

ORIGINAL

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MEMORANDUM

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TO: THE COMMISSION

FROM: Utilities Division

AZ CORP COMMISSION
DOCUMENT CONTROL

414

DATE: March 27, 2006

RE: IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR APPROVAL OF ITS DEMAND SIDE MANAGEMENT PROGRAM PORTFOLIO PLAN AND RELATED PROGRAMS. (DOCKET NO. E-01345A-05-0477)

On July 1, 2005, the Arizona Public Service Company ("APS") filed an application for approval of its Demand-Side Management ("DSM") Portfolio Plan and related programs ("Portfolio Plan" or "Application"). The Portfolio Plan includes various DSM programs that would provide DSM opportunities for both residential and non-residential participants. The Portfolio Plan was filed in response to APS' DSM obligations provided for in Commission Decision No. 67744. APS filed revisions to its original filing on November 14, 2005, and November 21, 2005.

Under Commission Decision No. 67744, APS is obligated to spend at least \$16 million per year, or \$48 million over the initial three-year period of 2005 to 2007, on Commission-approved DSM programs and to implement and maintain a collaborative DSM working group to facilitate stakeholder input on program development and implementation. Decision No. 67744 approved a Preliminary Energy-efficiency DSM Plan. APS was to file a final plan within 120 days of the Decision. The Portfolio Plan is the final plan. Drafts of the DSM programs contained in the Portfolio Plan were discussed within the DSM collaborative group.

The Application consists of residential and non-residential categories. The Non-Residential Programs were approved by the Commission in Decision No. 68488 on February 23, 2006. At this time, Staff is addressing the Residential New Construction Program ("New Construction"), the Residential Existing Homes Heating, Ventilating, and Air Conditioning Efficiency Program ("HVAC Efficiency"), the budget for Measurement, Evaluation, and Research ("MER"), and flexibility for the Consumer Products Program. The "Energy Wise" Low Income Program ("Low Income") is being addressed in Docket No. E-01345A-05-0414. APS has estimated that it will spend about \$9.8 million for the New Construction and HVAC Efficiency Programs and \$3.9 million for MER¹ over a three-year period. A summary of APS' estimated residential budget and total DSM-related expenses is provided below.

¹ Approximately \$500,000 of the MER budget has been allocated to cover the cost of the baseline study.

Chart 1**APS' Estimated Residential DSM Budget and Total DSM-Related Expenses
2005-2007**

| Program | Planning & Administration | Program Marketing | Program Implementation | Rebates & Incentives | Training & Technical Assistance | Consumer Education | Total | Percent of Residential Budget |
|--------------------------------|---------------------------|--------------------|------------------------|----------------------|---------------------------------|--------------------|---------------------|-------------------------------|
| RESIDENTIAL | | | | | | | | |
| Consumer Products | \$320,000 | \$570,000 | \$795,000 | \$3,300,000 | \$240,000 | \$300,000 | \$5,525,000 | 29.7% |
| Existing Homes HVAC Efficiency | \$220,000 | \$394,238 | \$518,498 | \$1,620,000 | \$293,000 | \$540,000 | \$3,585,736 | 19.3% |
| New Construction | \$312,513 | \$873,750 | \$997,000 | \$3,400,000 | \$306,000 | \$300,000 | \$6,189,263 | 33.3% |
| Low Income | \$225,000 | \$15,000 | \$150,000 | \$2,865,000 | \$30,000 | \$15,000 | \$3,300,000 | 17.7% |
| Residential Total | \$1,077,513 | \$1,852,988 | \$2,460,498 | \$11,185,000 | \$869,000 | \$1,155,000 | \$18,599,999 | 100.0% |
| Percent of Residential Budget | 5.8% | 10.0% | 13.2% | 60.1% | 4.7% | 6.2% | 100.0% | |

| | | |
|--|---------------------|---------------|
| Total Residential and Non-Residential Program Costs | \$39,300,000 | 81.9% |
| Measurement, Evaluation, & Research | \$3,900,000 | 8.1% |
| Performance Incentive | \$4,800,000 | 10.0% |
| TOTAL 2005-2007 DSM COST | \$48,000,000 | 100.0% |

This document does not address the details of the Low Income Program or the Performance Incentive. The Consumer Products portion of the Residential Program was previously approved in Commission Decision No. 68064. This document addresses the details of the New Construction Program, the HVAC Efficiency Program, the MER budget, flexibility for the Consumer Products Program, and certain procedural and reporting requirements for all of the Residential Programs included in the Portfolio Plan. The following list outlines the order of major topics included in this document:

- General Description
- Cost-Benefit Analysis
- Residential New Construction Program
- Residential HVAC Efficiency Program
- Measurement, Evaluation, and Research
- Program Marketing
- Program Flexibility
- Summary of Recommendations

GENERAL DESCRIPTION

The proposed New Construction and HVAC Efficiency Programs would replace two existing DSM programs. Currently, APS provides a Performance Built Home Program which would be replaced by the proposed New Construction Program. The current Qualified Contractor Program would be replaced by the proposed HVAC Efficiency Program. Both the proposed New Construction and HVAC Efficiency Programs would build on the existing programs and provide for new program features and elements. The proposed MER budget

would provide for MER services for all residential and non-residential programs, excluding the Residential Low Income Program, proposed in the Portfolio Plan.

Under the proposed Residential New Construction Program, APS would promote high-efficiency construction practices for new homes by requiring participating builders to meet the Environmental Protection Agency ("EPA")/Department of Energy ("DOE") Energy Star Homes® performance requirements that went into effect January 1, 2006. To encourage program participation by builders, APS would provide incentives to builders to meet or exceed the 2006 Energy Star® building standards and to upgrade to high-efficiency lighting and appliances. APS would also provide education and training for homebuyers, builders, contractors, realtors, and sales agents to promote awareness of the current state of building science and energy-efficient building practices.

Under the proposed HVAC Efficiency Program, APS would promote energy-efficiency measures to improve the efficiency and performance of heat pumps and air conditioning systems through equipment replacement, quality installation, and maintenance and repair. To encourage program participation, APS would provide incentives to customers to adopt HVAC related energy-efficiency measures that meet specific APS program requirements which exceed Energy Star® standards. The program would also provide customer education about the benefits of quality HVAC installation and cover a portion of the cost to support HVAC contractor training.

