

# **When Opportunity Knocks, How Quickly Can You Open the Door? Designing and Launching a DSM Program for Business Customers**

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## **ABSTRACT**

After a decade-long focus on market transformation, Arizona Public Service (“APS”) jump-started its Demand Side Management (DSM) programs in response to new market trends. Despite a variety of implementation challenges and a tight timeframe, APS discovered the keys to ushering opportunity right back into Arizona: garnering broad program support, establishing stretch goals, and enlisting external expertise. APS launched its Solutions for Business program in March 2006, a mere month from the Arizona Corporation Commission approval, and has already demonstrated success in strong participation rates and reductions in electricity usage. This paper will describe APS’ approach and offer a model for other utilities or governmental organizations seeking to design and implement DSM programs.

## **Introduction: Opportunity Knocks**

During the 1990s, the utility industry shifted its focus to direct access and customer choice, particularly for non-residential customers. In Arizona, as across the nation, this trend emphasized dispersed supply-side (generation) responsibility and reduced attention on demand-side management. While APS continued to provide energy saving recommendations to customers, its’ infrastructure and institutional resources for deploying a comprehensive DSM program virtually disappeared.

Fast-forward ten years to find declining support for deregulation nation-wide and rising interest in energy efficiency and environmental stewardship. Arizona’s construction boom foreshadowed continued growth in electricity demand and impacted the ongoing assessment of generation and transmission capacity. Advocacy groups began drawing greater attention to the extensive benefits that could be produced through a comprehensive, utility-led DSM portfolio..

The Arizona Corporation Commission (“ACC”) recognized the potential impact of DSM and convened a series of workshops with utilities and stakeholder groups to discuss the opportunities and to offer recommendations (Decision No. 65743). In April 2005, the ACC approved \$48 million in 2005-2007 funding for APS to implement a broadly-defined suite of energy efficiency programs (Decision No. 67744). [Note: While the ACC approved funding for residential and non-residential programs, this paper focuses on the non-residential portion.] APS was given four months to work with a collaborative group and submit program plans for approval. The pressure was on to meet the ACC deadlines and get solid programs in place that would responsibly and effectively distribute the available funds.

## **A True Collaborative**

APS was eager to help business customers manage their electricity usage, but lacked the necessary structure and institutional knowledge resources to construct, implement, and evaluate an effective DSM program. When DSM faded in the 1990s, seasoned program staff were shifted to other APS groups or departed to explore new opportunities. In response to the ACC decision, a core group of DSM veterans (APS employees and consultants) was rapidly assembled to work with the collaborative group and to shepherd the process of designing and launching the programs designated by the ACC.

Members of the collaborative group represented the full spectrum of stakeholders, including the Arizona Department of Commerce State Energy Office (“Energy Office”), Arizonans for Electric Choice and Competition (“AECC”), the Residential Utility Consumer Office (“RUCO”), Western Resource Advocates (“WRA”), and the Southwest Energy Efficiency Project (“SWEEP”), as well as ACC staff.

APS took deliberate steps to create the conditions for genuine collaboration and effective consensus decisions. The process emphasized interaction and open discussion. Members divided into subgroups to focus on specific program areas and met regularly to recommend program structures and to comment on draft plans. While collaborative members represented diverse stakeholders, the relationships quickly gelled around a common purpose and became very cooperative.

APS management supported the DSM program from the beginning, realizing the sustainable and environmental benefits produced through energy efficiency. Corporately, APS endeavored to eliminate any bottlenecks and quickly advance the plans through internal review and approval processes. APS also sought input from the community. APS held open meetings during the planning process to solicit public opinion and to invite comments on the proposed plan.

## **Staying the Course**

The short timeframe for designing a program created a clear sense of urgency and challenged participants to think more innovatively. The emphasis was on rolling out a solid program with respectable goals and a flexible framework to accommodate enhancements. The timeframe prevented the process from being bogged down by lengthy study periods and encouraged a rapid launch.

The early involvement of the collaborative group was instrumental in moving the process quickly. The collaborative members participated in the entire process and developed consensus positions along the way. The collaborative members became strong program supporters and advocates and they continue to play an important role in guiding the program.

The detailed program plans requested by the ACC presented another clarifying factor. APS was required to submit plans that described every program aspect, from implementation and administration to marketing and evaluation to estimated energy savings and societal benefits. While the collaborative considered a range of ideas, they focused on teasing out the details of the most viable programs.

