

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

This semi-annual 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.
- 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 result from DSM programs.

New items in this report (starting with the July – December 2008 report) as a result of Decision Numbers 70637 and 70666, include the following:

- Year-to-Date (YTD) and Program-to-Date (PTD) results in the tables
- DSM demand and energy savings are now reported on both a gross and net basis
- Savings results are Measurement, Evaluation and Research (MER) adjusted
- Estimates of environmental benefits
- Study applications are tracked for the current reporting period and for cumulative results since being offered in 2006
- For the Low Income Program, reporting health and safety and repair and replace results by measure type

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Index

Table 1 DSM Program Expenses: July – December 2008	3
Table 2 DSM Program Expenses: Year-to-Date (YTD), January – December 2008	4
Table 3 DSM Program Expenses: Program-to-Date (PTD), Jan. 2005 – Dec. 2008	5
Table 4 DSM Electric Savings: July – December 2008	6
Table 5 DSM Electric Savings: Year-to-Date, January – December 2008	7
Table 6 DSM Electric Savings: Program-to-Date, Jan. 2005 – Dec. 2008	8
Table 7 DSM Electric Benefits & Performance Incentive, July – Dec. 2008	9
Table 8 DSM Electric Benefits & Performance Incentive, YTD Jan. – Dec. 2008.....	10
Table 9 DSM Elec. Benefits & Performance Incentive, PTD Jan. 2005 – Dec. 2008	11
Table 10 Environmental Benefits, for July – Dec. 2008, YTD and PTD.....	12
DSM Measurement, Evaluation and Research	13
Energy Wise Low Income Weatherization Program	15
Residential Existing Homes HVAC Program	19
Residential New Home Construction Program	24
Consumer Products Program	29
Non-Residential Program for Large Existing Facilities	33
Non-Residential New Construction and Major Renovations Program	39
Small Business Program	44
Building Operator Training (BOT) Program	48
Energy Information Services (EIS) Program	50
Schools Program.....	53
Certification by APS Officer	58

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Table 1
DSM Program Expenses: July 2008 – December 2008

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation ¹	Program Marketing	Planning & Admin	Program Total Cost	
Residential								
Low Income	\$343,835	\$10,135	\$1,172	\$30,208	\$1,795	\$62,296	\$449,441	
Res Existing Homes HVAC	\$1,004,395	\$18,386	\$105,176	\$297,067	\$151,446	\$18,935	\$1,595,405	
Res New Home Construction	\$856,000	\$68,199	\$1,374	\$112,040	\$235,862	\$39,407	\$1,312,882	
Consumer Products	\$1,048,468	\$420	\$3,726	\$517,525	\$249,755	\$57,169	\$1,877,063	
Totals for Residential	\$3,252,698	\$97,140	\$111,448	\$956,840	\$638,858	\$177,807	\$5,234,791	
Non-Residential								
Large Existing Facilities	\$2,391,051	\$39,745	\$35,526	\$532,984	\$193,242	\$217,513	\$3,410,061	
Large Non Res New Const	\$1,176,632	\$23,501	\$1,780	\$285,934	\$132,957	\$9,129	\$1,629,933	
Small Business	\$65,993	\$1,297	\$6,194	\$49,482	\$22,728	\$38	\$145,732	
Bldg Operator Training	\$0	\$8,803	\$0	\$0	\$0	\$25	\$8,828	
Energy Information Svcs	\$1,504	\$0	\$0	(\$1,197)	\$0	\$25	\$332	
Schools ²	\$101,329	\$1,363	\$181	\$51,612	\$46,690	\$38	\$201,213	
Total for Non-Residential	\$3,736,509	\$74,709	\$43,681	\$918,815	\$395,617	\$226,768	\$5,396,099	
Segment Totals	\$6,989,207	\$171,849	\$155,129	\$1,875,655	\$1,034,475	\$404,575	\$10,630,890	
							Program Costs	\$10,630,890
							Measurement, Evaluation, & Research (MER)	\$656,621
							Performance Incentive³	\$1,254,168
							TOTAL	\$12,541,679

Definitions

Rebates & Incentives - Includes dollars that go toward customer rebates and incentives, installation of low income weatherization and low income bill assistance.

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

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

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

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

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

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

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

1. Includes costs for Implementation Contractor (IC) for 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:
JULY THROUGH DECEMBER 2008

**Table 2
Year-to-Date DSM Program Expenses: January 2008 – December 2008**

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation ¹	Program Marketing	Planning & Admin	Program Total Cost	
Residential								
Low Income	\$1,802,744	\$16,781	\$3,768	\$91,695	\$2,882	\$111,262	\$2,029,132	
Res Existing Homes HVAC	\$1,730,024	\$35,196	\$183,232	\$638,201	\$326,740	\$39,583	\$2,952,976	
Res New Home Const	\$1,272,400	\$107,855	\$3,035	\$254,175	\$331,080	\$77,247	\$2,045,792	
Consumer Products	\$2,416,474	\$2,524	\$5,599	\$949,185	\$359,516	\$119,638	\$3,852,936	
Totals for Residential	\$7,221,642	\$162,356	\$195,634	\$1,933,256	\$1,020,218	\$347,730	\$10,880,836	
Non-Residential								
Large Existing Facilities	\$3,712,997	\$108,436	\$48,447	\$1,067,045	\$397,184	\$426,380	\$5,760,489	
Large Non Res New Const	\$2,234,051	\$34,266	\$9,061	\$530,878	\$234,747	\$22,118	\$3,065,121	
Small Business	\$101,030	\$1,485	\$8,105	\$116,307	\$38,869	\$1,745	\$267,541	
Bldg Operator Training	\$0	\$14,026	\$0	\$0	\$0	\$25	\$14,051	
Energy Information Svcs	\$6,267	\$9,395	\$0	\$2,604	\$0	\$38	\$18,304	
Schools ²	\$330,475	\$3,598	\$3,048	\$122,081	\$61,264	\$38	\$520,504	
Total for Non-Residential	\$6,384,820	\$171,206	\$68,661	\$1,838,915	\$732,064	\$450,344	\$9,646,010	
Segment Totals	\$13,606,462	\$333,562	\$264,295	\$3,772,171	\$1,752,282	\$798,074	\$20,526,846	
							Program Costs	\$20,526,846
							Measurement, Evaluation, & Research (MER)	\$1,225,316
							Performance Incentive³	\$2,416,907
							TOTAL	\$24,169,069

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:
JULY THROUGH DECEMBER 2008

**Table 3
Program-to-Date DSM Program Expenses: January 2005 – December 2008**

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation¹	Program Marketing	Planning & Admin	Program Total Cost	
Residential								
Low Income	\$3,701,976	\$42,386	\$16,297	\$306,852	\$12,813	\$334,104	\$4,414,428	
Res Existing Homes HVAC	\$3,253,624	\$195,264	\$584,835	\$1,232,175	\$1,048,133	\$177,741	\$6,491,772	
Res New Home Const	\$2,098,706	\$281,512	\$100,104	\$527,141	\$1,216,108	\$279,979	\$4,503,550	
Consumer Products	\$6,861,710	\$3,312	\$23,677	\$2,411,827	\$969,872	\$366,639	\$10,637,037	
Totals for Residential	\$15,916,016	\$522,474	\$724,913	\$4,477,995	\$3,246,926	\$1,158,463	\$26,046,787	
Non-Residential								
Large Existing Facilities	\$8,020,509	\$174,612	\$75,031	\$3,239,621	\$775,553	\$860,047	\$13,145,373	
Large Non Res New Const	\$2,953,521	\$53,403	\$17,716	\$2,206,328	\$334,861	\$352,024	\$5,917,853	
Small Business	\$294,741	\$1,875	\$19,577	\$1,105,860	\$104,642	\$174,881	\$1,701,576	
Bldg Operator Training	\$0	\$56,898	\$0	\$22,043	\$15,783	\$7,480	\$102,204	
Energy Information Svcs	\$9,714	\$0	\$583	\$56,468	\$0	\$21,918	\$88,683	
Schools ²	\$602,674	\$5,791	\$6,047	\$422,292	\$92,399	\$78,346	\$1,207,549	
Total for Non-Residential	\$11,881,159	\$292,579	\$118,954	\$7,052,612	\$1,323,238	\$1,494,696	\$22,163,238	
Segment Totals	\$27,797,175	\$815,053	\$843,867	\$11,530,607	\$4,570,164	\$2,653,159	\$48,210,025	
							Program Costs	\$48,210,025
							Measurement, Evaluation, & Research (MER)	\$3,297,603
							Performance Incentive³	\$5,740,644
							TOTAL	\$57,248,272

