis database and calculation algorithms.
- Conducted ongoing primary and secondary research of key factors and performance variables affecting savings and cost-effectiveness of a wide range of measures.
- Conducted ongoing updates to the Measure Analysis Spreadsheets including performance assumptions, incremental cost, cost-effectiveness tests and overall documentation of assumptions.

### MER Adjusted Gross kW and kWh Savings

The following table reflects the total energy and demand saving achievements in the first half of 2009 for Small Businesses. Only savings from projects that were completed and incentives paid are counted in this Progress Report.

**MER Adjusted kW and kWh Savings<sup>1</sup>**

<b>kW SAVINGS<sup>2</sup></b>	<b>ANNUAL KWH SAVINGS</b>	<b>LIFETIME KWH SAVINGS</b>
431	1,854,970	7,466,280

1. Includes adjustments to savings as described in the Solutions for Business Program Impact and Evaluation MER Report.
2. kW Savings is coincident peak.

The final savings are adjusted for line losses of 7.8 % for energy and 11.7% for demand.

### Benefits and Net Benefits/Performance Incentive Calculation

The net benefits are provided in Tables 7, 8, and 9, along with the MER adjusted Performance Incentive calculation.

### Problems Encountered and Proposed Solutions

The ACC's Decision No.70637 (December 11, 2008) resolved previously reported problems. No new problems are reported for the first half of 2009.

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### Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Small Business	\$30,631	\$5,690	\$332	\$103,719	\$46,645	\$15,762	\$202,779

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	\$103,719	\$46,645	\$332	\$5,690	\$156,385

Spending in the Small Business program is lower than expected for the first half of 2009 because of lower than expected participation in Direct Install, which is still in the start-up phase.

### Findings from all Research Projects

NA

### Other Significant Information

In addition to many of the marketing outreach activities described for the Large Existing program, marketing activities associated with the Small Business program leveraged small business associations, such as Chambers of Commerce, and developed program education and information to assist small businesses:

- Placement of advertisements in Chamber newsletter ads, the Phoenix Business Journal and the SBA Small Business Resource Magazine;
- Chicanos por la Causa 40<sup>th</sup> Anniversary Dinner and Small Business Expo in April;
- A presentation at the Casa Grande Chamber of Commerce luncheon in June; and
- APS attended a number of meetings of the Phoenix Green Chamber of Commerce and the Phoenix Chamber of Commerce Green Roundtable.

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### **PROGRAM: SCHOOLS PROGRAM**

#### **Description**

The Schools program includes a set-aside budget for schools and provides assistance in reducing the energy used in school buildings, including public, private and charter schools (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**

In the ACC's Decision No.70637 (December 11, 2008), several program changes were approved. Program modifications commenced during this Reporting Period.

Program changes in January – June 2009 from Decision No. 70637 included:

All applications were updated to include seven new Prescriptive Measures:

1. Hard-wired CFL measure;
2. Fluorescent Induction Lighting measure;
3. Cold Cathode Lighting measure;
4. Reduced Lighting Power Density measure (for New Construction projects);
5. Package Terminal Air-Conditioners/Heat Pumps measure;
6. Economizers measure; and
7. High-Performance Glazing measure

- Allowed building owners who are not APS customers to receive incentives for qualifying energy efficient investments made in APS service territory
- Modified technical assistance incentive restrictions from one per customer per year to one per study. Also increased Retro-commissioning incentive cap from a maximum of \$10,000 to \$20,000.

Other program changes in this Reporting Period included:

- Direct Install family of measures are available to all K-12 schools.
- Changed policies and Procedures to allow prescriptive measures to be included in custom applications when there are interactive effects between prescriptive and custom measures.

As a result of these changes, all program applications were revised, data tracking systems were expanded and program collateral was updated. APS developed a web-based proposal generation tool for Direct Install measures, and recruited, trained and approved contractors to provide these measures to all K-12 schools.

In addition, the Arizona Energy Office informed the program in May 2009 that due to other demands on their resources, they could no longer perform work under the program grant that had been provided since the program's inception. This task will now be handled as part of the APS Solutions for Business function.

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

- Maximize the energy savings that can be attained with available DSM funds by providing schools incentives to upgrade lighting, HVAC, and refrigeration systems.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

- Provide educational and training materials to aid schools in other energy conservation projects.
- Provide design assistance, commissioning and energy feasibility incentives to aid schools in identifying energy savings opportunities.
- Provide incentives for other cost effective DSM projects by allowing schools to participate in any Non-Residential DSM Program.

APS's analysis of this program, as filed on December 28, 2007 in the APS Demand Side Management Program Portfolio Plan Update 2008-2010, estimates that the energy efficiency savings expected to result from the Schools Program could reduce annual peak demand by about 2.8 MW and 212,000 MWh over the life of the measures which are expected to be installed from 2008 - 2010.

### Programs Terminated

No programs were terminated during this Reporting Period.

### Levels of Participation

In the first half of 2009, a total of 78 applications from schools were received, representing 19 unique school districts. To date, schools have had a healthy level of participation in the program. While school districts comprise less than 8% of APS's non-residential energy use, to date they have received 22% of the paid program incentive funds for their non-residential energy efficiency projects.