## **Help Wanted: Ideas and Expertise**

APS recognized that much could be gained through the experiences of other utilities, states, and industry consultants. True to the adage “don’t reinvent the wheel,” APS sought to identify ideas and lessons that it could apply to Arizona-specific programs. The collaborative researched energy efficiency programs implemented across the nation and considered appropriate models for APS’ goals. Summit Blue was hired by APS to provide input and evaluation support during this conceptual program design phase. This insight was invaluable to designing an effective program in a tight timeframe.

APS contacted other utilities to discuss their DSM programs’ successes and lessons learned and then adapted relevant features to meet local needs and opportunities. From these discussions, APS knew to expect slower uptake in participation from new construction and small business and factored this into the program plan.

On a national level, APS recognized the importance of linking with the ENERGY STAR® program. ENERGY STAR is a widely recognized symbol for energy efficiency and brings a proven platform for marketing to consumers and business customers. In the program design phase, APS sought to link equipment standards to ENERGY STAR specifications, wherever appropriate.

This research also reinforced the fact that no matter how well thought out and reviewed, every program encounters unforeseen bumps when implemented. APS designed its portfolio plan with a flexible framework to accommodate future enhancements.

## Submitting the Plan

APS submitted its DSM portfolio plan to the ACC on July 1, 2005. The full portfolio addressed the range of customer classes -- residential and non-residential -- for the three-year planning horizon designated by the ACC (2005-2007). APS projected that the entire portfolio would produce lifetime MWh savings of 3,435,000 and peak demand savings of 51.7 MW. APS forecast societal benefits of \$2.08 for every dollar invested.

Funding for non-residential programs was set at \$6.9 million annually for 2005-2007. The plan designated “programs” according to the ACC’s original structure, which essentially delineated funding streams or budget categories for different building types or market segments. These categories include: Large Existing Facilities, Large Construction, Small Business, and Schools. This structure also segmented two additional components: Building Operator Training (BOT) and Energy Information Services (EIS). Table 1 details the projected energy savings for each component. From a market implementation perspective, this suite of programs is delivered as a single program called APS Solutions for Business. The Solutions for Business program provides training and incentives to help APS customers improve energy efficiency.

**Table 1.** Projected Lifetime Savings for Solutions for Business Program

Category	Annual Peak Demand Reduction MW	Annual kWh Reduction
Large Existing	10	856,000
Large New Construction	8.8	729,000
Schools	6.31	178,000
Small	6.5	571,000
Energy Information Services	3.57	45,000
Building Operator Training	6.43	81,000
<b>Total Non-Residential</b>	<b>42</b>	<b>2,460,000</b>

*Note: Savings presume a mix of measures and building types. Each measure is evaluated to ensure societal benefits exceed costs.*

## Incentives

Solutions for Business offers incentives to business customers to install energy-saving equipment, construct more efficient buildings, conduct energy studies, and collect energy information. A customer with an aggregated demand of 200 kW or less (“small”) can receive up to \$150,000 in program incentives per year. A customer with aggregated load greater than 200 kW (“large”) can receive up to \$300,000 per customer per year.

When determining the incentive thresholds, APS considered the prevailing rebates in other utility programs, the payback for the customer, and the ACC’s instruction that incentives not exceed 75% of the incremental cost of the measure.

Prescriptive incentives are available to large and small business customers for retrofit and new construction projects. As the name implies, customers can choose from a menu of specific measures for

lighting, HVAC, motors, and refrigeration improvements. The incentive cannot exceed 75 percent of the incremental cost of the measure.

- Lighting incentives range from \$1.75 to \$75 per unit.
- Cooling incentives include a base incentive plus efficiency incentive.
- Motors and VSD incentives range from \$1.50 to \$50 per horsepower.
- Refrigeration incentives range from \$5 to \$200 per unit

Custom incentives are available to large business (>200 kW demand) customers for retrofit and new construction energy saving measures not included in the list of qualified prescriptive measures. Custom measures are funded at \$0.11/ annual kWh savings. The incentive amount cannot exceed 50 percent of the incremental measure cost.

Energy study incentives are designed to provide partial reimbursement of feasibility studies, design assistance, commissioning and retro-commissioning services within the Customer's new or existing facility. Large business customers are eligible to apply for up to 50 percent of the qualifying study cost.

Energy Information Services (EIS) incentives offset the cost of installing a new meter. Solutions for Business offers a one-time incentive of 75 percent of the cost of the installation of a new meter and setup fees, up to a maximum of \$900. The EIS program helps large customers save energy by giving them a better understanding and control of their facilities' electric use. EIS provides data not only regarding usage and demand, but also when, where, and how much power is used in specific areas of each facility. This detailed information allows customers to fine-tune equipment use and operations and to document the impact of those changes. Participating customers monitor their electric usage through a web-based energy information system that allows them to receive historical (previous day) 15 minute usage and demand graphics. This information can be used to improve or monitor energy usage patterns, reduce energy use, reduce demands during on-peak periods, and better manage their overall energy operations.