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: JULY THROUGH DECEMBER 2008

Table 4
DSM Electric Savings: July 2008 – December 2008³

DSM Program	Gross Peak MW Capacity Savings	Gross Annual MWh Savings	Gross Lifetime ¹ MWh Savings	Net Peak MW Capacity Savings	Net Annual MWh Savings	Net Lifetime ¹ MWh Savings
Residential						
Low Income ²	0.1	329	6,580	0.1	329	6,580
Res Existing Homes HVAC	1.9	2,960	43,007	1.4	2,190	31,825
Res New Home Construction	4.7	9,805	196,108	4.2	8,825	176,497
Consumer Products	6.5	77,591	426,750	5.1	61,297	337,133
Totals for Residential	13.0	90,685	672,445	10.8	72,641	552,035
Non-Residential						
Large Existing Facilities	4.0	33,385	509,141	3.3	27,710	422,587
Large Non Res New Const	1.9	42,263	644,802	1.6	35,078	535,186
Small Business	0.1	1,337	17,582	0.1	1,110	14,593
Bldg Operator Training	0.1	147	2,207	0.1	103	1,545
Energy Information Svcs	0.1	569	8,536	0.1	569	8,536
Schools	0.1	705	11,410	0.1	585	9,470
Total for Non-Residential	6.3	78,406	1,193,678	5.3	65,155	991,917
TOTAL	19.3	169,091	1,866,123	16.1	137,796	1,543,952

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

2. Semi-Annual Reports submitted prior to the July-December 2007 Report inadvertently reported only annual MWh savings for the Low Income Program.

3. 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' original DSM Portfolio Plan, before any MER adjustments

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 are those program participants who would have installed the energy efficient DSM measures anyway, even if the program were not in operation.

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

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Table 5
Year-to-Date DSM Electric Savings: January 2008 – December 2008³

DSM Program	Gross Peak MW Capacity Savings	Gross Annual MWh Savings	Gross Lifetime ¹ MWh Savings	Net Peak MW Capacity Savings	Net Annual MWh Savings	Net Lifetime ¹ MWh Savings
Residential						
Low Income ²	0.2	886	17,720	0.2	886	17,720
Res Existing Homes HVAC	3.0	4,644	67,500	2.2	3,437	49,950
Res New Home Construction	7.0	14,575	291,504	6.3	13,118	262,354
Consumer Products	13.7	148,707	817,889	10.8	117,479	646,132
Totals for Residential	23.9	168,812	1,194,613	19.5	134,920	976,156
Non-Residential						
Large Existing Facilities	6.9	63,715	873,784	5.7	52,883	725,241
Large Non Res New Const	4.0	71,533	1,081,379	3.3	59,372	897,545
Small Business	0.3	4,094	57,821	0.2	3,398	47,991
Bldg Operator Training	0.1	403	3,485	0.1	282	2,440
Energy Information Svcs	0.2	928	13,918	0.2	928	13,918
Schools	0.3	3,517	53,121	0.2	2,919	44,090
Total for Non-Residential	11.8	144,190	2,083,508	9.7	119,782	1,731,225
TOTAL	35.7	313,002	3,278,121	29.2	254,702	2,707,381

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

2 Semi-Annual Reports submitted prior to the July-December 2007 Report inadvertently reported only annual MWh savings for the Low Income Program.

3 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' original DSM Portfolio Plan, before any MER adjustments.

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 are those program participants who would have installed the energy efficient DSM measures anyway, even if the program were not in operation.

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

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Table 6
Program-to-Date DSM Electric Savings: January 2005 – December 2008³

DSM Program	Gross Peak MW Capacity Savings	Gross Annual MWh Savings	Gross Lifetime ¹ MWh Savings	Net Peak MW Capacity Savings	Net Annual MWh Savings	Net Lifetime ¹ MWh Savings
Residential						
Low Income ²	0.5	3,126	62,513	0.5	3,126	62,513
Res Existing Homes HVAC	10.1	22,001	327,865	7.5	16,281	242,620
Res New Home Construction	9.9	21,317	426,336	8.9	19,185	383,702
Consumer Products	55.8	415,499	2,285,248	44.1	328,244	1,805,346
Totals for Residential	76.3	461,943	3,101,962	61.0	366,836	2,494,181
Non-Residential						
Large Existing Facilities	15.9	135,644	1,877,672	13.2	112,585	1,558,468
Large Non Res New Const	5.7	87,802	1,338,803	4.7	72,876	1,111,206
Small Business	0.8	6,679	100,398	0.7	5,544	83,330
Bldg Operator Training	0.2	1,001	12,447	0.1	701	8,713
Energy Information Svcs	0.2	928	13,918	0.2	928	13,918
Schools	0.9	7,227	116,723	0.7	5,998	96,880
Total for Non-Residential	23.7	239,281	3,459,961	19.6	198,632	2,872,515
TOTAL	100.0	701,224	6,561,923	80.6	565,468	5,366,696

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

2 Semi-Annual Reports submitted prior to the July-December 2007 Report inadvertently reported only annual MWh savings for the Low Income Program.

3 Savings for 2008 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' original DSM Portfolio Plan, before any MER adjustments

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 are those program participants who would have installed the energy efficient DSM measures anyway, even if the program were not in operation.

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

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:
JULY THROUGH DECEMBER 2008

**Table 7
DSM Electric Benefits and Performance Incentive
July 2008 – December 2008**

DSM Program	Program Cost	Societal Benefits	Societal Costs	Net Benefits
Residential				
Low Income ¹	\$449,440	\$432,890	\$432,890	\$0 ²
Res Existing Homes HVAC	\$1,595,405	\$2,799,176	\$2,197,204	\$601,972
Res New Home Construction	\$1,312,882	\$10,804,860	\$1,901,382	\$8,903,478
Consumer Products	\$1,877,063	\$11,835,956	\$2,924,297	\$8,911,659
Totals for Residential	\$5,234,790	\$25,872,882	\$7,455,773	\$18,417,109
Non-Residential				
Large Existing Facilities	\$3,410,061	\$16,708,284	\$6,807,813	\$9,900,471
Large Non Res New Const	\$1,629,933	\$16,909,427	\$4,484,665	\$12,424,762
Small Business	\$145,732	\$631,635	\$212,377	\$419,258
Bldg Operator Training	\$8,828	\$75,791	\$28,778	\$47,013
Energy Information Svcs	\$332	\$305,532	\$73,686	\$231,846
Schools	\$201,213	\$349,560	\$212,935	\$136,625
Total for Non-Residential	\$5,396,099	\$34,980,229	\$11,820,254	\$23,159,975
Subtotal	\$10,630,889	\$60,853,111	\$19,276,027	\$41,577,084
Measurement, Evaluation & Research	\$656,621		\$656,621	(\$656,621)
Performance Incentive	\$1,254,168		\$1,254,168	(\$1,254,168)
TOTAL	\$12,541,678	\$60,853,111	\$21,186,816	\$39,666,295
Performance Incentive Calculation:				
Total Spending / Total Net Benefits	\$11,287,510			\$40,920,463
10% of Spending / Net Benefits	\$1,254,168			\$4,092,046
Performance Incentive This Period³	\$1,254,168			

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 Performance Incentive equals the minimum of either 10% share of net benefits, or 10% of total period program expenditures. Approval of the incentive calculation was issued by the ACC 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:
JULY THROUGH DECEMBER 2008

**Table 8
DSM Electric Benefits and Performance Incentive
Year-to-Date, January 2008 – December 2008**

DSM Program	Program Cost	Societal Benefits	Societal Costs	Net Benefits
Residential				
Low Income ¹	\$2,029,131	\$1,844,715	\$1,844,715	\$0 ²
Res Existing Homes HVAC	\$2,952,976	\$4,439,381	\$3,709,912	\$729,469
Res New Home Construction	\$2,045,792	\$16,060,869	\$2,920,567	\$13,140,302
Consumer Products	\$3,852,936	\$26,518,887	\$6,131,959	\$20,386,928
Totals for Residential	\$10,880,835	\$48,863,852	\$14,607,153	\$34,256,699
Non-Residential				
Large Existing Facilities	\$5,760,489	\$27,292,414	\$11,587,157	\$15,705,257
Large Non Res New Const	\$3,065,121	\$36,221,985	\$11,178,705	\$25,043,280
Small Business	\$267,541	\$832,907	\$353,124	\$479,783
Bldg Operator Training	\$14,051	\$119,670	\$45,551	\$74,119
Energy Information Svcs	\$18,304	\$498,532	\$122,407	\$376,125
Schools	\$520,504	\$1,143,853	\$516,741	\$627,112
Total for Non-Residential	\$9,646,010	\$66,109,361	\$23,803,685	\$42,305,676
Subtotal	\$20,526,845	\$114,973,213	\$38,410,838	\$76,562,375
Measurement, Evaluation & Research	\$1,225,316		\$1,225,316	(\$1,225,316)
Performance Incentive YTD ³	\$2,416,908		\$2,416,908	(\$2,416,908)
TOTAL	\$24,169,069	\$114,973,213	\$42,053,062	\$72,920,151