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

Division	Size	Programs	# of Applications	# of Students
Metro	>200	Prescriptive & Custom Measures – Retrofit	11	36,833
Metro	>200	Prescriptive Measures - Retrofit	4	25,441
Metro	>200	Prescriptive Measures - Retrofit	5	24,931
Non-Metro	>200	Prescriptive Measures - Retrofit	8	7,090
Metro	>200	Custom Measures - New Construction	1	6,391
Non-Metro	>200	Prescriptive Measures - Retrofit	1	6,300
Metro	>200	Prescriptive & Custom Measures - Retrofit	5	5,370
Metro	>200	Prescriptive & Custom Measures - Retrofit	2	5,298
Metro	>200	Prescriptive Measures - New Construction	1	4,554
Metro	>200	Technical Assistance & Studies	1	3,914
Non-Metro	>200	Technical Assistance & Studies	2	3,522

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**DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:  
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<b>Division</b>	<b>Size</b>	<b>Programs</b>	<b># of Applications</b>	<b># of Students</b>
Non-Metro	>200	Prescriptive & Custom Measures - Retrofit	10	2,800
Metro	>200	Prescriptive Measures - New Construction	1	2,437
Non-Metro	>200	Prescriptive Measures - Retrofit	1	1,500
Non-Metro	>200	Prescriptive Measures - Retrofit Technical Assistance & Studies	4	1,494
Non-Metro	>200	Custom Measures - Retrofit	1	1,275
Metro	>200	Prescriptive Measures - Retrofit	1	1,250
Non-Metro	>200	Technical Assistance & Studies	1	451

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 \$25,000 or \$15/student cap. Any additional funding required to cover the application is then allocated from the appropriate Large Existing, New Construction or Small Business program budget.

During this Reporting Period, \$797,399 in incentives were paid to schools. The Schools Program incentives of \$298,122 were paid under the schools program. The remaining \$509,740 in incentives was paid to schools under the other non-residential programs (see table below).

<b>Incentive Status by Fund for Active Applications</b>	<b>Incentives Paid</b>
Schools Budget – Prescriptive, Custom, & Direct Install	\$282,986
Schools Budget – Feasibility, Commissioning and Retro-commissioning Studies	\$15,136
<b>Total School Funds</b>	<b>\$298,122</b>
<b>Schools Summary:</b>	
Schools – School Funds	\$298,122
Schools – Large Existing Funds	\$400,238
Schools – New Construction Funds	\$109,502
Schools – Small Business Funds	\$0
<b>Total Paid to Schools</b>	<b>\$807,862</b>

The ACC approved Decision No. 70637, which requested that APS 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. Four schools received study incentives during this Reporting Period. Two of these studies were paid out of the Schools program, one was paid partially out of the schools fund and the other was paid out of the Large Existing fund. Two of the studies resulted in a prescriptive and custom application. There have been 13 studies completed since program inception. Of those 13 studies, 22 project applications, Program-to-Date, have resulted in energy efficiency projects, as multiple projects are often identified within a given study.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

### Direct Install

The Direct Install measure software and contractor recruitment infrastructure were available starting late April 2009. During this Reporting Period, 2 Direct Install projects were initiated for Schools. While none of these projects were completed through June 2009, this new offering is expected to significantly grow participation in the future.

The following is a list of contractors who are approved and trained with Direct Install:

- DECA Southwest
- Thunderbird Mountain Facilities Performance Services
- US Energy Services, Inc.
- MRB Mgmt. Inc.
- Siemens Building Technologies Inc.

### Evaluation and Monitoring Activities and Results

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

- Conducted ongoing review and analysis of Solutions for Business participation database.
- Continued to review and update detailed program analysis database and calculation algorithms.
- Conducted ongoing primary and secondary research of key factors and performance variables affecting savings and cost-effectiveness of a wide range of measures.
- Conducted ongoing updates to the Measure Analysis Spreadsheets including performance assumptions, incremental cost, cost-effectiveness tests and related resource documentation.

### MER Adjusted Gross kW and kWh Savings

The following table reflects the total energy and demand saving achievements in the first half of 2009 for schools projects. Only actual savings from projects that are completed and incentives paid will be counted in this report.

**MER Adjusted kW and kWh Savings<sup>1</sup>**

	<b>kW SAVINGS<sup>2</sup></b>	<b>ANNUAL KWH SAVINGS</b>	<b>LIFETIME KWH SAVINGS</b>
Schools – School Funds	750	4,592,896	63,178,906
Schools – Large Existing Funds	748	5,290,356	82,654,679
Schools – New Construction Funds	107	1,476,206	21,907,020
Schools – Small Business Funds	0	0	0
<b>Total Attributable to Schools</b>	<b>1,605</b>	<b>11,359,458</b>	<b>177,740,605</b>

1. Includes adjustments to savings as described in the Solutions for Business Program Impact and Evaluation MER Report.
2. kW is coincident peak.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

All final saving values are adjusted for line losses of 7.8 % for energy and 11.7% for demand.

### Benefits and Net Benefits/Performance Incentive Calculation

The net benefits are provided in Tables 7, 8, and 9, along with the MER adjusted Performance Incentive calculation.

### Problems Encountered and Proposed Solutions

The ACC's Decision No.70637 (December 11, 2008) resolved previously reported problems. No new problems are reported for the first half of 2009.

### Costs Incurred

Program costs incurred during the first half of 2009 are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Schools	\$298,122	\$9,537	\$3,102	\$58,077	\$56,939	\$19,281	\$445,059

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
Schools	\$58,077	\$56,939	\$3,102	\$9,537	\$127,656

### 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 consisted of five areas of focus:

- 1. Trade Ally Development:** Trade Ally recruitment and support efforts during this Reporting Period focused on improving program knowledge by providing opportunities for development and training. Several meetings were held with ESCO's to discuss specific needs and incentive opportunities for schools. As part of the Direct Install launch, a separate training for State of Arizona approved ESCO's was held in April, to train participants on the software and market approach.
- 2. Customer awareness and project generation:** Thirteen one-on-one meetings were held with schools to identify potential projects.
- 3. School Education to improve Energy Efficiency:** The APS Technical Training Series included Energy Management Solutions for Schools in May 2009. This class focused on specific school energy issues and the 23 attendees acquired the knowledge needed to make detailed energy plans for their facilities. AASHRAE guidebooks that provide detailed

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

strategies and benefits for energy efficiency in new school construction were provided to all attendees.