APS has proposed that program monitoring and evaluation tasks would be handled by a single MER contractor. The MER contractor would handle monitoring and evaluation tasks for all APS DSM programs, with the exception of the Low Income Program. The total budget proposed by APS for MER activities is \$3.9 million for three years.

COST-BENEFIT ANALYSIS

The Commission's 1991 Resource Planning Decision No. 57589 established that the Societal Cost Test should be used for the purpose of establishing whether a DSM program can be considered cost-effective. For each type of measure proposed by APS, the Company conducted a cost-benefit analysis utilizing the Societal Cost Test. Staff completed its own analysis of the costs and benefits also based on the Societal Cost Test.

Under the Societal Cost Test, a program's incremental benefits to society must exceed the incremental cost of having the program in place in order for the program to be cost-effective. Societal costs include the cost for installing the more energy-efficient measures and APS' costs for delivering the DSM program, excluding incentives. Societal benefits include APS' deferred generation capacity costs and avoided energy costs, and, for certain measures, avoided gas costs. Other benefits of a program include reduced water consumption and air pollution, although dollar values have not been assigned to those benefits.

It should be noted, however, that a cost-benefit analysis such as the Societal Cost Test is based upon many assumptions and data from various sources. The end result of such an analysis

can be no more accurate than the assumptions and data that have been utilized and is merely an estimation. APS is currently conducting a baseline study that is estimated to be completed sometime in April 2006.² This baseline study will provide a basis for developing, supporting, and evaluating DSM programs. The study will also provide an analysis of load shapes by market segment, current efficiency levels by customer market segment, and local pricing information for conventional and energy-efficient measures.

Absent local baseline data, APS utilized data from various sources including, but not limited to, information from other states including California and New York, APS' End Use Data Acquisition Project Study,³ the Consortium for Energy Efficiency, and the U.S. Department of Energy for its energy savings per unit, incremental cost, and measure life analysis.

The inputs Staff utilized in its cost-benefit analysis include avoided capacity costs from the U.S. Energy Information Administration, hourly avoided energy costs generated by Staff's UPLAN production costing model, APS' incremental costs, APS' estimates of measure life, and APS' estimate of demand and energy savings per unit adjusted for line losses. For the new home program, Staff utilized outputs from the REM/Design Residential Energy Analysis Software model (Architectural Energy Corporation, Boulder, Colorado) provided by the Energy Office. Staff calculated the total demand savings for each program by multiplying the demand savings per unit by the coincidence factor⁴ times the number of units expected to be part of the program. Staff calculated the total energy savings for each program by multiplying the kWh savings per unit of measure times the number of units times the measure life and summing the results of all measures in a program.

Staff estimates that the proposed Residential New Construction and HVAC Efficiency Programs for three years could result in about \$10.3 million of net benefits to society over the lifetime of the measures. In addition, Staff estimates that these two Residential Programs could reduce APS' annual peak demand by about 17.7 megawatts ("MW") and energy consumption by about 553,000 megawatt-hours ("MWh") over the life of the measures. A chart summarizing Staff's estimated net societal benefits is provided below.

² Approved in Commission Decision No. 67816 on May 5, 2005.

³ 1997 study that investigated the end-use characteristics of APS non-residential market.

⁴ The likelihood that the measure is used at the time of the utility's system peak demand.

Chart 2
Residential New Construction and HVAC Efficiency DSM Programs
Net Societal Benefits
(Staff's Three-Year Estimate)

| DSM Program | APS Estimated Budget ¹ | Total Societal Costs ² | Total Societal Benefits ³ | Net Societal Benefits ⁴ |
|--------------------------------------|--|-----------------------------------|--------------------------------------|------------------------------------|
| New Construction | \$6,189,263 | \$8,556,354 | \$17,539,539 | \$8,983,185 |
| Existing Homes HVAC Efficiency | \$3,585,736 | \$6,217,107 | \$7,592,104 | \$1,374,997 |
| Total | \$9,774,999 | \$14,773,461 | \$25,131,643 | \$10,358,182 |
| ¹ APS Estimated Budget | Includes APS' costs, including incentives paid to customers. | | | |
| ² Total Societal Cost | Includes measure costs and APS costs, excluding incentives. | | | |
| ³ Total Societal Benefits | Includes deferred generation capacity costs and avoided energy costs, adjusted for losses. | | | |
| ⁴ Net Societal Benefits | Total Societal Benefits minus Total Societal Costs over the life of the measure(s). | | | |

RESIDENTIAL NEW CONSTRUCTION PROGRAM

Program Description

The Residential New Construction Program is designed to promote the construction of energy-efficient new residential homes by providing an incentive to new-home builders to meet stringent construction standards. The program would utilize the whole-house approach to new-home construction emphasizing the application of building science principles through high-efficiency construction practices. The program is a performance-based program and, as such, a key element would be field testing to ensure not only that all required energy-efficiency features are included, but also that the features are installed correctly and that the home actually delivers the required energy-efficiency performance. APS states that it is much easier and more cost-effective to implement energy efficiency into a home at the time of construction rather than to retrofit efficiency improvements after the home is built.

In order to qualify for an incentive under APS's New Construction Program, a new home would have to meet the EPA/DOE 2006 Energy Star® requirements for new homes. These are new standards that became effective on January 1, 2006, and are significantly higher than the old Energy Star® standards. According to the Arizona Energy Office, homes built to the new 2006 Energy Star® standards use 20 percent less energy than those meeting the old Energy Star® standards and 33 percent less than those built using standard construction practices. If a home within APS' service territory were to meet the 2006 Energy Star® standards, and all program application requirements were met, the builder would be qualified for a \$400 incentive from APS. If the 2006 Energy Star® standards were not met, no incentive would be paid. APS has indicated to Staff that its program requirements would be enhanced to include any new Energy Star® requirements that may be added to the Energy Star® new home standard by EPA/DOE in the future.