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. Approval of the incentive calculation was issued by the ACC 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.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:
JULY THROUGH DECEMBER 2008

**Table 9
DSM Electric Benefits and Performance Incentive
Program-to-Date, January 2005 – December 2008**

DSM Program	Program Cost	Societal Benefits	Societal Costs	Net Benefits
Residential				
Low Income ¹	\$4,414,428	\$3,745,438	\$3,745,438	\$0 ²
Res Existing Homes HVAC	\$6,491,772	\$14,729,790	\$11,151,262	\$3,578,528
Res New Home Construction	\$4,503,550	\$21,107,466	\$5,752,284	\$15,355,182
Consumer Products	\$10,637,037	\$114,019,683	\$25,996,057	\$88,023,626
Totals for Residential	\$26,046,787	\$153,602,377	\$46,645,041	\$106,957,336
Non-Residential				
Large Existing Facilities	\$13,145,373	\$52,324,783	\$23,092,407	\$29,232,376
Large Non Res New Const	\$5,917,853	\$43,089,676	\$14,574,993	\$28,514,683
Small Business	\$1,701,576	\$1,687,394	\$1,857,092	(\$169,698)
Bldg Operator Training	\$102,204	\$424,302	\$183,392	\$240,910
Energy Information Svcs	\$88,683	\$498,532	\$192,786	\$305,746
Schools	\$1,207,549	\$2,608,863	\$1,229,320	\$1,379,543
Total for Non-Residential	\$22,163,238	\$100,633,550	\$41,129,990	\$59,503,560
Subtotal	\$48,210,025	\$254,235,927	\$87,775,031	\$166,460,896
Measurement, Evaluation & Research	\$3,297,603		\$3,297,603	(\$3,297,603)
Performance Incentive PTD ³	\$5,740,644		\$5,740,644	(\$5,740,644)
TOTAL	\$57,248,272	\$254,235,927	\$96,813,278	\$157,422,649

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. Approval of the incentive calculation was issued by the ACC 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.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:
JULY THROUGH DECEMBER 2008

**Table 10
Net Environmental Benefits****

Reporting Period:	Water * Mil Gal	SOx Lbs	NOx Lbs	CO2 Mil Lbs	PM10 Lbs
July - Dec. 2008 Reporting Period	360	6,639	265,560	1,416	36,592
YTD: January 2008 - December 2008	631	11,642	465,669	2,483	64,165
PTD: January 2005 - December 2008	1,250	23,077	923,072	4,921	127,191

** Some measures will result in customer water savings, which this calculation does not include. Only utility water savings are included in this calculation.*

*** The environmental reductions are based on the net KWh energy savings of all program measures over their expected lifetimes.*

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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' DSM programs. As required per Decision No. 68648, APS filed MER program plans for Staff review on August 16, 2007, with the exception of the EIS MER research plan that was filed on June 24, 2008.

Summit Blue Consulting was hired to provide the DSM program Measurement and Evaluation services. 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; measurement of savings on installed projects to monitor the actual program savings that are achieved; and research activities to refine savings and cost benefit models and identify additional opportunities for energy efficiency.
- Tracking savings measurement to monitor the actual program savings that are achieved.
- 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 Decision No. 69663, APS is required to "use measured savings obtained from APS customers by the Measurement, Evaluation, and Research (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 Semi-Annual Report for the July – December 2008 reporting period.

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

kW and kWh Savings

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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 \$656,621.

Findings from all Research Projects

NA

Other Significant Information

NA

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

PROGRAM: ENERGY WISE LOW INCOME WEATHERIZATION

Description

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

Program Modifications

No modifications for this reporting period.

Program Goals, Objectives, and Savings Targets

- To improve the energy efficiency of homes for customers whose income falls within the defined poverty guidelines.
- To provide customers information on energy management and conservation.
- To provide assistance in paying the electric bill for qualified customers in crisis situations.
- Decision No. 68647 acknowledged the estimates that the Weatherization component of the Energy Wise Program could serve 382 homes per year (based on APS' 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' 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 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 from 2008 – 2010.

Programs Terminated

No programs were terminated during this reporting period.

Levels of Participation

A total of 689 households received assistance during the reporting period, July through December 2008. Please note that a single household may have received more than one type of assistance.

Type of Assistance	Number of Households
Bill Assistance	533
Health and Safety	0
Repair and Replace	6
Weatherization	150
Total	689

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Evaluation and Monitoring Activities and Results

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

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

Information from the 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 689 households participating in the program, a total of 150 homes received weatherization services that contributed to the energy savings.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

No. of Homes	kW Savings	Annual kWh Savings	Lifetime kWh Savings
150	49.0	329,071	6,581,412

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

The kW and kWh factors used to calculate the savings are based on data from the 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. Once the sample size of the ongoing AEO study exceeds the previous sample size of 150 homes, APS will begin utilizing the new factors.

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. APS has performed well on this program and should not be penalized for the program. Consequently, the net benefits for the Energy Wise Program for this reporting period as shown in Table 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

Timing issues revolving around the receipt of invoices and the dates of the work completed have caused an accounting lag. The timeline for invoicing is as follows and results in a 90 day lag:

1. The agencies have 30 days to submit invoices to ACAA.
2. ACAA has 30 days to compile and submit invoices to APS.
3. APS has 30 days to review and pay.

Since the work was completed 90 days before APS pays, for the Semi-Annual DSM report, APS counts the household in the timeframe for which it was weatherized, however, in some cases, the dollars spent will be reported in the subsequent report.

To alleviate this, after discussions with ACAA and some of the agencies, contract amendments for the 2009 term have been issued which states that a final invoice for the term must be submitted by December 1, 2009.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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	\$16,550	-	-	-	-	-	\$16,550
Health & Safety	-	-	-	-	-	-	\$0
Repair and Replace	\$7,825	-	-	-	-	-	\$7,825
Weatherization	\$327,285	\$10,135	\$750	-	-	-	\$338,170
3rd Party Manager - Arizona Community Action Association	-	-	-	\$25,004	-	-	\$25,004
APS Program Support	-	\$0	\$421	\$5,204	\$1,795	\$62,296	\$69,716
Total	\$351,660	\$10,135	\$1,171	\$30,208	\$1,795	\$62,296	\$457,265

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	2
Water Heaters	0	0

During this reporting period, APS exercised the budget flexibility that was granted in Decision No. 68648 and shifted 11.57% of the Consumer Products Program budget (\$469,957) into the Low Income Weatherization program.

Findings From All Research Projects

NA

Other Significant Information

APS held two Low Income Summits, one in August in Phoenix, and the other in November in Flagstaff, with a number of local social service agencies. These Low Income Summits are designed to share information about APS' Low Income Assistance Programs which includes weatherization and bill assistance.

APS supports the City of Phoenix Low Income Weatherization Multifamily Housing Project, which incorporates renewable technology in the form of solar water heaters.

APS presented weatherization program information at the Housing and Urban Development Public Housing Conference during September.

APS held a meeting with the Navajo Nation Weatherization Department to discuss ways to implement weatherization activities on the Nation, which are designed to address their unique housing stock and needs.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

PROGRAM: RESIDENTIAL EXISTING HOMES HVAC

Description

The Residential Existing Homes 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 three measures with incentives; AC Rebate, Quality Installation and Duct Test and Repair. In June 2006, APS implemented the AC Rebate measure. This measure builds on the existing APS Qualified Contractor program and offers financial incentives to encourage upgrades to high-efficiency equipment that meets US EPA/DOE Energy Star® energy-efficiency standards.

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 Dec. 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 Oct. 4, 2008. APS partnered with the non-profit Foundation for Senior Living Home Improvements Dept. (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. For customers considering significant energy efficient upgrades in their homes, or have consistent high bill concerns, this audit can help them find the best choices for their home. Plus, APS has several rebates that can help customers offset the cost of improvements to the AC system or lighting.