- 4. Coordination with the Schools Facility Board:** While the program has coordinated with the Schools Facility Board ("SFB") since the program launch, briefings were held with the Arizona School Facility Board during this Reporting Period on Direct Install and federal stimulus funding to maximize school use of both programs. Program staff delivered a presentation on Direct Install at the May Board meeting of the SFB. This was followed by a meeting with the SFB's Director and staff.
  
- 5. Coordination with the Arizona Energy Office:** While the APS Solutions for Business program renewed a grant to the Arizona Energy Office for the purpose of increasing school participation among rural school districts in Arizona, the Energy Office informed the program in May 2009 that they could no longer fulfill the obligations of the grant. Therefore, this task will now be included in the APS Solutions for Business functions.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

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

#### **Description**

The EIS Program, which was made available to APS customers on November 16, 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 (previous day) 15 minute usage and demand graphics. This information can be used to improve or monitor energy usage patterns, reduce energy use, reduce demands during on-peak periods and better manage their overall energy operations.

APS is encouraging customers to take advantage of EIS by providing a one-time incentive of up to a maximum of \$12,000 or 75% of the cost of installing a meter and communications equipment necessary to participate in the program.

#### **Program Modifications**

ACC Decision No.70637, dated December 11, 2008, approved the DSM Non-Residential Program (Solutions for Business). As a result of this Decision, the incentive cap was changed to 75 percent of the incremental cost up to a maximum of \$12,000 per customer per year and will only be paid on meters with a monthly billing demand of over 100 kW.

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

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

APS's analysis of this program, as filed on July 15, 2009 in the APS DSM Program Implementation Plan for year 2010, estimates that the energy efficiency savings expected to result from the EIS Program could reduce annual peak demand by about 0.2 MW and 27,000 MWh over the life of the measures which are expected to be installed in year 2010.

#### **Programs Terminated**

No programs were terminated during this Reporting Period.

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

### Levels of Participation

APS added five customers with 50 meters installed. Installed meters will gather data to be utilized on the web-based energy information system.

The incentive level for participation was \$22,580. The incentive value is reported on the customer invoice as a discount to the initial cost of setting up the EIS System.

### Evaluation and Monitoring Activities and Results

The EIS program MER research data collection and analysis activities included conducting ongoing tracking and review of program participation data.

### MER Adjusted Gross kW and kWh Savings<sup>1</sup>

Meters	Est. Measure Life (yrs)	kWh Savings per Year**	Lifetime kWh Savings	kW Demand Savings <sup>2</sup>
EIS = 66	15	801,625	12,024,368	104

1. To date, there are no adjustments to the EIS savings since the MER impact evaluation is under review.
2. kW savings is coincident peak.

The final savings are adjusted for line losses of 7.8 % for energy and 11.7% for demand.

### Benefits and Net Benefits/Performance Incentive Calculation

The net benefits are provided in Tables 7, 8, and 9, along with the MER adjusted Performance Incentive calculation.

### Problems Encountered and Proposed Solutions

The ACC's December 11, 2008 Decision No.70637 resolved previously reported problems. No new problems are reported 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	\$22,580	\$4,217	\$0	\$5,411	\$0	\$1,271	\$33,479

### Findings from all Research Projects

NA

### Other Significant Information

NA

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

### 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 Energy Information Services ("EIS") MER research plan that was filed on June 24, 2008.

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

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

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

#### **Program Modifications**

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

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

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

NA

#### **Programs Terminated**

NA

#### **Levels of Participation**

NA

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

Refer to each program section for this information

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### **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 \$950,815. The MER budget for 2009 is \$1,300,000 and much of the budget was spent in the first half of 2009 on MER related projects not initially planned for. Examples of these projects include:

- The custom incentive study and analysis required in Decision No. 70637, which was filed on April 1, 2009;
- The pump testing and repair initiative targeted towards a specific segment of customers;
- The Arizona DOE home performance study (pre- and post-retrofit monitoring) of residential HVAC system energy use;
- A study of residential HVAC run-time during peak days as part of the residential HVAC equipment sizing study for new construction applications; and
- Revisions to the Residential HVAC program per Decision No. 70960.

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

NA

### **Other Significant Information**

NA

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## DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JANUARY THROUGH JUNE 2009

### **AMERICAN RECOVERY AND REINVESTMENT ACT (“ARRA”)**

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

The Arizona Energy Office filed an application for \$55 million of the \$3.1 billion SEP funding available and they have been awarded half of the funds; the remaining funds will not be distributed until the first half is spent. The SEP plan includes \$10 million for the State Building Energy Performance Contracting Program and \$20 million for the Energy Efficiency and Renewable Energy in Schools Grant Program, the remaining \$25 million will be distributed to a loan program, agriculture grant, 21 Century Grant and utility renewable programs.

Another type of energy efficiency funding from ARRA is the Energy Efficiency and Conservation Block Grants (“EECBG”), which will provide \$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.

On December 11, 2008, the Commission issued Decision No. 70637, which approved five of APS’s non-residential DSM programs. Decision No. 70637 also included the following provision: “APS shall continually research and monitor other energy-efficiency rebates and incentives, including tax credits, that may be available to its Non-Residential DSM program participants throughout its service territory; and that the Company shall limit its incentive payments to program participants to ensure that the sum of all known monetary incentives, either paid or available to APS program participants from other entities for the same measure is limited APS’s established measure cap (such as 50 percent or 75 percent of incremental cost) unless a different cap is ordered by the Commission.”

APS filed for clarification with the Commission on May 8, 2009, as to whether ARRA funds needed to be considered a “known monetary incentive” under Decision No. 70636 or not. The Commission decided in Decision No. 71243 that ARRA funds should not be subject to the existing DSM incentive caps, but that the sum of all incentives, including ARRA, should not exceed 100 percent of the incremental cost of the measure.