The 2006 Energy Star® standards require energy savings through building envelope upgrades, upgraded heating and air conditioning systems, tight duct systems, upgraded thermostats, high-performance windows, upgraded water-heating equipment, and high-efficiency lighting fixtures and appliances. The standard requires a home to meet either the specific 2006 Energy Star® prescriptive requirements (“Prescriptive Path”) for its climatic zone or to have energy performance equal to or better than those requirements (“Performance Path”). In either case, performance must be verified through field testing according to Home Energy Rating System (“HERS”) Guidelines by a Residential Energy Services Network (“RESNET”) accredited inspector. A HERS rating is an evaluation of the energy efficiency of a home compared to a base home resulting in a score between 0 and 100. RESNET is an independent agency involved with training and certifying home energy raters as well as adopting and maintaining national standards for energy ratings.

To qualify as a 2006 Energy Star® compliant home through the performance path, which is anticipated to be the more utilized path, each home would be required to achieve a minimum score of 85 on the HERS Index for APS’ service territory climatic zone. Each home would also be required to (1) meet the Building envelope requirement, (2) meet the ductwork requirement, and (3) include at least one Energy Star® qualified product (heating & cooling equipment, windows, or five or more lighting fixtures, appliances, or ceiling or ventilation fans). In addition, each home must meet all state and local codes in order to be 2006 Energy Star® qualified.

Following are some of the features or requirements that may be utilized or required to achieve the performance-based 2006 Energy Star® qualification level:

- Building envelope requirements specify that the home be infiltration sealed, inspected, and tested to be equal or less than 0.35 air changes per hour (“ac/h”); meet compliant insulation levels (normally R-30 in ceilings and R-19 in walls in this climate); and be in compliance with an Energy Star® prescribed thermal bypass inspection checklist of 12 vulnerable areas to ensure they are not breached.
- Heating and cooling equipment options could include a properly sized Energy Star® qualified central air-conditioning unit, furnace, boiler, or heat pump. In homes with heat pumps, programmable thermostats should have ramp-up technology to prevent the excessive use of electric back-up heating. HVAC equipment would normally have a minimum SEER⁵ rating of 14 in this climate to effectively contribute to the overall energy efficiency.
- Ductwork requirements specify that all ducts be sealed and tested by a RESNET-certified rater to verify leakage to the outdoors of no more than 6 cubic feet per minute (“cfm”) per 100 square feet of conditioned floor area. In addition, all ducts must be

⁵ SEER refers to the seasonal energy-efficiency ratio. The SEER is the cooling output divided by the power consumption, with climate and other variables factored in.

insulated to 2004 International Energy Conservation Code (“IECC”) compliant insulation levels which specify a minimum of R-4 for ducts in a conditioned space or in accordance with the IECC table 402.1 for ducts outside of the conditioned space.

- Window options could include Energy Star® qualified windows. If the home’s window area exceeds 21 percent window to floor area, additional features for an improved solar heat gain coefficient could be applied.
- Lighting fixtures and appliance requirements specify the home must have five or more Energy Star® qualified lighting fixtures, ceiling fans, or appliances installed. An Energy Star® lighting fixture installed in a storage room, laundry room, or garage may not be counted as one of the five. Additional Energy Star® fixtures or appliances are encouraged and will result in additional savings, but are not required.

To qualify as a 2006 Energy Star® compliant home through the prescriptive path, each home would need to meet all of the requirements specified below, be verified and field tested in accordance with HERS standards by a RESNET-accredited provider, and meet all state and local codes.

- Cooling Equipment requirements include a properly-sized Energy Star® qualified minimum 14 SEER/11.5 EER⁶ air conditioner; or a minimum 14 SEER/11.5 EER/8.2 HSPF⁷ Energy Star® qualified heat pump.
- Heating Equipment requirements include an Energy Star® qualified heat pump (14 SEER/11.5 EER/8.2 HSPF); or an 80 AFUE⁸ gas furnace; or an 80 AFUE boiler; or an 80 AFUE oil furnace.
- An Energy Star® qualified thermostat is required.
- Ductwork requirements specify duct leakage must be no more than 4 cfm to the outdoors; and R-6 insulation must be installed on ducts in unconditioned spaces.
- Building envelope requirements specify that the home be infiltration sealed, inspected, and tested to be equal or less than 0.35 ac/h; meet 2004 International Residential Code compliant insulation levels (normally R-30 in ceilings and R-19 in walls in this climate); and be in compliance with the thermal bypass inspection checklist to ensure a list of 12 vulnerable areas are not breached.
- Energy Star® qualified or more efficient windows are required.

⁶ EER refers to the energy-efficiency rating of the unit. EER is the unit’s BTU rating divided by wattage.

⁷ HSPF refers to heating seasonal performance factor. HSPF is similar to SEER, but it measures the efficiency of the heating portion of a heat pump.

⁸ AFUE refers to annual fuel utilization efficiency. AFUE measures the amount of heat actually delivered to a home compared to the amount of fuel that is supplied to a furnace.

- The water heating requirement specifies an upgraded water heater with a range of 89-93 percent efficiency (depending on size) for an electric unit or 53-61 percent efficiency (depending on size) for a gas unit.
- Lighting fixtures and appliance requirements specify the home must have five or more Energy Star® qualified lighting fixtures, ceiling fans, or appliances installed. An Energy Star® lighting fixture installed in a storage room, laundry room, or garage may not be counted as one of the five.

The proposed New Construction Program is intended to build onto and expand APS' existing Performance Built Homes Program. The new program shares many similarities with the older program it will be replacing if adopted; however, there are significant differences, as well. The New Construction Program would offer incentives of \$400 per qualifying home to the builder where the existing program paid incentives of \$5,000 per subdivision to builders for constructing qualifying homes in its subdivision. The new program would be based upon standards and branding of the much more stringent EPS/DOE 2006 Energy Star® Home Program where the existing program relies upon APS' own branding of APS Performance Built Home. The new program would not require builders to offer guaranteed energy cost limits where the existing program does. Both the New Construction Program and the existing Performance Built Homes Program are based upon APS in-house promotion, marketing, delivery, and administration. APS has stated, however, that it may consider outsourcing some functions, such as incentive processing, in the proposed New Construction Program. Program activities of the two programs are similar in that they both include consumer education, builder outreach, building science training, realtor training, point-of-sale materials, and homebuyer advertising. The scale of the proposed New Construction Program, however, would be much larger with an annual budget of about six times that of the current program.