Program Modifications

APS and SRP sponsored a Wrightsoft Manual J sizing calculation class that was promoted and managed by the Electric League of Arizona ("ELA"). Wrightsoft is a HVAC sizing calculation software that makes doing the Manual J sizing calculation in the field much more efficient. One of the biggest barriers contractors have had to participating in our Quality Installation program is the time and expense associated with the Manual J calculation. This widely known software makes this calculation much faster and produces a thorough report that the customer, contractor and the utility can use. The class offered a full day's training from a Wrightsoft instructor and a discounted copy of the software. By all accounts, it was a very successful class and we plan on offering it again in the spring of 2009.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

As mentioned earlier, the Home Improvement with Energy Star program was launched on Oct. 4, 2008.

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' 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 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 second half of 2008:

- A total of 4,574 rebates were paid through the Residential Existing Homes HVAC program. The annual number of rebates paid in 2008 increased 227% over 2007. Specifically, APS has paid:
 - a. 3,141 of the \$250 AC rebates for 14 or 15 SEER/11.5 EER equipment
 - b. 448 of the \$400 AC rebates for 16 SEER/12.25 EER and above equipment
 - c. 762 Quality Installation rebates
 - d. 362 Duct Test and Repair rebates; made up of 223 repair rebates and 139 tests without repairs.
- There are currently 73 contractors participating in the APS Qualified Contractor program, with 12 of those outside the metro Phoenix area. There are APS Qualified Contractors currently serving Cottonwood, Flagstaff, Kingman, Lake Havasu, Parker, Payson, Prescott, Prescott Valley, Quartzite, Wickenburg and Yuma.
- Including both metro and non-metro training classes, 517 students participated in APS sponsored training courses in order to meet APS Qualified Contractor program training requirements from July – December 2008. This represents 44% more students trained during this six months than the same period in 2007.
- APS provided over 1,600 referrals to customers seeking HVAC service, repair or replacement of their home HVAC system in this reporting period.
- There were 10,200 visits to the Residential HVAC section of aps.com.
- There were 9,291 unique user visits to the APS Energy Survey home energy audit at aps.com.

Evaluation and Monitoring Activities and Results

During the current reporting period the Residential HVAC program MER research data collection and analysis activities conducted by Summit Blue Consulting included:

- Conducted ongoing review and analysis of residential HVAC participant database.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

- 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.
- Conducted field verification of a sample of high-efficiency equipment rebate participants including verification of quantity, size and efficiency of installed units, and spot measurements of performance variables (e.g., electrical performance, outdoor temperature).
- Implemented end-use metering data collection devices to sample high-efficiency equipment rebate participants. Currently planning for metering study during the cooling months of 2009.
- Conducted in-depth data collection of a sample of participating HVAC contractors to conduct analysis of equipment sizing practices and estimate level of over sizing, including detailed home audit data, Manual J calculations, and equipment size data.
- Conducted in-depth interviews of program staff.
- Commenced a secondary research effort on HVAC sales statistics within APS service territory.
- Began development of participant research instruments for subsequent fielding in Q1 2009 (equipment only and quality install participants).

MER Adjusted Gross kW and kWh Savings*

Incentive Type	Number of Units	Annual kWh Savings per Unit	TOTAL Annual MWh Savings	Est. Measure Life	Total Lifetime MWh	kW Demand Savings Per Unit	Total MW Savings
14 SEER/11.5 EER	3,141	519	1,630	15	24,453	0.298	1.0
16 SEER/12.25 EER	448	1,072	480	15	7,204	0.243	0.1
Quality Installation	762	749	571	15	8,561	0.562	0.5
Duct Test and Repair	223	1,251	279	10	2,790	1.354	0.3
TOTAL	4,574		2,960		43,007		1.9

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

*Includes adjustments to savings as described in the Residential Existing HVAC Program Impact and Evaluation MER Report.

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.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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.

Problems Encountered and Proposed Solutions

The September 30, 2008 Summit Blue MER report on this program indicates that rebates for high-efficiency equipment as a stand alone measure do not appear to be cost effective. This is 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.

APS has developed revisions to the program designed to improve its cost effectiveness. The biggest change that APS has requested is 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 will offset part of the high incremental cost from the equipment. The avoided costs were also updated which improves the program's cost effectiveness. APS is also planning to request changing the availability of the Quality Installation rebate to include 13 SEER equipment and changing the minimum EER requirement from 11.5 to 10.8. APS filed a request for these changes in January 2009.

Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Res Existing HVAC	\$1,004,395	\$18,386	\$105,176	\$297,067	\$151,446	\$18,935	\$1,595,405

Findings from all Research Projects

NA

Other Significant Information

Home Performance with EnergyStar® was launched on Oct. 4, 2008. As described above, it utilizes home energy efficiency contractors to provide customers a detailed audit of ways they can improve their home's 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 through the normal methods and it is also being used to give customers with high bill complaints an option that they can use 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 that can come out 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

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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 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 could take advantage of the research being done by the Arizona Home Performance research project.

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

- TV ads promoting the program ran on Cox Cable, KNXV-TV and Fox Sports.
- TV news coverage on KPHO Phoenix.
- Live remote with "Rosie on the House" program to kickoff the Home Performance with Energy Star program.
- Radio ads and live interviews to promote the program ran during the Rosie on the House home improvement program which airs on KTAR-FM in Phoenix and KNST-AM in Tucson. Radio ads also ran on KTAR-AM.
- Radio interview for KYCA Prescott.
- Press release in October for Duct Test and Repair.
- Articles in the Aug/Sept (AC Rebates), Sept/Oct (Duct Test and Repair, AC Rebates) and Oct/Nov (Winter Check-up) editions of the APS Lifestyles residential customer newsletter and E News e-mail newsletter.
- Monthly ad placements in HVACR Today newspaper targeted to the HVAC industry. The ads promote the APS AC Rebate, Quality Installation and Duct Test and Repair rebates to contractor and manufacturer/distributor trade allies.
- Newspaper articles about the program were published in the Florence Reminder, West Valley View (Litchfield Park).
- 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: JULY THROUGH DECEMBER 2008

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

APS is currently working on designing a second-tier Energy Star Plus program, which would incent builders to build homes that are approximately 30% more energy efficient than a standard home. This program enhancement will represent a significant step on the road to Net-Zero Energy Home, as ordered by the ACC in the December 2008 Portfolio Plan Update in Decision No. 70666. APS expects to file this program enhancement sometime during the first quarter of 2009.

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' system load growth. It is more cost-effective to work with builders to implement energy efficiency at the time of construction rather than attempt to retrofit efficiency after a home has been built. For many new home measures, such as building envelope improvements, the benefits of energy efficiency upgrades will be sustained for the life of the home to produce very cost-effective savings.

APS' 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 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 1,725 homes that are committed to being built to program standards. At the end of the reporting period, there were 37 homebuilders and 116 subdivisions with 16,072 future lots signed up to participate in the program. The program currently

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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 2,140 APS Energy Star® homes that were completed and connected to the APS system during the reporting period. Based on the number of APS meters set on new homes throughout the APS service territory in 2008, APS estimates that the current ENERGY STAR homes market share has increased to 24.5%.

APS partnered with SRP, Southwest Gas and the Arizona Energy Office to offer two half-day sales trainings for realtors and builder sales agents in August. The training was an EEBA session titled "Selling High Performance Homes" that is qualified for realtor licensing continuing education credits. The two trainings combined were attended by over 100 people.

APS was a major sponsor and participant in the 2008 Energy and Environmental Building Association (EEBA) national conference held in Phoenix in October. APS helped to coordinate the event, which featured many nationally recognized speakers and profiles of builders who were successfully incorporating energy efficiency and renewable energy into their new home projects. The 3-day conference included a full slate of educational sessions as well as a field trip and an energy efficient building products expo. APS encouraged attendance from local builders, and APS sponsorship funds were used to fund partial conference scholarships for Arizona homebuilders. The conference was a success with nearly 600 building industry professionals in attendance.

APS developed and staffed a booth at the Homebuilder's Association Southwest Builder Show and Expo held Oct 30th. APS invited all participating Home Energy Rating System (HERS) rater program trade allies to join us in a large booth space which helped to generate interest and provide education for builders about the benefits of participating in the APS Energy Star Homes program.

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 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 Equus Development, Copper State Custom Homes, Hope Construction and Build It Green Solar Homes. APS also held two days of trade focused Success with Energy Star trainings for framers and insulators. In addition, APS provided sales training and/or technical training assistance to numerous Arizona builders including Robson Communities, Pulte Homes, Shea Homes, Columbia Communities and TW Lewis.