### **ARRA Related Workshop:**

- On May 6, 2009, APS sponsored an interactive, one-day workshop to help Arizona cities and counties gain insight into the Energy Efficiency and Conservation Block Grants (“EECBG”) available from the federal government through the ARRA. APS equipped participants with practical information and tools to help them make the best use of their energy efficiency project funds. These projects can help local governments cut energy costs, reduce emissions, spark economic activity, and provide leadership to the private sector.
- Workshop presenters included national experts on the EECBG funds and on the EPA/DOE ENERGY STAR® benchmarking tool. APS presented a framework for planning and

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implementing energy efficiency projects and offered examples of project financials. APS speakers also provided detail on the grant application requirements and process. The workshop included panel discussions with other Arizona utilities (SRP, TEP/UniSource and Southwest Gas) to present the range of incentives available to participants. Solutions for Business Trade Allies were on-hand to provide further information on project implementation.

- Nearly 300 people participated in the workshop. Attendees traveled from every corner of the state and represented 50 cities/towns, 10 counties and four Indian Nations. It is our understanding that all cities and counties who attended the workshop submitted their application for EECBG dollars

### **Incentives Paid Out**

None at this time.

# Marketing Materials

**Green Choices from  
APS for Your Business**

**A greener Arizona  
starts today.**



**Programs, rebates  
and incentives to  
help your business  
save money while  
keeping it green.**

**APS**

**A better tomorrow starts today.**

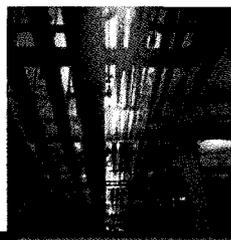
**With green choices  
from APS**



You don't have to radically change the way you run your business to conserve energy, save money, help protect the environment and create a more sustainable future for your business. That's what green choices from APS are all about. This useful guide outlines each program, from the APS Solutions for Business energy efficiency program and renewable energy incentives to the APS rate plans and the APS Energy Analyzer.

Whether you're ready to explore renewable energy options for your business or you just want to find simple ways to cut back on your energy usage, we can help. With APS green choices, even the little things can make a big difference — for the environment and for the future of Arizona. Read on to learn about all the ways you can save with green choices from APS.

- APS Solutions for Business
- Renewable Energy Incentives
- Green Choice Rates
- APS Energy Analyzer



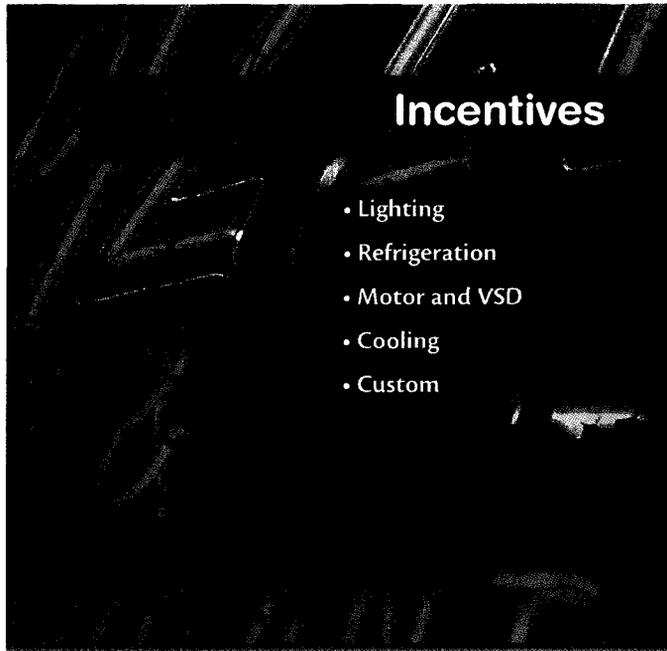
# APS Solutions for Business

Easing the way to  
energy savings.

Reducing your business's energy use is good for your bottom line and for Arizona. And APS Solutions for Business can help shoulder some of the cost. This program provides resources to help businesses, like yours, reduce their energy consumption, including valuable rebates to help offset your out-of-pocket costs. In fact, we'll pay up to 90% of the cost differential between purchasing regular and energy-efficient equipment. You could be eligible to receive up to \$300,000 in incentives per year.

Incentives Available Include:

- Lighting rebates from \$5.00 to \$200.00 per unit
- Refrigeration rebates from \$5.00 to \$200.00 per unit
- Motor and Variable Speed Drive (VSD) rebates from \$1.50 to \$50.00 per horsepower
- Cooling rebates with a base incentive up to \$50.00 per ton, plus an energy efficiency incentive



**Prescriptive Incentives:  
Order off the Menu**

Choose from a list of typical energy-saving measures and apply for a rebate for your new construction project or existing building retrofit. Our "direct install" approach makes it even easier for small businesses to participate.

**Custom Incentives:  
Create Your Own Project**

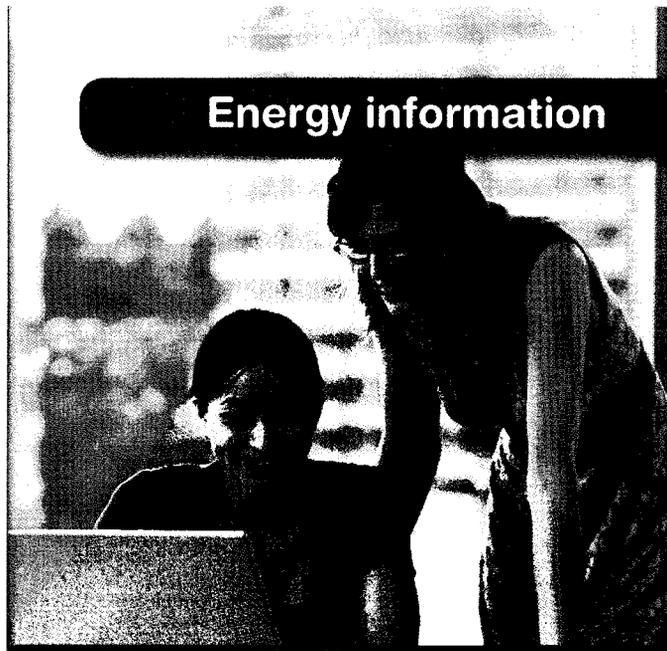
If you have an energy-efficient project that's not on the list of qualified prescriptive incentives, you can apply for custom incentives. These rebates apply both to retrofit projects and new construction projects. Custom incentives are based on projected annual energy savings and are funded at 11¢ per kWh for the first year's estimated kWh savings up to 50% of the incremental cost.