In addition to offering incentives to builders to encourage the construction of new energy-efficient 2006 Energy Star® homes, the New Construction Program would also offer education and training for homebuyers, builders, contractors, and realtors/builder sales agents. These activities would be targeted toward increasing the knowledge of modern building science and energy-efficient building practices among these diverse groups, each group from its relevant perspective.

The program would target all newly constructed single-family homes that will receive electric service from APS. The target market would include both production home developments and custom home projects. Program focus would be on high-growth areas within the APS service territory both inside and outside the Phoenix metropolitan area. The Phoenix area is one of the most active new home markets in the country where, according to APS, 60,000 new home permits were issued in 2004. Production homes represent more than 80 percent of the total new home sales in the Phoenix area. Outside of the Phoenix metropolitan area, new home construction is dominated by custom and manufactured homes.

The program would be managed and administered by APS. APS would provide program administration, marketing, planning, coordination of builder and contractor training, and

consumer education activities. However, APS has indicated that it may work with specialized contractors for some program activities such as training, incentive processing, and other program support activities. Important trade relationships would include EPS/DOE Energy Star® Homes for certification standards and branding; building science trainers for training and education; the Arizona Energy Office ("AEO") for training, education and awareness building; inspection contractors for third-party performance verification and testing; and the Electric League of Arizona ("ELA") for Qualified Contractor Training.

APS has indicated that it would pay incentives under the New Construction Program only after homes are completed and APS is provided proof of Energy Star® certification based on the new 2006 standard. Energy Star® requires a random sample of 15 percent of production homes and 100 percent of custom homes be field inspected and verified. The testing must be performed by an accredited RESNET energy rater and must include home performance tests to verify duct system tightness, whole-house air tightness, insulation inspection, and thermal bypass inspection including the checklist of 12 vulnerable areas as prescribed by Energy Star®.

Program Activities

APS has indicated it would utilize a number of different activities to promote the construction of EPS/DOE Energy Star® Homes. APS would offer both builder and contractor education and training. Homebuyers and realtors/sales agents would also be made aware of the benefits of highly energy-efficient new home construction through APS provided training activities.

Building Science training has been offered to builders and contractors under the current APS Performance Built Homes Program and will expand to become a part of the New Construction Program. The class is a one-day class typically held several times a week during designated weeks of the year. The class includes specific construction details on framing, insulation installation, duct design, and other construction topics. There has been no cost for the program to participants, and the training costs have been shared evenly between the ELA and the Arizona Energy Office. This training format is expected to carry over to the New Construction Program.

Homebuyers, builders, realtors, and builder sales agents would be targeted by bill stuffers, consumer education pieces, website content, media ads, publications, and point-of-sale materials.

Homebuyers would be informed about the New Construction Program and the advantages and availability of energy-efficient new homes using a variety of techniques. APS would utilize such homebuyer publications as the *Homebuyer's Guide to Energy Efficiency*, a free publication. It would also reach customers through APS newsletter articles, bill inserts, and web content. Online advertising would also be included on builder websites to promote the New Construction Program. APS also proposes to hold consumer education events such as homebuilder events, open houses, community events, and other opportunities to educate and promote APS energy-efficiency programs. Educational materials would be distributed through

the APS website, the Energy Answer Line, consumer events, and through participating homebuilders with point-of-sale materials at builder sales offices and open houses. APS also proposes cooperative local television advertising with builders. The purpose of such advertising would be to differentiate homes in the New Construction Program. Expenses would be shared evenly between APS and the participating builders.

Realtors and builder sales agents would be reached through realtor-targeted publications such as the *New Home Directory* and the *Ultimate New Homes Update*. They would also be reached through content on the APS website, Homestore.com, and Realtor/Sales Agent Training. These training events are currently part of the existing APS Performance Built Homes Program and will continue as part of the new program. This training is normally held at the Arizona School of Real Estate, the Homebuilders' Association of Central Arizona, or at individual builder sales agent meetings. The cost for the training is about \$25 for realtors. There is no charge for the training for sales agents working for builders who participate in the program.

Builder promotion would be headed by one full-time APS Builder Representative employee. This individual would become involved in a variety of promotional activities including participating in homebuilder trade shows, making placements in builder targeted publications, meeting with builder staff, conducting program sales presentations, executing builder agreements, distributing point-of-sale materials, answering builder questions and concerns, updating marketing materials, and assisting in planning and delivery of building science and realtor/sales agent training.

Incentives

Under the New Construction Program, APS would provide a \$400 incentive to the homebuilder for each 2006 Energy Star® qualified new home constructed under the rules of the program. Each home must meet the EPA/DOE 2006 Energy Star® standard to qualify for an incentive. It should be noted that builders of energy-efficient homes may be eligible for a \$2,000 federal tax credit; however, the efficiency standards to qualify for the federal tax credit appear to be much more stringent, and it is not known how many homes will qualify. APS has indicated that a new home would need to be equipped with solar hot water heating or other such features in addition to the types of measures proposed in APS' New Construction Program to meet the federal tax credit standard. Based on the stringent efficiency standards to be eligible for a federal tax credit, Staff does not believe that many builders in the APS New Construction Program will be eligible for the federal tax credit.