Evaluation and Monitoring Activities and Results

During the current reporting period the Residential New Construction Homes program MER research data collection and analysis activities included:

- Conducted detailed review and analysis of HERS rater data and documentation to develop profiles and performance characteristics of participating homes.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

- Accessed HERS rater data on non-participating homes and in process of conducting analysis on non-participating home energy performance to refine the baseline for savings calculations.
- Revised and updated residential new home building energy simulation models to reflect population of homes participating in the program.
- Planned field research, measurement and verification of performance of non-participating builder homes for 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	2,140	4,173	9,805	20	196,108	2.0	4.7

*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.

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. However, 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. While the overall economic downturn could negatively impact this program in the future, it did not significantly impact the program results during this reporting period.

Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Res New Home Construction	\$856,000	\$68,199	\$1,374	\$112,040	\$235,862	\$39,407	\$1,312,882

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

During this reporting period, APS exercised the authority granted in Decision No. 70637 to exceed the annual budget for this program by up to 15%. In this case, the budget was exceeded by 12.5%.

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. 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 placements:

- Completed a new 4 minute video segment targeted to homebuilders. The video is available as a link from the “Construction Corner” page on aps.com. The video is designed to help homebuilder management decision makers to better understand the benefits of participating in the APS program. A link can be easily e-mailed to anyone within the builder’s management team.
- Completed a new set of 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.
- New Homes Today (formerly Arizona Homes and Lifestyles) – monthly 2-page placement, August cover placement (magazine targeted to prospective homebuyers).
- 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 – 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 (APS Green Choice programs) in the APS Lifestyles residential newsletter in October/November issue.
- Sponsorship of the “Rosie on the House” radio show on KTAR radio station.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

- 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. Ran during APS sports sponsorships and other placement opportunities.
- Submitted a media plan to ENERGY STAR and the APS program was selected to receive \$15,000 in co-op advertising funds from the national EPA ENERGY STAR program. The ENERGY STAR advertising funds were used to support a third quarter 2008 print ad campaign in homebuyer publications in Yuma, Prescott, and Flagstaff areas.
- APS Energy Star Homes TV commercial ran during sports and news segment sponsorships and as part of ongoing placement contract with Cox Cable.
- Southwest Builder Show October 30th.
- Homebuilder’s Association Sticks and Bricks golf tournament (December).
- Homebuilder’s Association member directory, back cover ad placement.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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 compact fluorescent lamps and increase the awareness and knowledge of retailers and consumers on the benefits of Energy Star rated lighting products.

APS' 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 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 1,172,480 CFLs through participating retail locations. In addition, during this period, APS distributed 18,260 CFLs during community events and consumer education seminars, for a combined total of 1,190,740. During the period, there were over 280 retail outlets throughout the APS service territory where APS customers could purchase discounted CFLs. Participating retailers during this reporting period include: 99 Cents stores, Ace Hardware (select locations), AKA Green, Amazon.com, Bashas, Big Lots, Costco, Dollar Tree, Fry's Foods, Home Depot, Lowe's, Sam's Club, Staples, True Value Hardware (select locations) and WalMart.

Evaluation and Monitoring Activities and Results

During the current reporting period the Consumer Products program MER research data collection and analysis activities included:

- Conducted ongoing review and analysis of Ecos participation database.
- Conducted in-depth interview with Ecos, the program implementation contractor
- Conducted secondary research on key factors and performance variables affecting savings and cost-effectiveness, and planned primary field research and measurement activities to confirm and update key variables.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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 the current reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Consumer Products	\$1,048,468	\$420	\$3,726	\$517,525	\$249,755	\$57,169	\$1,877,063

During this reporting period, APS exercised the authority granted in Decision No. 70637 to exceed the annual budget for this program by up to 15%. In this case, the budget was exceeded by 12.5%.

Findings from all Research Projects

No findings to report at this time.

Other Significant Information

As part of Energy Awareness month events in October, APS partnered with the Phoenix Veteran Affairs Health Care System to welcome home the Operation Enduring Freedom and Operation Iraqi Freedom and to thank them for their service. The event was held at the Phoenix Zoo, and 213 veterans were treated to an unusual gift – a starter kit of 8 CFLs. The event, which featured an appearance by US Congressman Harry Mitchell, heightened consumer awareness of CFLs and gained media attention for the program.

During this reporting period, 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 over participating retail locations (including select Ace, True Value and Home Depot stores) throughout the APS service territory for 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.

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

During this reporting period, APS provided CFLs for a large number of community education and outreach events throughout the APS service territory listed below.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

The program conducted 535 retailer visits and 19 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.

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

- July 19 – Latino Institute back to school fair
- July 25 – Phoenix Mercury game
- July 30 – City of Flagstaff Senior Community CFL giveaway event
- August 6 – Dodge Theater, Phoenix
- August 15-17 – Arizona Home and Business Expo
- September 5-6 – Green Summit (Rosie on the House live radio remote)
- September 30 – Dodge Theater, Phoenix
- October 1 – Operation Change Out event at the Phoenix Zoo
- October 4 – Shea Homes Solar Open Home tour, Avondale (Rosie on the House)
- October 12 – Tempe Tardeada
- October 12 – Race for the Cure
- October 22 – Bank of America Environmental Expo
- October 26 – Festival Telemundo
- December – CPLC Angeles Del Barrio, South Phoenix
- December 27 – Light Rail Opening, Glendale
- Jul-Dec – Conducted 15 special events at participating retailers

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

- Billboard Campaign – Through fall and winter 2008, APS ran a billboard campaign to direct customers to the aps.com website for more information about APS DSM and Renewable Energy programs. The campaign generated an average of 600,000 daily media impressions and generated almost 10,000 website hits.
- 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.
- Live interviews, on-air promotions and website advertising with Rosie on the House radio show.
- Information on the homepage of aps.com.
- Public relations and earned media including TV, radio and print articles.
- Articles in 3 issues of the APS Lifestyles newsletter – July/Aug, Sept/Oct, Oct/Nov.
- Point of sale signage at all participating retail locations.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

PROGRAM: NON-RESIDENTIAL PROGRAM FOR LARGE EXISTING FACILITIES

Description

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

Program Modifications

The Arizona Corporation Commission on December 11, 2008 approved the DSM Non-Residential Program (Solutions for Business) with Decision No.70637, several program changes need to be made as a result of the Decision. Program redesign efforts will be commenced to comply with Decision No. 70637, and will be addressed in the next Semi-annual reporting period. As a result, Decision No. 70637 did not impact this Semi-Annual report.

Program changes in 2009 from Decision No. 70637 will include:

- Changing the definition of a large customer from an aggregated demand of greater than 200 kW to greater than 100 kW.
- Approves seven new Prescriptive Measures
- Allows building owners who are not APS customers to receive incentives for qualifying energy efficient investments made in APS service territory
- Modifies 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.
- Approves Direct Install measures to include all K-12 schools, and non-school premises equal to or less than 100 kW.
- Allows prescriptive measures to be included in custom applications when there are interactive effects between prescriptive and custom measures.

Program Goals, Objectives and Savings Targets

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

APS' 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 Large Existing Program could reduce annual peak demand by

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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 365 active applications for large existing incentives were received in this reporting period, from 110 unique customers. Applications from school districts comprise 38 of the 365 applications. From July through December 2008, \$2,391,051 in Large Existing program incentives were paid. While the program offers a pre-notification process to reserve incentive funds, final applications are only processed after the project is completed and all required documentation is submitted and approved.

Incentive Status by Fund for Active Applications	Incentives Paid
Large Existing – Prescriptive & Custom	\$2,358,008
Large Existing – Studies	\$33,044
Total Large Existing Funds	\$2,391,051

During this reporting period, there were four study incentives paid for a total of \$33,044. Two of the four study applications resulted in implementation for the associated custom and prescriptive measures.

Evaluation and Monitoring Activities and Results

During the current reporting period the Large Existing Facilities program MER research data collection and analysis activities included:

- Conducted detailed review and analysis of Large Existing participant database.
- Developed detailed program analysis database and populated database with participation data, measure performance variables, 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.
- Completed assessment of the feasibility of including a pump test measure and efficiency improvement measure as a potential program offering.
- Conducted ongoing updates to the Measure Analysis Spreadsheets including performance assumptions, incremental cost, cost-effectiveness tests and overall documentation of assumptions.
- Conducted in depth interview with program staff and implementation contractor
- Began development of participant research instruments for subsequent fielding to occur in first quarter of 2009
- Developed discussion guides for trade ally interviews.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

MER Adjusted Gross kW and kWh Savings

The following table reflects the MER adjusted total energy and demand saving achievements in the second half of 2008 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*

KW SAVINGS *	ANNUAL KWH SAVINGS	LIFETIME KWH SAVINGS
4,022	33,385,448	509,141,177

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

*kW Savings is coincident peak.