### **Training**

Solutions for Business provides a variety of training opportunities for customers and Trade Allies. The Building Operator Training ("BOT") educates building operators (managers) and facility maintenance technicians on energy-efficient building operating and maintenance practices. BOT is provided through a cooperative effort with the Electric League of Arizona.

In 2007, Solutions for Business launched an energy efficiency training series, educating facility staff and decision makers on topics such as Motors, Lighting, Retro-commissioning, and Energy Studies. Customers and Trade Allies receive a 50% discount for related energy trainings including: BOT, Facility Management Training, Certified Energy Manager and LEED. Trade Allies also receive free training on the program implementation and marketing.

### **3-2-1 Blast-Off**

The ACC provided interim approval of APS' non-residential plan on February 23, 2006, and the Solutions for Business program was launched within a month. The critical factors to this speedy deployment were the groundwork established during the previous months and the resources brought to the table by the consultants.

While the ACC reviewed the proposed portfolio plan, APS proceeded with laying a foundation for implementation. With input from the collaborative, APS drafted and issued an RFP for a program implementation consultant. After conducting rigorous review of the proposals submitted, APS selected KEMA Services, Inc., ("KEMA") to implement the program.

When the ACC approved the program, APS moved quickly to finalize a contract with KEMA and begin marketing the program to customers. KEMA helped design and implement Nevada Power's Sure Bet program, as well as other utility programs, and was able to hit the ground running. KEMA staff used existing templates to quickly create program materials, including incentive applications and fact sheets. For the Solutions for Business program, KEMA conducts marketing, processes applications, facilitates training, coordinates with Trade Allies, maintains a program web site, and conducts other implementation activities. KEMA's team includes a number of firms and individuals familiar with APS and its customers. APS also relies on Key Account Representatives and Trade Allies to educate and inform customers.

While evaluating other programs, APS learned the importance of involving a Measurement, Evaluation, and Research (MER) contractor early in the process. Bringing a MER contractor in during the design and implementation phase can help ensure the correct data is collected. On April 12, 2006, in Decision No. 68648, the ACC approved funding for MER activities to assist in verifying the impact and cost effectiveness of APS' DSM programs.

APS issued a competitive RFP and then selected Summit Blue Consulting to conduct program MER activities. Summit Blue provided valuable support during the initial program development stage and has extensive evaluation experience.

The MER project includes two broad categories of research:

- Process evaluation research to indicate how well programs are working to achieve their objectives,
- Impact evaluation research to verify that energy-efficiency 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.

Automated Energy was selected as the implementation contractor for the EIS program through a competitive RFP process in the last quarter of 2006. Automated Energy provides turn-key implementation services for the program. The program was launched November 16, 2006

All of the program consultants work together to smooth out any rough edges in the program structure and to provide a seamless process for customers. The approach for measurement and evaluation of the DSM programs is to integrate data collection and tracking activities directly into the program implementation process. APS coordinates with KEMA and Summit Blue to integrate these process improvements.

Looking back, APS recognizes that outsourcing these functions was an extremely efficient and effective decision. The consultants helped APS to quickly roll-out a solid, comprehensive, and successful program. They had experienced staff already trained and on-board, ready to implement the program under APS direction.

## **Taking Stock Mid-Course**

The Solutions for Business program has already produced substantial results. (See Table 2) The energy-saving measures installed through November 2007 are projected to save 922,762,910 kWh for the lifetime of the measures, or the equivalent electricity consumption of more than 67,000 Arizona homes. This will reduce carbon dioxide emissions by more than 846 million tons and save 215 million gallons of water. (See Table 3)

**Table 2.** Solutions for Business Program Energy Savings, Projects Completed through November 2007

Savings by Category	kW	Annual kWh	Lifetime kWh
Large Existing	7,185.7	54,623,090	750,348,795
Large New Construction	1,119.5	5,761,835	96,064,742
Schools	483.2	2,576,785	44,484,450
Small	408.4	1,929,918	31,864,924
<b>Total Savings</b>	<b>9,196.9</b>	<b>64,891,629</b>	<b>922,762,910</b>