Budget and Societal Benefits

The budget for the New Construction Program includes categories for planning and administration, marketing, implementation, rebates and incentives, training and technical assistance, and consumer education. The scale of the proposed New Construction Program would be much larger than that of the existing Performance Built Homes Program it would replace, with an annual budget of about \$2,063,000 per year compared to \$343,000 spent on the

Performance Built Homes Program in 2005. For the first three years of the program, the estimated budget is about \$6.2 million allocated as follows:

Chart 3
APS' Residential New Construction Estimated Budget
2005-2007

| Program Activity | Planning & Administration | Program Marketing | Program Implementation | Rebates & Incentives | Training & Technical Assistance | Consumer Education | Total |
|--------------------------------------|--|-------------------|------------------------|----------------------|---------------------------------|--------------------|--------------------|
| Realtor Advertising | \$22,513 | \$195,000 | \$48,000 | \$0 | \$0 | \$0 | \$265,513 |
| Building Science Training | \$35,000 | \$65,000 | \$95,000 | \$0 | \$145,000 | \$0 | \$340,000 |
| Builder Incentives | \$105,000 | \$185,000 | \$320,000 | \$3,400,000 | \$0 | \$0 | \$4,010,000 |
| Builder Co-op Advertising | \$25,000 | \$165,000 | \$43,000 | \$0 | \$0 | \$0 | \$233,000 |
| Consumer Education | \$28,000 | \$0 | \$55,000 | \$0 | \$0 | \$300,000 | \$383,000 |
| Homebuyer Publications | \$23,000 | \$103,000 | \$33,000 | \$0 | \$0 | \$0 | \$159,000 |
| Builder Promotion And Awareness | \$49,000 | \$110,000 | \$355,000 | \$0 | \$61,000 | \$0 | \$575,000 |
| Realtor Sales Agent Training | \$25,000 | \$50,750 | \$48,000 | \$0 | \$100,000 | \$0 | \$223,750 |
| Total | \$312,513 | \$873,750 | \$997,000 | \$3,400,000 | \$306,000 | \$300,000 | \$6,189,263 |
| Percent of Budget | 5.0% | 14.1% | 16.1% | 54.9% | 4.9% | 4.8% | |
| Budget Allocation Definitions | | | | | | | |
| Planning & Administration | Refers to APS costs to plan and administer programs - includes management of program budgets, oversight of implementation contractor (where applicable), program development, program coordination, and general overhead expenses. | | | | | | |
| Program Marketing | Includes all expenses related to marketing the program and increasing DSM consumer awareness (this refers to direct program marketing costs as opposed to general consumer education) | | | | | | |
| Program Implementation | Refers to program delivery costs associated with implementing the program. Includes implementation contractor labor (where applicable) and overhead costs as well as other direct program delivery costs. For this program, includes APS in-house labor for program implementation and associated support. | | | | | | |
| Rebates & Incentives | Includes all dollars that go toward builder rebates and incentives. | | | | | | |
| Training & Technical Assistance | Includes all dollars that are used for energy-efficiency training and technical assistance for program participants (i.e. HVAC contractors) | | | | | | |
| Consumer Education | Includes dollars that are used to support general consumer education about energy-efficiency improvements. | | | | | | |

Staff believes that the New Construction Program could provide an opportunity for significant savings of energy and demand by making incentives available to builders to construct highly energy-efficient new single-family homes in the APS service territory. According to Staff's analysis of the program for three years, the energy-efficiency savings expected to result from the New Construction Program could provide about \$9.0 million in net benefits over the life of the measures. In addition, the New Construction Program could reduce annual peak

demand by about 13.4 MW and energy consumption by about 380,000 MWh over the life of the measures. Staff's analysis of the benefits of the New Construction Program is based upon many assumptions and data from various sources and is only an estimation. Staff recommends approval of the New Construction Program. A chart summarizing Staff's estimated net societal benefits is provided below.

Chart 4
Residential New Construction Program
Net Societal Benefits
(Staff's Three-Year Estimate)

| DSM Program | APS Estimated Budget ¹ | Total Societal Costs ² | Total Societal Benefits ³ | Net Societal Benefits ⁴ |
|--------------------------------------|--|-----------------------------------|--------------------------------------|------------------------------------|
| HVAC Efficiency | \$6,189,263 | \$8,556,354 | \$17,539,539 | \$8,983,185 |
| ¹ APS Estimated Budget | Includes APS' costs, including incentives paid to customers. | | | |
| ² Total Societal Cost | Includes measure costs and APS costs excluding incentives. | | | |
| ³ Total Societal Benefits | Includes deferred generation capacity costs and avoided energy costs, adjusted for losses. | | | |
| ⁴ Net Societal Benefits | Total Societal Benefits minus Total Societal Costs over the life of the measure(s). | | | |

RESIDENTIAL HVAC EFFICIENCY PROGRAM

Program Description

The proposed HVAC Efficiency Program promotes a whole-system approach to improving the performance of residential HVAC systems through equipment replacement, quality installation, maintenance, and repair by qualified HVAC contractors. The proposed HVAC Efficiency Program builds upon APS' existing Qualified Contractor Program by providing rebates, incentives, and additional marketing, education, and contractor training. The existing Qualified Contractor Program was designed with a goal of market transformation and did not include rebates and incentives as a feature of the program. The proposed HVAC Efficiency Program is designed to provide customer rebates and incentives for HVAC-related energy-efficiency measures.

Under the proposed HVAC Efficiency Program, APS would provide incentives to customers to encourage installation of energy-efficient HVAC systems, quality installation practices, and testing and repair of existing HVAC systems. In addition, APS would cover a portion of the cost of HVAC contractor training and qualification through its existing Qualified Contractor Program in order to increase the pool of Qualified Contractors. Among other things, Qualified Contractors will learn HVAC Quality Installation techniques.

The proposed HVAC Efficiency Program would also provide consumer education about the benefits of quality HVAC installation and servicing by qualified technicians through educational brochures, promotional material, and website content. APS would also undertake

program marketing and consumer awareness initiatives such as bill stuffers, consumer education pieces, website content, media ads, promotion of the Energy Star® label, and call center support.

The program is targeted to APS residential customers who are considering maintenance, repair or replacement of their existing HVAC equipment. The proposed HVAC Efficiency Program is available for both all-electric and dual-fuel homes. APS has indicated that in the Phoenix-metropolitan area alone, more than 60,000 HVAC units are replaced annually and approximately half of these replacements occur in APS' service territory.