*Includes adjustments to savings as described in the Solutions for Business Impact and Evaluation MER Report.

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 Arizona Corporation Commission's Decision No.70637 (December 11, 2008) resolved previously reported problems. No new problems are reported for the second half of 2008.

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	\$2,391,051	\$39,745	\$35,526	\$532,984	\$193,242	\$217,513	\$3,410,061

During the reporting period, APS exercised the budget flexibility that was granted in Decision No. 68648 by shifting 15.2% of the Large Existing Program budget and 4.8% of the Small Business Program to the New Construction Program Budget. This shift helped to increase the rebate availability for the New Construction Program. This was needed because APS experienced a 30% increase in rebates for New Construction.

Findings from all Research Projects

NA

Other Significant Information

During the second half of 2008, 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:

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

1. Trade Ally Development: Recruitment efforts through strategic partnerships with professional associations within the energy and contracting industry, trade show and event participation and program advertisements have resulted in a significant increase in program interest during this reporting period. 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. A total of eighteen in-depth training sessions were held with potential trade allies resulting in 28 new trade allies approved during the reporting period. At the end of this reporting period the program had a total of 57 trade allies.

In addition to the trade ally training sessions, three meetings were held with existing trade allies. Two of the meetings were held to provide re-training to these trade allies for newly hired employees and one meeting addressed specific issues relating to improving application submissions.

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 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 six trainings that occurred during the reporting period.

APS has continued to work with the Air Conditioning Contractors' Association (ACCA) board to develop the ACCA Professional Air Conditioning Contractor Certification Program. APS supported marketing efforts for the program by developing a new advertisement that was placed in the August issue of HVACR and the September/October issue of AZRE. The program started in September and provided training to 55 air conditioning contractors representing 18 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. All 18 companies should become Trade Allies in early 2009.

APS has also partnered with the Sustainable Building Advisor program to provide support for their certification program.

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 Prescott, Payson, Pine/Strawberry, and Parker.

During the reporting period, 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.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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:

- AIA catalog
 - AZRE
 - HVACR Today
 - Commercial Executive magazine
 - Electric Times
 - Phoenix Business Journal
 - Phoenix Business Journal – sustainability insert
 - Chamber of Commerce magazines in Scottsdale, Flagstaff, Casa Grande, Tempe and Glendale
 - Tri-Valley Dispatch
 - Arizona Republic
 - West Valley View
 - Yuma Daily Sun
 - Arizona Daily Sun
-
- Program information was provided in APS's Success Newsletter billing insert

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

- AASBO Conference in July
- League of Cities Conference in August
- NAIOP Mixer in September
- Green Summit in September
- Governors Rural Economic Development Conference in September
- Arizona Chamber Executives Conference in November
- BOMA's Compass Tour and Tradeshow in November
- The Arizona Sustainable Expo and Conference (IFMA show) in November
- Arizona Farm Bureau Conference in November

4. Expanding Technical and Training Resources:

APS' Technical Training Series offered six classes during the second half of 2008. 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.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Classes held in the 2nd half of 2008 included 108 paid attendees in the following courses:

- **Energy Information Services** on August 7th
- **Energy Management for Hospitality** on September 10th
- **Energy Management for Healthcare** September 11th
- **Energy Management for Local Governments** on September 18th
- **Compressed Air** on October 1st.
- **Pump System Training** on December 3rd

APS also supports other training through a number of community partners. New this reporting period are the Sustainable Building Advisor (SBA) and Professional Air Conditioning Technician programs. The ACCA program is described in the Trade Ally section. The SBA certification program is an in-depth nine month course on green building, operations and maintenance. This is expected to draw both from the APS customer base as well as potential Trade Allies such as architecture and engineering firms. This course is slated to start in February 2009.

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
- Association of Energy Engineers – Certified Energy Manager Training
- ACCA – Professional Air Conditioning Technician Certification
- Electric League – Building Operator and Facility Management certification

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

In addition to the technical training series, the following program materials were developed:

- Motors Fact Sheet
- Mouse pad with energy conversions

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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

In the Arizona Corporation Commission's Decision No.70637 (December 11, 2008), several program changes resulted. Program redesign efforts were commenced to comply with Decision No.0637 upon its approval, and will continue into the next Semi-Annual report period. As a result, Decision No.70637 did not impact this Semi-Annual report. These program changes include:

- Approves new Prescriptive Measures.
- Allows building owners who are not APS customers to receive incentives for qualifying energy efficient investments made in APS service territory
- Removes technical assistance incentive restrictions from one-per-customer per year to one per-study.
- Allows prescriptive measures to be included in custom applications when there are interactive effects between prescriptive and custom measures.
- Modified the prescriptive lighting measures to a lighting power density measure.

A 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. This will eliminate certain application measures from qualifying for program incentives, and will reduce the reported savings on a per measure basis.

Program Goals, Objectives and Savings Targets

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

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

APS' 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 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.

Programs Terminated

No programs were terminated during this reporting period.

Levels of Participation

The New Construction program continued to experience increased participation during the second half of 2008. After a slow start in the first 2 years of the program associated with long lead times for new construction, this program is approaching the incentive payment levels of the Large Existing program. A total of 89 applications for New Construction incentives have been received, from 37 unique customers. Eighteen of the 89 applications are from school districts. In the second half of 2008, \$1,176,632 in New Construction 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
Large New Construction – Prescriptive, Custom & Design Assistance	\$1,163,507
Large New Construction – Commissioning Studies	\$13,125
Total Large New Construction Funds	\$1,176,632

During this reporting period, there were eight design assistance incentives paid for a total of \$45,175. Two of the applications resulted in implementation for the associated measures. Due to lead times, the remaining six projects have not yet applied for the program.

Evaluation and Monitoring Activities and Results

During the current reporting period the Non-Res New Construction program MER research data collection and analysis activities included:

- Conducted detailed review and analysis of New Construction participant database.
- Developed detailed program analysis database and populated database with participation data, measure performance variables, 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
- Conducted in depth interview with program staff and implementation contractor
- Revised building energy simulation models for savings estimation analysis
- Began development of participant research instruments for subsequent fielding that will occur in the first quarter of 2009

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

- Developed discussion guides for trade ally interviews

MER Adjusted Gross kW and kWh Savings

The following table reflects the MER Adjusted total energy and demand saving achievements in the second half of 2008 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*

KW SAVINGS *	ANNUAL KWH SAVINGS	LIFETIME KWH SAVINGS
1,884	42,263,105	644,802,358

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

*kW Savings is coincident peak.

*Includes adjustments to savings as described in the Solutions for Business Program Impact and Evaluation MER Report.

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 Arizona Corporation Commission's (December 11, 2008) Decision No.70637 (December 11, 2008) resolved previously reported problems. No new problems are reported for the second half of 2008.

Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Large Non Res New Const	\$1,176,632	\$23,501	\$1,780	\$285,934	\$132,957	\$9,129	\$1,629,933

During the reporting period, APS exercised the budget flexibility that was granted in Decision No. 68648 by shifting 15.2% of the Large Existing Program budget and 4.8% of the Small Business Program to the New Construction Program Budget. This shift helped to increase the rebate availability for the New Construction Program. This was needed because APS experienced a 30% increase in rebates.

Findings from all Research Projects

NA

Other Significant Information

NA

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Program Participation and Savings:

The program participation and corresponding incentive payouts for the second half of 2008 were very strong due to the completion of several very large projects that were part of the construction boom. These savings levels and participation rates are not expected to continue at the high level experienced during this reporting period for two reasons:

1. New Construction starts have declined sharply.
2. The energy efficiency baseline for this program has changed from ASHRAE 90.1, 1999 to ASHRAE 90.1, 2004. This new baseline includes most variable speed drive (VSD) applications associated with HVAC systems. Incentives for these VSD's comprised a large portion of the New Construction program for 2008. Energy savings associated with these VSD's are exceptionally high per program dollar. Therefore, incentives are expected to decrease in 2009, and energy savings are expected to more sharply decline.

During the second half of 2008, program development activities focused primarily on 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. Although marketing efforts are maturing, there has been a significant decline in new construction starts over the last quarter. As a result in 2009, we will be exploring new areas for marketing to new construction.