# Training and energy studies

**Energy Efficiency Training.** Not sure how to go about making your business more energy efficient? Our training courses will help you make informed decisions about energy-saving improvements. Check out [www.aps-solutionsforbusiness.com](http://www.aps-solutionsforbusiness.com) for upcoming classes. APS customers and Trade Allies get half off of the cost of these classes.

**Energy Studies.** APS offers incentives for studies that can identify energy-saving opportunities at customer facilities. These studies may include energy feasibility studies, design assistance, commissioning and retro-commissioning services. The program will pay up to 50% of the cost for a qualifying energy study up to \$10,000 per study (\$20,000 for retro-commissioning).

**Trade Ally Program.** Our Trade Allies help inform APS business customers about energy efficiency projects and APS Solutions for Business program incentives. These contractors, engineers, architects, and ESCOs are listed on the program website as a resource to customers. Interested in becoming a Trade Ally? Contact us at 866-277-5605 for more information.



### **Energy Information Services (EIS)**

A little information goes a long way. EIS is a Web-based service designed to help medium and large business customers understand how they use power, so they can manage their energy needs and save money. In addition to usage and demand information, it can provide detailed data on the power expended in specific areas of your facility, giving you the tools you need to fine-tune your operations and optimize your energy consumption. A simple meter upgrade will give you access to a comprehensive profile of your energy usage, broken down into 15-minute intervals. APS business customers can apply for a rebate of 75% of the cost of installing a new meter and setup fees, up to a maximum of \$12,000 per year.

**For more information on APS Solutions for Business or to download an application, visit [www.aps.com/GreenBiz](http://www.aps.com/GreenBiz) or call 866-277-5605.**

# Tomorrow's power solutions, today.

We've only begun to tap into the power of renewable energy, and already the future looks bright. Powering your business with renewable energy is an investment in the future of Arizona. And that's money well spent.

And now, APS customers have more options and more incentives to help take advantage of the many renewable energy resources available in Arizona.

## **Renewable Energy Incentives**

APS incentives make switching to renewable energy resources more affordable than ever. Depending on the size of your system and the type of technology you install, you can receive renewable energy incentives either as a lump sum with an Up-Front Incentive (UFI) or over time as a Production-Based Incentive (PBI) for the actual kilowatt-hour (kWh) produced or displaced. APS payments are capped at 50% of your system's costs for up front incentives and 60% of your system's costs for production based incentives. But, additional state and federal tax credits may offset the costs even further. And with valuable APS rebates for everything from solar energy to biomass and biogas, it pays to be green.



Arizona gets at least 300 days of sunshine a year, so going solar just makes sense. And recent advances in solar technology have made **solar energy** more practical and affordable than ever. With a number of APS solar incentives available statewide, you can help change the future of Arizona just by changing the way you power your business.

Solar energy is abundant, doesn't deplete natural resources and doesn't pollute the environment. Plus, as an APS solar user, you can still be connected to the grid through APS, giving you access to energy any time you need it. And while rising fossil fuel costs may continue to drive up energy costs, apart from the initial investment of solar technology, the sun is a free source of energy.

As a solar user, you may also be eligible for federal and state tax credits or incentives that would offset the system costs even further.

APS incentives for solar vary by technology. A complete schedule of up front and production based incentives can be found online.



**Wind energy** has been around for ages, and the technology keeps getting better. The wind turbines of today are much more efficient than before, so they're better equipped to harness Arizona's wind resources. And with valuable incentives from APS, plus additional state and federal tax credits, wind energy could be an economical way to help meet your company's energy needs.

Customers can choose either a "grid-tied" or an "off-grid" wind system. With a grid-tied system, you're still tied to the APS power grid, which enables you to draw electricity from the grid when your system isn't producing enough power to meet your needs. An off-grid system is installed as a stand-alone system, sometimes with a battery backup.

APS offers Up-Front Incentives (UFI) of up to \$2.50 per installed kW for grid-tied systems and up to \$2.00 per watt for off-grid systems installed in APS service territory. Production-Based Incentives (PBI) are also available and can be found online.

## Biomass and biogas

### Production-based incentives include:

- Electricity generators
- Thermal systems
- Heat and power systems

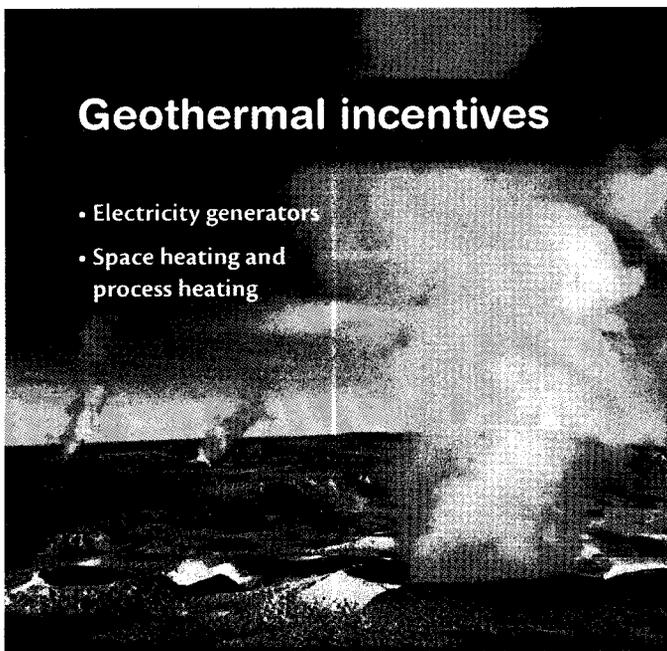
While **biofuels** might not sound familiar, they're hardly new to the U.S. Creating energy from biomass and biogas typically involves burning these resources to produce heat or steam. Steam can be used to turn generators, and spent steam may also be used for manufacturing processes or to heat buildings.