The proposed HVAC Efficiency Program focuses on the Phoenix-metropolitan area, but customers outside of the Phoenix metropolitan area would also be eligible to participate if they meet APS' program requirements and provide HVAC equipment meeting APS' specifications for energy efficiency. APS anticipates that the incentive for the Quality Installation and HVAC System Testing and Repair measures may not be available in all areas due to a lack of Qualified Contractors. Staff believes it is important to work toward making these program measures available throughout APS' service territory in areas where potential demand exists for residential HVAC DSM measures. Therefore, Staff recommends that APS continue to analyze ways to expand the proposed HVAC Efficiency Program throughout APS' service territory. Staff also recommends that APS provide a report to Staff that presents the results of APS analysis commensurate with the 13-month filing requirement approved in Commission Decision No. 68488. The report should address the feasibility of expanding the program and APS should also provide information related to program participation by measure outside of the Phoenix-metropolitan area.

The HVAC Efficiency program would be managed and administered by APS. APS would provide program administration, marketing, planning and coordination of contractor training and education activities, customer participation tracking, quality control, and technical support. However, APS has indicated that it may work with trade partners or implementation contractors for some program activities such as training activities, incentive payment processing and fulfillment, and verification activities.

APS has indicated that incentives would only be paid after the verification process has been completed. The verification process would involve checking invoices for proper documentation prior to payment. In addition, a representative random sample of installations would be field inspected to ensure that measures were actually installed or performed. APS has indicated that it has not yet determined the percentage of samples that would be field verified. APS anticipates that it may take four to six weeks for verification and incentive processing to take place.

Program Activities

Under the proposed HVAC Efficiency Program, APS would fund an "Energy Answer Line" which would be administered by the ELA. The "Energy Answer Line" would be staffed with individuals knowledgeable about energy-efficiency measures and APS DSM programs. Common topics addressed would include referrals to APS Qualified Contractors, and questions

about SEER levels, heat pumps, central air conditioning units, insulation, and appliances. APS would pay the ELA the full cost to provide this service. The "Energy Answer Line" is currently available to APS customers through its existing Qualified Contractor Program.

APS would also fund the full cost for the *Southwestern Home Journal* publication which is currently being published by the ELA. The *Southwestern Home Journal* is a quarterly eight-page insert in the Arizona Republic newspaper. It would provide general consumer education about energy efficiency related primarily to heating and cooling, and the promotion of APS' energy-efficiency programs. APS would coordinate with the ELA about article content, but the ELA would be primarily responsible for the production and publishing of the insert. The *Southwestern Home Journal* is currently being provided under APS' existing Qualified Contractor Program.

APS would also provide customer education through various channels such as promoting APS' free publication titled *Consumers Guide to an Energy Efficient HVAC System*, providing on-line energy audits, and holding customer education events that are focused on general consumer education about energy-efficient HVAC features and benefits. Customer education efforts are currently being provided to APS customers through its existing Qualified Contractor Program. However, under the proposed HVAC Efficiency Program, APS may enhance and expand on current educational efforts. According to APS, it distributed approximately 6,000 copies of this publication in 2005.

APS would participate in co-op advertising which is joint advertising between Commercial Qualified Contractors and APS. This would include television spots that promote spring HVAC System Testing and Repair and provide a list of APS Qualified Contractors. APS would be responsible for the oversight, content, and implementation of the co-op advertising, and APS would split the cost of the advertising with the participating Qualified Contractors.

APS would provide contractor training through its Qualified Contractor Program. This program would be administered by the ELA, and APS would provide 50 percent of the cost of the training classes offered under the program. Residential Qualified Contractor training classes include topics such as Refrigeration Theory and System Diagnosis, HVAC Code and Safety, and Air Flow Dynamics. Qualified Contractor training is currently being provided through APS' existing Qualified Contractor Program. However, under the proposed HVAC Efficiency Program, APS may expand on current training efforts. Additional supplemental training and or certification opportunities may be provided by other associations and organizations such as the National Comfort Institute and the Building Performance Institute. According to APS, in 2005, approximately 55 contractors participated in the Qualified Contractor Program and over 200 HVAC technicians participated in APS-sponsored training courses in order to meet the requirements in APS' Qualified Contractor Program.

Incentives

The existing Qualified Contractor Program was designed with a goal of market transformation and did not include rebates and incentives as a feature of the program. However, under the proposed HVAC Efficiency Program, APS would provide incentives to customers to install energy-efficiency measures that exceed the 2006 Energy Star® standard requirements. APS would provide a \$250 incentive payment to customers who install a minimum 14 SEER/12 EER unit and a \$400 incentive for the installation of a minimum 16 SEER/14 EER unit.

Currently, the EPA/DOE is in the process of developing standards for Quality Installation including HVAC equipment sizing, achieving manufacturer recommended airflow specifications, and refrigerant balancing. According to APS, drafts of Energy Star® Quality Installation Standards have been circulated within the industry. In addition, EPA/DOE will be conducting pilot programs for proper Quality Installation standards in key states. As soon as those Energy Star® standards are adopted, APS would pay a \$500 incentive to customers that include Quality Installation with a high-efficiency HVAC unit that meets Energy Star® standards. The \$500 is intended to include the incentive for the equipment as well as the incentive for the Quality Installation. APS has indicated that it is anticipated that Energy Star® Quality Installation standards would be implemented sometime in 2007.

APS would also pay a \$250 incentive to customers having HVAC System Testing and Repair performed. HVAC System Testing and Repair would include duct work sealing or repair, refrigerant charge adjustment, and airflow balancing. The contractor must document proof of efficiency improvements using approved tools and methods including before and after system efficiency tests. These tools and methods may include duct blaster tests, air flow measurement devices such as flow hoods, and refrigerant charge measurement tools such as pressure gauges. These efficiency results would be checked by APS or its contractor through the verification process. A chart summarizing the proposed incentive payments is provided below.