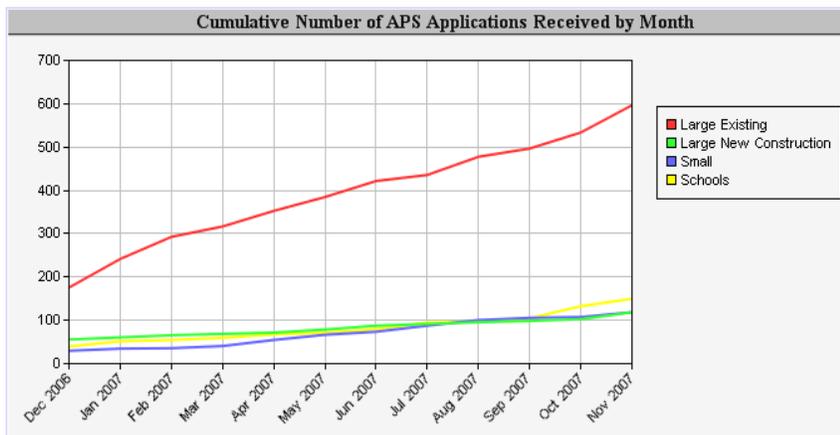
**Table 3.** Lifetime Energy and Environmental Savings, Projects Completed through November 2007

922,762,910	kWh savings
215,003,758	Water -- gallons
846,173,588	CO2 -- pounds
158,715	NOx -- pounds
21,869	PM10 -- pounds
3,968	SOx -- pounds

Participation rates also have been impressive. (See Figure 1, Table 4) As expected, uptake in some sectors (new construction and small business) has been slower than others. Long lead times for new construction typically result in a longer ramp up time for program participation. Small businesses are more difficult to reach due to their fragmented nature, low concentration of technical expertise, and limited time to devote to atypical business operation issues. As a result, participation in the New Construction and Small Business segments is not as robust as in Large Existing. The Large Existing program generated interest quickly and has grown steadily. The response from schools has been even stronger than originally projected. While school districts comprise less than eight percent of APS's non-residential energy use, to date they have received nearly 15 percent of the paid program funds for their energy efficiency projects.

Office buildings comprise the largest segment of applications received to date, followed by retail and grocery stores. For all of the incentives, lighting measures have been most heavily subscribed, followed by cooling and refrigeration.

**Figure 1.** Applications Received for Retrofit and New Construction Projects (through November 2007)



**Table 4.** Applications Received and Paid, through November 2007

<b>Project Counts</b>	<b>November 2007 Received</b>	<b>Inception To Date Reserved</b>	<b>ITD Paid</b>	<b>ITD Received</b>
<b>TOTAL Applications Submitted</b>	<b>103</b>	<b>169</b>	<b>373</b>	<b>722</b>
<b>Program Summary</b>				
Large Existing	76	131	284	461
Large New Construction	18	22	29	81
Small	9	16	60	84
Rejected Applications				96
<b>TOTAL Active Applications</b>	<b>103</b>	<b>169</b>	<b>373</b>	<b>626</b>
<b>School Summary</b>				
Non-Schools	86	147	312	535
Schools - Large Existing	14	19	53	78
Schools - Large New Construction	2	3	5	9
Schools - Small	1	0	3	4
<b>TOTAL Active Applications</b>	<b>103</b>	<b>169</b>	<b>373</b>	<b>626</b>
<b>Building Type Summary</b>				
College/University	2	1	4	7
Grocery	2	54	10	65
Hotel/Motel	2	3	12	17
K-12 School	17	23	58	88
Medical	6	6	37	47
Miscellaneous	11	5	32	43
Office	6	28	89	124
Other Industrial	5	6	10	17
Process Industrial	2	2	11	16
Restaurant	1	0	34	35
Retail	49	38	60	147
Warehouse	0	3	16	20
<b>TOTAL Active Applications</b>	<b>103</b>	<b>169</b>	<b>373</b>	<b>626</b>
<b>Application Type Summary</b>				
Prescriptive	69	124	262	437
Custom	31	38	102	172
Studies	3	7	9	17
<b>TOTAL Active Applications</b>	<b>103</b>	<b>169</b>	<b>373</b>	<b>626</b>

## Conclusion

APS attributes its success in rapidly designing and launching a successful DSM program to three key factors.

- *Broad Program Support:* APS management has supported the DSM program from the beginning, realizing the sustainable and environmental benefits this program provides. At the beginning of the process, APS brought interested parties to the table, including the Arizona Corporation Commission, industry associations, customer advocates, and energy/environmental policy advocates. This created a broad support base for implementation.
- *Stretch Goals:* The short timeframe and ambitious usage-reduction targets created a clear sense of urgency and challenged participants to think more innovatively. The emphasis was on rolling out a solid program with respectable goals and a flexible framework to accommodate enhancements.
- *External Expertise:* APS relied on experienced consultants to shape the program's development, implementation and evaluation phases. Considering lessons learned in other markets and the contractors' recommendations, APS was able to mobilize quickly and deploy a turnkey program. This structure enables the utility to remain nimble and respond effectively to customer needs.