**Biomass and biogas** comprise some of the country's most utilized renewable resources, producing billions of kWh of environmentally friendly electricity every year. And since they're made from biological material like plant matter, biofuels are one of the more readily available renewable resources in some parts of Arizona.

Incentives for biomass and biogas are based on the type of technology installed and their production. A full schedule of available incentive amounts is available online.

## Geothermal incentives

- Electricity generators
- Space heating and process heating



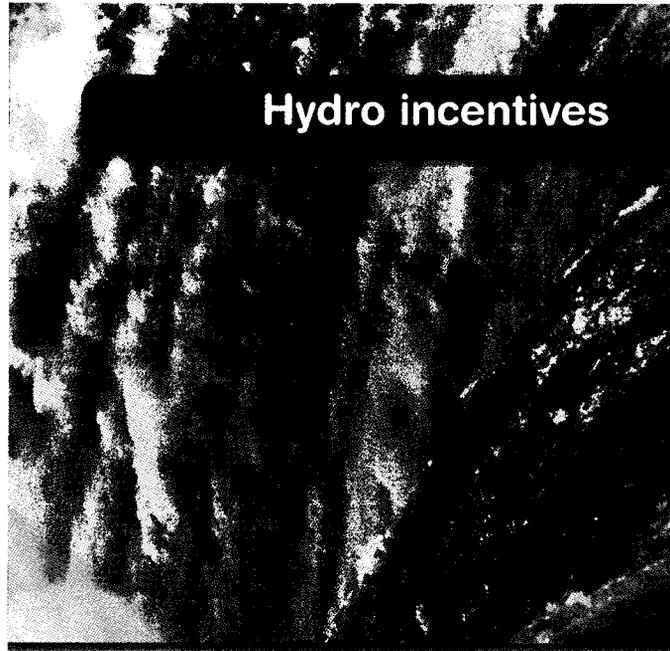
With the help of modern **geothermal** technology, you can stabilize and even reduce your energy costs.

Geothermal employs heat from inside the earth to produce energy that can be used to create electricity, heat up water or provide heat to buildings.

APS offers Up-Front Incentives (UFI) of up to 50¢ per watt for electric generation and up to \$1.00 per watt for space or process heating using geothermal technology. A schedule of Production-Based Incentives (PBI) is available online.

Depending on how you intend to use geothermal resources, the process to reserve funding varies.

To see how this clean, renewable resource can help your business, partner with an industry professional who can design a system to meet your needs.



Simply put, **hydro energy** is produced by using electricity generators to extract energy from moving water.

For more information on hydro applications and available incentives, please call us at 602-328-1924 to discuss the parameters of your program. We will evaluate your project to determine if it's eligible for renewable energy incentives from APS.

Geothermal and hydro renewable energy incentives are only available in certain parts of Arizona. Availability depends on geography and other factors.

Only systems installed in APS service territory are eligible for the APS Renewable Energy Incentive Programs.

**To find out more about renewable energy incentives from APS, visit [www.aps.com/GreenBiz](http://www.aps.com/GreenBiz) or call us at 602-328-1924.**

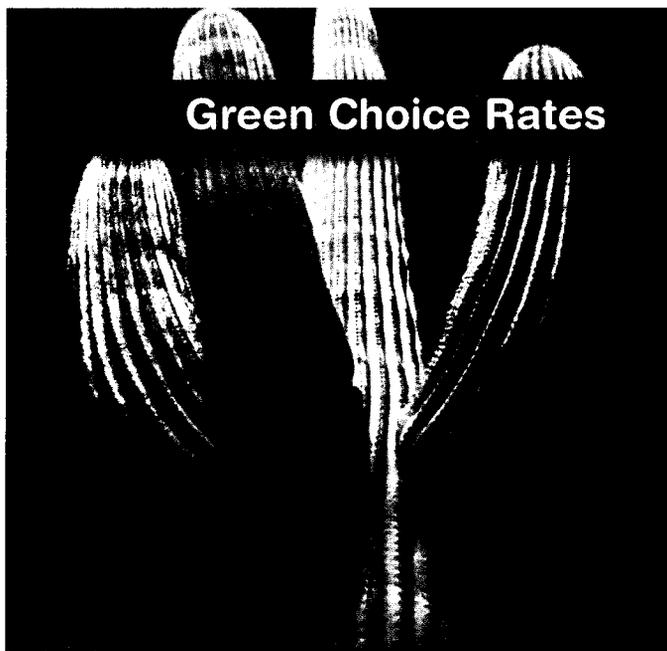
# A simpler way to support renewable resources.

The easiest way to go green is by choosing the way you get power from APS. By signing up for one of our Green Choice Rates, you can support a variety of renewable energy resources, like solar, wind and geothermal power.

And with Green Choice Rates, you get to choose how much of your electricity you want to come from renewable resources. Just select from one of these easy, affordable rate plans.

**Green Choice Block Option.** Purchase electricity from renewable resources in fixed blocks of 100 kWh, at 1¢ plus tax per kWh. This premium will be added to your normal monthly charges. Once you've decided how many blocks you want to purchase, you'll pay the same premium each month.