Chart 5
APS' Proposed Residential HVAC Efficiency Incentives

| Measure Description | Technical Specification | Incentive |
|---|---|---|
| High SEER/EER Equipment Split/Packaged Systems | Tier 1= ≥ 14 SEER/12 EER Tier 2= ≥ 16 SEER/14 EER | \$250 per unit \$400 per unit |
| Quality Installation with High SEER/EER Equipment | Must meet Energy Star® quality installation standards estimated to be in place sometime in 2007. | \$500 per unit (includes an incentive for a Tier 1 or Tier 2 unit) |
| HVAC System Testing and Repair | Contractors must document home performance test and repairs using approved tools and methods including before and after verification. | \$250 per unit |

Residential customers could also be eligible for federal tax credits to install energy-efficient HVAC equipment. According to Energy Star®, a tax credit of \$300 could be available during the 2006 and 2007 tax years for the installation of qualifying Energy Star® 15 SEER/12.5 EER split air conditioning systems, 14 SEER/12 EER packaged air conditioning systems, and SEER 15/13 EER/9 HSPF air source heat pumps.

The efficiency requirements proposed by APS to receive rebates and the efficiency requirements to receive the federal tax credit exceed the efficiency levels required by Energy Star®. The Energy Star® specification for central air conditioners is 14 SEER/11.5 EER for split systems, and 14 SEER/11 EER packaged systems. The Energy Star® specification for an air source heat pump is 14 SEER/11.5 EER/8.2 HSPF for split systems and 14 SEER/11 EER/8 HSPF for packaged systems. Please see the chart below summarizing these requirements.

Chart 6
Summary of Efficiency Requirements

| HVAC Equipment ⁹ | Energy Star® Requirement | Federal Tax Credit Requirement | APS Requirement |
|-----------------------------|-----------------------------------|--------------------------------|--|
| Central AC | 14 SEER/11.5 EER (split) | 15 SEER/12.5 EER (split) | ≥14 SEER/12 EER (Tier 1) ≥16 SEER/14 EER (Tier 2) |
| | 14 SEER/11 EER (packaged) | 14 SEER/12 EER (packaged) | |
| Air Source Heat Pumps | 14 SEER/11.5 EER/8.2 HSPF (split) | 15 SEER/13 EER/ 9 HSPF | |
| | 14 SEER/11 EER/8 HSPF (packaged) | | |

Staff is concerned that customers may become confused about the particular efficiency requirements necessary to receive APS rebates as well as the federal tax credit. For instance, a customer who installs a 14 SEER/12 EER split system that qualifies for an APS Tier 1 rebate would not be eligible for a federal tax credit, but that same customer would be eligible for an APS Tier 1 rebate and a federal tax credit if a packaged system meeting the same efficiency requirements was installed. This creates the potential for confusion for customers and contractors. In addition, there is no guarantee that contractors would be accurately passing on information to customers about the differences in efficiency requirements for the federal tax credits and APS incentives. Staff considered recommending that the federal tax credit specifications be adopted as the APS Tier 1 incentive requirements, however, decided against it based upon its more complex structure. Therefore, to reduce the potential for confusion, Staff recommends that APS undertake customer education and marketing efforts that promote customer understanding that efficiency requirements for APS HVAC incentives are higher than minimum Energy Star® requirements, and that there are differences in efficiency requirements for an APS incentive and for a federal tax credit. In addition, APS should include reference to the Energy Star® website, Internal Revenue Service website, or other appropriate websites so customers can make an informed decision about which unit would most appropriately meet their needs. Staff also recommends that APS take appropriate actions to aggressively educate HVAC

⁹ As of January 22, 2006, all manufactured HVAC units must be a minimum of 13 SEER.

contractors to ensure they have been informed about the differences in efficiency requirements for the APS incentive, the federal tax credit, and Energy Star® standards.

Staff is concerned that waiting to implement the Quality Installation measure until 2007 could result in lost opportunities for efficiency savings. Quality Installation including HVAC equipment sizing, achieving manufacturer recommended airflow specifications, and refrigerant balancing is an important measure because it increases the opportunity to achieve the full efficiency rating from the HVAC unit. For instance, installing an HVAC unit without proper sizing could result in the failure of a unit's ability to achieve its efficiency rating. Proper sizing can be achieved using an industry standard Manual J calculation or equivalent measurement. Currently, APS trains contractors about Quality Installation procedures in its Qualified Contractor Program and the Quality Installation measure has been approved by the Commission for APS Non-Residential DSM Programs. Staff believes that proper sizing is an important component of the Quality Installation measure. Therefore, Staff recommends that APS move forward with its implementation of the Quality Installation measure upon Commission approval. In addition, Staff recommends that the Quality Installation measure be performed by APS Qualified Contractors who have been trained in Quality Installation techniques and a Manual J or equivalent calculation should be required as a component of the Quality Installation measure in order for a customer to be eligible for the incentive.

Staff is concerned that the proposed \$500 incentive for Quality Installation and a High SEER/EER HVAC unit should be redesigned to reflect an incentive for Quality Installation measures only. Under APS' proposal, the motivation to install the more efficient tier 2 HVAC unit is removed because the customer would receive the same incentive for Tier 1 and Tier 2 HVAC units. Therefore, Staff recommends that the incentive payments for the Quality Installation measure be separated from the incentive for the HVAC unit and be set at \$100. In addition, the Quality Installation measure should only reflect work associated with Quality Installation, such as HVAC equipment sizing, achieving manufacturer recommended airflow specifications, and refrigerant charge adjustment. For instance, under Staff's proposal a customer who installs a Tier 1 HVAC unit with Quality Installation would receive a \$250 incentive for the equipment plus a \$100 incentive for the Quality Installation, and a customer who installs a Tier 2 HVAC unit would receive a \$400 incentive for the equipment plus a \$100 incentive for the Quality Installation.

Staff is also concerned about the proposed \$250 flat rate incentive for HVAC System Testing and Repair. The HVAC System Testing and Repair measure provides incentives for a service call to diagnose and tune up HVAC equipment and also covers any repairs which could include duct work sealing or repair, refrigerant charge adjustment, and airflow balancing. These repairs/adjustments are designed to allow the system to operate in the most efficient manner. Staff is concerned that the method employed to determine incentive payments for the HVAC System Testing and Repair measure may not accurately reflect the level of work that is actually being done by the HVAC contractor. This has the effect of paying the same incentive to a customer who needed only the diagnosis and refrigerant as would be paid to a customer who required system diagnosis, refrigerant, and duct work. Therefore, Staff recommends that the incentive payments for the HVAC System Testing and Repair measure be set at 75 percent of the

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incremental cost of the testing and repair work that was performed. Staff also recommends that the incentive be capped at \$250.