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 37 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 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
 - Green Summit - Solutions for Business program staff shared program information at the APS booth and provided attendees with informational handouts. Staff also presented a program, "Energy Efficiency: The High Return Green Investment" in the conference track

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

- 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 professionals were provided with program updates and program-related support. In the second half of 2008, APS Solutions for Business program staff held approximately 69 meetings to discuss program details and identify potential incentive opportunities.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

PROGRAM: SMALL BUSINESS PROGRAM

Description

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

Program Modifications

In the Arizona Corporation Commission's Decision No70637 (December 11, 2008), several program changes resulted. Program redesign efforts were commenced to comply with Decision No.70637 upon its approval, and will continue into the next Semi-Annual report period. As a result, Decision No. 70637 did not impact this Semi-Annual report.

These program changes include:

- Changes the definition of a Small customer from an aggregated demand of less than or equal to 200 kW to 100 kW.
- Approves seven new Prescriptive Measures
- Allows building owners who are not APS customers to receive incentives for qualifying energy efficient investments made in APS service territory
- Makes 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.
- Approves Direct Install measures to include all K-12 schools, and non-school premises equal to or less than 100 kW.
- Restricts incentives for Direct Install to be capped at 90 percent of the incremental cost,
- Allows prescriptive measures to be included in custom applications when there are interactive effects between prescriptive and custom measures.

Program Goals, Objectives and Savings Targets

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

APS' 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

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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 59 applications for Small Business incentives were received from 51 unique customers. From July 1 through December 31, 2008, \$65,993 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	\$60,971
Small Business – Commissioning Studies	\$5,022
Total Large New Construction Funds	\$65,993

During this reporting period, two existing small school customers applied for Feasibility Studies. Both studies resulted in applications for prescriptive measures.

Evaluation and Monitoring Activities and Results

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

- Conducted detailed review and analysis of Small Business participant database.
- Developed detailed program analysis database and populated database with participation data, measure performance variables, 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.
- Conducted in depth interview with program staff and implementation contractor
- Commenced market assessment of the small business customer segments.
- Began development of participant research instruments for subsequent fielding during the first quarter of 2009

MER Adjusted Gross kW and kWh Savings

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

The following table reflects the total energy and demand saving achievements in the second half of 2008 for Small Businesses. Only savings from projects that were completed and incentives paid are counted in this report.

MER Adjusted kW and kWh Savings*

KW SAVINGS *	ANNUAL KWH SAVINGS	LIFETIME KWH SAVINGS
166	1,336,747	17,582,141

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

*kW Savings is coincident peak.

*Includes adjustments to savings as described in the Solutions for Business Program Impact and Evaluation MER Report.

Benefits and Net Benefits/Performance Incentive Calculation

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

Problems Encountered and Proposed Solutions

The Arizona Corporation Commission's Decision No.70637 (December 11, 2008) resolved previously reported problems. No new problems are reported for the second half of 2008.

Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Small Business	\$65,993	\$1,297	\$6,194	\$49,482	\$22,728	\$38	\$145,732

During the reporting period, APS exercised the budget flexibility that was granted in Decision No. 68648 by shifting 4.8% of the Small Business Program to the New Construction Program Budget. This shift helped to increase the rebate availability for the New Construction Program.

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:

- In partnership with the United Way, a short energy facts and Q & A for small businesses was produced and placed in the United Way August newsletter to target their non-profit partners around the state
- Placement of advertisements in Chamber newsletter ads, the Phoenix Business Journal and the SBA Small Business Resource Magazine

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

- A presentation at the Arizona Chamber Executives Conference on October 29th. The conference was attended by 40 Chamber executives across the state and offered an excellent opportunity to engage the small business community. Small Business Energy Handbooks and other program information were distributed.
- APS attended a meeting with the chairman of the Board of the newly formed Phoenix Green Chamber of Commerce and attended the premiere meeting.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:
JULY THROUGH DECEMBER 2008

PROGRAM: BUILDING OPERATOR TRAINING (BOT) PROGRAM

Description

The Building Operator Training Program (BOT) which was made available to APS customers on March 15, 2006, provides training incentives for building operators (managers) and facility maintenance technicians on energy-efficient building operating and maintenance practices. Program training is provided through a cooperative effort with the Electric League of Arizona (ELA) in support of their "Institute for Facility Management Education" program, which includes industry expert training targeted to reach facility managers and building operators of medium to large commercial and industrial facilities. The ELA issues a certificate of completion for participants that successfully complete Facility Maintenance Technician Training and Building Operator Training.

Program Modifications

The Arizona Corporation Commission on December 11, 2008 approved the DSM Non-Residential Program (Solutions for Business) with Decision No.70637. Several program changes need to be made as a result of that Decision. Changes to the program took effect on December 11, 2008, which included the termination of the BOT program. Therefore, the APS Non-Residential program will transfer the funds for BOT to the Non-Residential Existing Program.

Program Goals, Objectives and Savings Targets

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

APS' analysis 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 these types of training classes could reduce annual peak demand by about 0.4 MW and 45,000 MWh over the life of the measures which are expected to be installed from 2008 - 2010.

Programs Terminated

Program has been terminated effective December 11, 2008.

Levels of Participation

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

The BOT Program had two APS customer participants in the Fall of 2008 Building Operator Training. Both participants successfully received a passing grade from the ELA and received their BOT Certificate of completion. The training subsidy paid to the ELA to cover the tuition subsidy for APS customer participation totaled \$1,195 or \$597.50 per participant.

The Facilities Maintenance Training (FMT) session had seventeen APS customer participants in the Fall of 2008, of which all participants successfully received a passing grade from the ELA. The FMT subsidy paid to the ELA to cover the tuition subsidy for APS customers was \$7,607 or \$447.50 per passing customer.

Evaluation and Monitoring Activities and Results

During the current reporting period the Building Operator Training program MER research data collection and analysis activities included:

- Analyzed BOT participant data.

MER Adjusted Gross kW and kWh Savings*

Participants	Est.Measure Life	kWh Savings per Year	Lifetime kWh Savings	kW Demand Savings
BOT = 2	15	15,490	232,355	6.6
FMT = 17	15	131,668	1,975,021	56.5
Total =19		147,158	2,207,376	63.1

*Includes adjustments to savings as described in the BOT Program Impact and Evaluation MER Report. All final saving values are adjusted for line losses (9.8%).

Benefits and Net Benefits/Performance Incentive Calculation

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

Problems Encountered and Proposed Solutions

With Decision No. 70637 we are taking the opportunity to incorporate the BOT program into the APS Training & Technical Assistance for the Large Existing Facilities Program; therefore, APS will be discontinuing the BOT Program. No new problems are reported for the second half of 2008.

Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Building Operator Training	\$0	\$8,802	\$0	\$0	\$0	\$25	\$8,827

Findings from all Research Projects

NA

Other Significant Information

NA

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

PROGRAM: ENERGY INFORMATION SERVICES (EIS) PROGRAM

The EIS Program, which was made available to APS customers on November 16, 2006, helps large customers (>200 kW) save energy by giving them a better understanding and control of their facilities' electric use. EIS provides data not only regarding usage and demand, but also 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 \$900 or 75% of the cost of installing a meter and communications equipment necessary to participate in the program. See program modifications for future changes.

Program Modifications

The Arizona Corporation Commission on December 11, 2008 approved the DSM Non-Residential Program (Solutions for Business) with Decision No.70637. Several program changes need to be made as a result of this Decision. The incentive cap of \$900 per customer will be changed along with changing the requirement for customers with a 200 kW demand; the program will be reset to 75 percent of 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 over 100 kW . As a result of these changes not being made until 2009, Decision No. 70637 did not impact this Semi-Annual report.

Program Goals, Objectives and Savings Targets

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

APS' 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 EIS Program could reduce annual peak demand by about 0.4 MW and 50,000 MWh over the life of the measures which are expected to be installed from 2008 - 2010.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Programs Terminated

No programs were terminated during this reporting period.

Levels of Participation

The EIS program started in late 2006; however, there were no participants until the Fall of 2007. At that time, participants totaled three APS customers with 10 meters. During this reporting period, APS added six customers with 46 meters installed. Installed meters will gather data to be utilized on the web-based energy information system.

During the reporting period the incentive level for participation was \$3,653. 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

During the current reporting period the EIS program MER research data collection and analysis activities included:

- Conducted ongoing review of program processes and participation to date.
- Prepared high level overview for the program.

MER Adjusted Gross kW and kWh Savings*

Meters	Est. Measure Life (yrs)	kWh Savings per Year**	Lifetime kWh Savings	kW Demand Savings **
EIS = 46	15	569,074	8,536,105	71.2

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

** Annual energy and demand savings per participant meter approved equals 11,267 kWh and 1.41 kW. The kW Savings listed above represent the savings at the customers' site. All final saving values are adjusted for line losses (9.8 %).