**Green Choice Percentage Option.** With this plan, you decide what percentage of your monthly usage you want to come from renewable energy resources — 10%, 35%, 50% or 100%. Just as with the Block Option plan, each Percentage Option kWh is priced at 1¢ plus tax and paid in addition to your normal



monthly charges. However, your premium will change each month, based on your energy usage.

**Green Choice Total Solar Option.** It's easier than ever to take advantage of Arizona's most abundant renewable resource. If you want all of your renewable energy to come from solar but don't want to install a photovoltaic system, this plan could be right for you.

Just choose how much of your monthly usage you want to come from solar, either 50% or 100%. Each kWh is priced at 16.6¢ plus tax, in addition to your normal monthly charges. As with the Percentage Option, your premium will change from month to month, based on your usage.

**For more information on Green Choice Rates, visit [www.aps.com/GreenBiz](http://www.aps.com/GreenBiz) or call 1-800-659-8148.**

## Compare usage with businesses like yours

### APS Energy Analyzer

Managing your energy use doesn't have to be a big job. Take our quick Energy Analyzer and learn simple ways to conserve energy and save money. See how your business uses energy, compare your usage with businesses like yours and get ideas to help lower your energy bills. To take the APS Energy Analyzer survey and get more tips on saving money and energy, visit [www.aps.com/GreenBiz](http://www.aps.com/GreenBiz).

To learn more about green choices from APS for businesses in APS' service territory or to start the application process, visit [www.aps.com/GreenBiz](http://www.aps.com/GreenBiz).

If you are an APS residential customer, go to [www.aps.com/greenchoice](http://www.aps.com/greenchoice) to learn how you can take advantage of similar programs for your home.

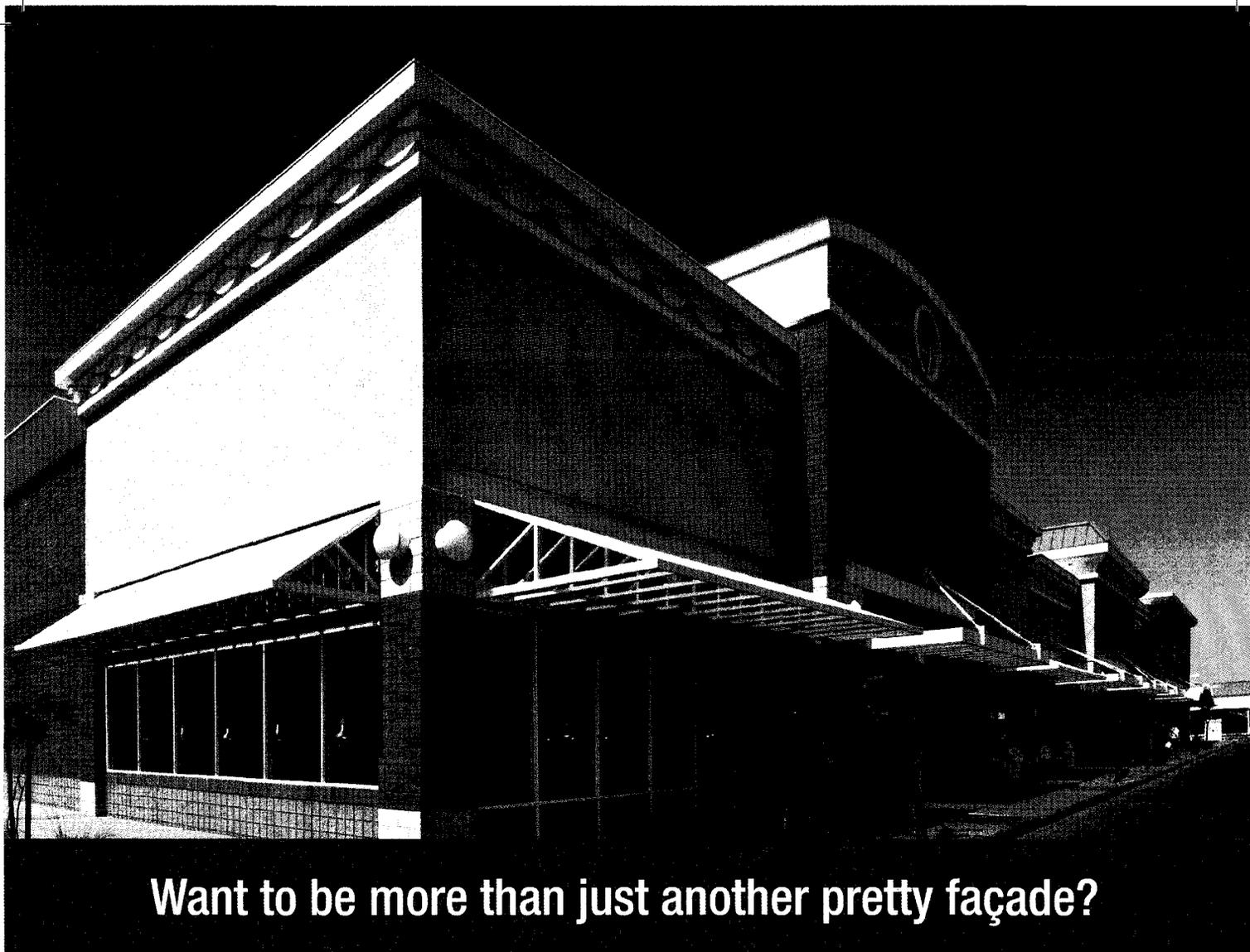
Programs are funded by APS customers and approved by the Arizona Corporation Commission.

[www.aps.com/GreenBiz](http://www.aps.com/GreenBiz)



THE POWER TO MAKE IT HAPPEN

05/2009



**Want to be more than just another pretty façade?**

**Start with energy efficiency.**

The appeal of an energy-efficient building runs deep. When you design and build to a more-efficient standard, you produce buildings that cost less to operate, increase occupant comfort and reduce environmental impacts.

The APS Solutions for Business program provides APS business customers with cash rebates that reduce the up-front cost of designing and constructing energy-efficient buildings.

APS rebates make it easier to invest in energy efficiency from the start. And that makes for a beautiful finish.

**APS** *Solutions for  
Business*

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

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

**Things you won't hear from a small business owner:**

"I've got too much time on my hands."

"I wish my 'To Do' list was longer."

"I'm not interested in cutting costs."

**Things you might hear from an APS small business customer:**

"I can't believe I didn't have to submit any paperwork."

"This program has saved me a lot of money."

The APS Solutions for Business program has a new "direct install" feature that cuts the hassle and cost for small business customers interested in energy efficiency.

- A qualified program contractor completes the paperwork and installs the equipment.
- APS pays up to 90% of the project cost directly to the contractor.
- You enjoy energy savings and lower operating costs.

**Sound good? Can we quote you on that?**

Visit our website to find a qualified contractor so you can start counting your energy savings:

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

**APS** Solutions for Business

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

## Energy Information Services

The Power to Manage Your Energy Use

### You can't manage what you don't monitor.

EIS is a powerful energy-management tool for the medium-to-large customer. With a simple meter upgrade and our new EIS, you will be able to see your actual energy consumption (in 15-minute intervals). EIS gives you relevant and reliable data to make informed process decisions that can save you money.

### See how to manage your costs.

The key variable in managing energy costs isn't how much energy you use. It's when you use it. EIS lets you evaluate critical variables like time-of-day, season, weather conditions and rate schedules. You can test different energy usage models for your entire facility or for individual areas.

### For computer geniuses... and the rest of us.

EIS gives you a quick-read summary of all the information you need to manage your energy budget, eliminate surprises and forecast future demand. Friendly software navigation makes it simple for you to:

- Get a detailed load profile of your consumption pattern,
- Test your own models for best-case consumption patterns,
- Model and rate under any available tariff,
- Identify waste and ways to reduce or eliminate it, and
- Confirm your operational change decisions and estimate your savings.

### Making your decision easier

The APS Solutions for Business program offers an incentive of 75% of the cost of the meter installation and setup fees, up to a maximum of \$12,000 per customer per year.

### Get started now!

To schedule an appointment with our support professionals or for more information, contact us at:

**(866) 421-1234 (option 3)**

**aps\_solutionsforbusiness@automatedenergy.com**

EIS gives you actual load profiles that can help you improve energy efficiency and reduce harmful greenhouse gas emissions.

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

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

## Energy Efficiency Opportunities

Targeted Services to Help APS Business Customers

The APS Solutions for Business program provides **incentives, training and information** services to help businesses increase the energy efficiency of their new and existing facilities. The program encourages business customers to invest in more efficient equipment and systems by reducing the initial project cost and by off-setting the expense of energy studies.

### Prescriptive Measures: Order off the Menu

Customers can choose from a prescriptive list of typical energy efficiency measures with fixed rebate levels. These apply to existing buildings (retrofit) and new construction projects and pay up to 75% of the incremental measure cost. The "direct install" approach makes it even easier and more affordable for small businesses to improve their lighting and refrigeration equipment.\*

- Lighting rebates from \$5 to \$200 per unit
- Cooling rebates with a base incentive up to \$50 per ton, plus an efficiency incentive up to \$300 per ton
- Motor and VSD rebates from \$1.50 to \$50 per horsepower
- Refrigeration rebates from \$5 to \$200 per unit

### Custom Projects: Create Your Own

Custom incentives are available for energy-saving projects not included in the list of qualified prescriptive measures. The rebates apply to retrofit and new construction projects and are funded at \$0.11/annual kWh savings, up to 50% of the incremental measure cost.

"This is a great program.  
Participation is easy.  
The measures pay back  
quickly and they've made  
a real difference in  
our daily operations."

Small Business Owner

## FACTS

Energy represents nearly one-third of total operating expenses in office buildings – the single largest controllable expense.

More than 50% of existing commercial lighting fixtures use inefficient lamps.

Schools spend more on energy than on textbooks: typical energy costs are second only to salaries.

## Energy Studies: Take a Closer Look

Energy study incentives off-set the cost of feasibility studies, design assistance, commissioning and retro-commissioning services for new or existing facilities. Customers can apply for up to 50% of the qualifying study cost to \$10,000 per study (\$20,000 for retro-commissioning).

## Energy Information Services: Measure and Manage

A simple meter upgrade and our Energy Information Services (EIS) provide a real-time, web-based summary of all the information you need to manage your energy budget. Large customers can apply for a rebate of 75% of the cost of the installation of a new meter and setup fees, up to a maximum of \$12,000.

## Training Series: Expand Your EQ (Efficiency Quotient)

Give your EQ a boost by attending a technical training workshop. Topics range from Retro-commissioning to Lighting to Chillers. APS business customers and Trade Allies receive a discount on registration. Visit [aps.com](http://aps.com) (click on "business rebates") for a current schedule.

## Trade Allies

Solutions for Business Trade Allies are contractors, engineers, ESCOs or architects who have been educated on the program and have agreed to follow the program's rules and processes. Trade Allies are important outreach partners. They help businesses learn about our energy efficiency programs and incentives. Trade Allies qualify for discounted registration fees for Solutions for Business workshops and have access to program marketing tools.

## Contact Us to Get Started

More than 325 Arizona businesses have participated in the program and are already saving energy and money. When you are ready to start saving, visit [aps.com](http://aps.com) or call us at **866-277-5605**.

## 5 Good Reasons to Improve Energy Efficiency

- 5 Boost your bottom line by cutting energy costs.
- 4 Safeguard the environment by reducing emissions.
- 3 Reduce maintenance demands and related downtime.
- 2 Distinguish your business as a leader in saving energy and protecting the environment.
- 1 APS offers **cash incentives**, which reduce up-front costs and shorten payback periods.