Benefits and Net Benefits/Performance Incentive Calculation

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

Problems Encountered and Proposed Solutions

The Arizona Corporation Commission's December 11, 2008 Decision No.70637 resolved previously reported problems. No new problems are reported for the second half of 2008.

Costs Incurred

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

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Admin	Program Total Cost
Energy Information Services	\$1,504	\$0	\$0	(\$1,197)	\$0	\$25	\$332

Findings from all Research Projects

NA

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Other Significant Information

During the second half of 2008, the focal point of program development centered on conveying program value to increase participation levels and leveraging program experience by developing a technical training class “Energy Information Systems” . Materials were developed including class notebooks for participants, class evaluations, invitation fliers, and certificates of completion. Attendees learned how to set up an EIS system, how to track electric consumption and how to ensure your building control systems are working as designed. The EIS Training Class had 21 paid attendees.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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.

This program, which was made available to APS customers on March 30, 2006, includes a grant to the Arizona Department of Commerce Energy Office to provide outreach to rural school districts.

Program Modifications

In the Arizona Corporation Commission's Decision No.70637 (December 11, 2008), several program changes were approved. Program redesign efforts were commenced to comply with Decision No.70637 upon its approval, and will continue into the next Semi-Annual report period. As a result, Decision No.70637 did not impact this Semi-Annual report.

These program changes include:

- Approves seven new Prescriptive Measures
- Modifies 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.
- Approves Direct Install measures to include all K-12 schools.
- Allows prescriptive measures to be included in custom applications when there are interactive effects between prescriptive and custom measures.

Program Goals, Objectives and Savings Targets

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

APS' 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.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

Levels of Participation

In the second half of 2008, a total of 60 applications from schools were received, representing 13 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 21% 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 Measures - New Construction	1	36,980
Metro	>200	Prescriptive & Custom Measures - New Construction, Prescriptive Measures & Custom - Retrofit	7	36,500
Metro	>200	Prescriptive Measures - Retrofit	1	36,000
Metro	>200	Prescriptive Measures - Retrofit	1	33,914
Metro	>200	Prescriptive & Custom Measures - New Construction	4	29,909
Metro	>200	Prescriptive Measures - Retrofit	4	24,148
Metro	>200	Prescriptive Measures - New Construction Prescriptive Measures - Retrofit	2	9,800
Non-Metro	>200	Prescriptive Measures - New Construction	1	7,240
Metro	>200	Prescriptive Measures - New Construction	1	6,391
Metro	>200	Prescriptive Measures - New Construction	3	5,370
Metro	>200	Prescriptive Measures - New Construction Prescriptive & Custom Measures - Retrofit	4	3,720
Non-Metro	>200	Prescriptive Measures - New Construction	1	3,522
Metro	>200	Prescriptive Measures - New Construction	2	3,200
Non-Metro	>200	Prescriptive & Custom Measures - Retrofit	13	2,800
Non-Metro	>200	Prescriptive & Custom Measures - Retrofit	2	2,016
Non-Metro	>200	Prescriptive Measures - Retrofit Technical Assistance & Studies	5	1,494
Non-Metro	>200	Prescriptive Measures - Retrofit	2	1,243
Non-Metro	>200	Prescriptive Measures - Retrofit	2	500
Non-Metro	<200	Prescriptive Measures - Retrofit, Technical Assistance & Studies	2	415
Non-Metro	<200	Prescriptive Measures - Retrofit Technical Assistance & Studies	2	128

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

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

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, \$462,441 in incentives were paid to schools. The Schools Program incentives of \$101,329 were paid under the schools program. The remaining \$361,112 in incentives was paid to schools under the other non-residential programs (see table below).

Incentive Status by Fund for Active Applications	Incentives Paid
Schools Budget – Prescriptive, Custom, & Direct Install	\$91,329
Schools Budget – Feasibility, Commissioning and Retro-commissioning Studies	\$10,000
Total School Funds	\$101,329
Schools Summary:	
Schools – School Funds	\$101,329
Schools – Large Existing Funds	\$314,551
Schools – New Construction Funds	\$31,675
Schools – Small Business Funds	\$14,885
Total Paid to Schools	\$462,441

During this reporting period, three schools received study incentives. Two of these studies were paid out of the Schools program. One of the studies resulted in a prescriptive and custom application.

Evaluation and Monitoring Activities and Results

During the current reporting period the Schools program MER research data collection and analysis activities included:

- Conducted detailed review and analysis of Schools participant database.
- Developed detailed program analysis database and populated database with participation data, measure performance variables, 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.
- Conducted in depth interview with program staff and implementation contractor
- Began development of participant research instruments for subsequent fielding during the first quarter of 2009

MER Adjusted Gross kW and kWh Savings

The following table reflects the total energy and demand saving achievements in the second half of 2008 for schools projects. Only actual savings from projects that are completed and incentives paid will be counted in this report.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

MER Adjusted kW and kWh Savings*

	KW SAVINGS **	ANNUAL KWH SAVINGS	LIFETIME KWH SAVINGS
Schools – School Funds	79	704,527	11,410,107
Schools – Large Existing Funds	267	3,748,553	60,566,642
Schools – New Construction Funds	54	472,793	7,822,109
Schools – Small Business Funds	13	140,618	1,856,720
Total Attributable to Schools	413	5,066,191	81,655,577

*Includes adjustments to savings as described in the Solutions for Business Program Impact and Evaluation MER Report.

**kW is coincident peak

All final saving values are adjusted for line losses (9.8%).

Benefits and Net Benefits/Performance Incentive Calculation

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

Problems Encountered and Proposed Solutions

The Arizona Corporation Commission's Decision No.70637 (December 11, 2008) resolved previously reported problems. No new problems are reported for the second half of 2008.

Costs Incurred

Program costs incurred during the second half of 2008 are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement*	Program Marketing	Planning & Admin	Program Total Cost
Schools	\$101,329	\$1,363	\$181	\$51,612	\$46,690	\$38	\$201,213

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 two areas of focus:

- 1. Trade Ally Development:** Trade Ally recruitment focused on one-on-one development and training. Several meetings were held with individual potential trade allies, and program staff worked with existing trade allies to streamline application processes. These individual

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD: JULY THROUGH DECEMBER 2008

meetings allowed program staff to address the specific needs and opportunities of schools and the trade ally.

- 2. Customer awareness and project generation:** In July, the APS Solutions for Business program had an exhibit booth at the Arizona Association of School Business Officials (AASBO). Several presenters familiar with the program allowed Solutions for Business to give a brief overview of the program to presentation attendees. In addition, one-on-one meetings were held with several school districts in an effort to identify potential projects
- 3. School Education to improve Energy Efficiency:** ASHRAE guidebooks that provide detailed strategies and benefits for energy efficiency in new school construction were mailed to all school superintendents in APS service territory, and a separate letter was sent to Business Managers to tell them that the superintendents had the books. Program staff created a distribution list of every school district superintendent and business manager in APS service territory. One hundred and fourteen books were mailed out to districts with at least one school in APS territory. Additional ASHRAE books are being distributed to A&E firms that work with schools and the Schools Facility Board.
- 4. Coordination with the Schools Facility Board:** While the program has coordinated with the SFB since the program launch, a meeting was held with Schools Facility Board staff to strategize methods to work together during a period of decreased program funding for new schools. In an effort to build more familiarity with the program among its Board, a presentation was made in December to the Schools Facility Board (SFB) to brief them on the program and present them with copies of the ASHRAE School Building Guide that was distributed to all school districts in APS territory.
- 5. Coordination with the Arizona Energy Office:** Renewed a grant to the Arizona Energy Office for the purposes increasing school participation in Arizona by leveraging the Energy Office's school outreach. APS provided schools focused energy efficiency books to each district (a total of 114 recipients) with at least one school in APS' service territory. The remaining books were gifted to the SFB for their use or distribution.

Schools Program Participation in this Reporting Period: Direct marketing of the DSM program to 15 school districts, including 3 rural and non-metro and 12 metro school districts was completed during the reporting timeframe. The Solutions for Business program continues to contract with the Department of Commerce Energy Office for rural school outreach. During this reporting period the Energy Office was supporting the Arizona School Facilities Board's school grant program and the rural outreach officer position was vacant for part of this time. For this reason, meetings with school districts declined during this reporting period.

ARIZONA PUBLIC SERVICE COMPANY

DSM SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD:
JULY THROUGH DECEMBER 2008

**CERTIFICATION BY APS
OF
DSM SEMI-ANNUAL PROGRESS REPORT
FOR THE PERIOD:
JULY THROUGH DECEMBER 2008**

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

Date

Tammy McLeod
Vice President and Chief Customer
Officer