A summary of Staff's recommended incentives is provided below.

Chart 7
Staff Proposed Residential HVAC Efficiency Incentives

| Measure Description | Technical Specification | Incentive |
|--|---|---|
| High SEER/EER Equipment Split/Packaged Systems | Tier 1= ≥ 14 SEER/12 EER Tier 2= ≥ 16 SEER/14 EER | \$250 per unit \$400 per unit |
| Quality Installation | Must be completed by an APS Qualified Contractor. Must meet Energy Star® Quality Installation standards when they are adopted. | \$100 per unit |
| HVAC System Testing and Repair | Contractors must document home performance test and repairs using approved tools and methods including before and after verification. | 75% of incremental cost of the work performed with a maximum of \$250 per unit. |

Budget and Societal Benefits

The budget for the HVAC Efficiency Program includes categories for planning and administration, marketing, implementation, rebates and incentives, training and technical assistance, and consumer education. APS spent approximately \$524,000 on its existing Qualified Contractor Program in 2005. For the first three years of the proposed HVAC Efficiency Program, the estimated budget is about \$3.6 million allocated as follows:

Chart 8
APS' Residential HVAC Efficiency Estimated Budget
2005-2007

| Program Activity | Planning & Administration | Program Marketing | Program Implementation | Rebates & Incentives | Training & Technical Assistance | Consumer Education | Total |
|--------------------------------------|--|-------------------|------------------------|----------------------|---------------------------------|--------------------|--------------------|
| Energy Answer Line | \$15,000 | \$0 | \$105,000 | \$0 | \$0 | \$90,000 | \$210,000 |
| Southwestern Home Journal | \$20,000 | \$109,238 | \$40,000 | \$0 | \$0 | \$105,000 | \$274,238 |
| Consumer Education | \$35,000 | \$0 | \$100,000 | \$0 | \$0 | \$325,000 | \$460,000 |
| High Efficiency Rebates | \$85,000 | \$120,000 | \$182,000 | \$1,620,000 | \$8,000 | \$20,000 | \$2,035,000 |
| Co-Op Advertising | \$25,000 | \$130,000 | \$51,498 | \$0 | \$0 | \$0 | \$206,498 |
| Contractor Training | \$40,000 | \$35,000 | \$40,000 | \$0 | \$285,000 | \$0 | \$400,000 |
| Total | \$220,000 | \$394,238 | \$518,498 | \$1,620,000 | \$293,000 | \$540,000 | \$3,585,736 |
| Percent of Budget | 6.1% | 11.0% | 14.5% | 45.2% | 8.2% | 15.1% | |
| Budget Allocation Definitions | | | | | | | |
| Planning & Administration | Refers to APS costs to plan and administer programs - includes management of program budgets, oversight of implementation contractor (where applicable), program development, program coordination, and general overhead expenses. | | | | | | |
| Program Marketing | Includes all expenses related to marketing the program and increasing DSM consumer awareness (this refers to direct program marketing costs as opposed to general consumer education) | | | | | | |
| Program Implementation | Refers to program delivery costs associated with implementing the program. Includes implementation contractor labor (where applicable) and overhead costs as well as other direct program delivery costs. For this program, includes APS in-house labor for program implementation and associated support. | | | | | | |
| Rebates & Incentives | Includes all dollars that go toward customer rebates and incentives. | | | | | | |
| Training & Technical Assistance | Includes all dollars that are used for energy-efficiency training and technical assistance for program participants (i.e. HVAC contractors) | | | | | | |
| Consumer Education | Includes dollars that are used to support general consumer education about energy-efficiency improvements. | | | | | | |

Staff believes that the residential HVAC Efficiency Program could provide an opportunity for significant savings of energy and demand by making incentives available to install energy-efficiency HVAC measures that may not otherwise be considered. According to Staff's analysis of the program for three years, the energy-efficiency savings expected to result from the HVAC Efficiency Program could provide about \$1.4 million in net benefits over the life of the measures. In addition, the HVAC Efficiency Program could reduce annual peak demand by about 4.2 MW and energy consumption by about 173,068 MWh over the life of the measures. Staff's analysis of the benefits of the HVAC Efficiency Program is based upon many assumptions and data from various sources and is only an estimation. Staff recommends approval of the HVAC Efficiency Program with certain modifications and requirements. A chart summarizing Staff's estimated net societal benefits is provided below.

**Chart 9
 Residential HVAC Efficiency Program
 Net Societal Benefits
 (Staff's Three-Year Estimate)**

| DSM Program | APS Estimated Budget¹ | Total Societal Costs² | Total Societal Benefits³ | Net Societal Benefits⁴ |
|---|--|---|--|--|
| HVAC Efficiency | \$3,585,736 | \$6,217,107 | \$7,592,104 | \$1,374,997 |
| ¹ APS Estimated Budget ² Total Societal Cost ³ Total Societal Benefits ⁴ Net Societal Benefits | Includes APS' costs, including incentives paid to customers. Includes customer costs and APS costs excluding incentives. Includes deferred generation capacity costs and avoided energy costs, adjusted for losses. Total Societal Benefits minus Total Societal Costs over the life of the measure(s). | | | |

MEASUREMENT, EVALUATION, AND RESEARCH

The MER process is critical in developing successful DSM programs and in accurately quantifying the cost effectiveness of each program. The results of the MER process will indicate how successfully APS DSM programs performed and how efficiently ratepayer dollars were spent to result in net benefits to society.

MER involves process and program evaluation and quantifying the cost effectiveness of APS' DSM programs. APS included \$3.9 million in its Portfolio Plan for MER activities. Approximately \$500,000 of the \$3.9 million has been allocated to cover the cost of the baseline study. MER activities include: identification of current baseline efficiency levels and the market potential for DSM measures, process evaluation to indicate how well programs are working to achieve objectives, verification that energy-efficiency measures are installed, measurement of energy savings achieved by the program, and research activities to identify additional opportunities for energy savings.

APS intends to hire a single evaluation contractor to conduct MER activities for all Portfolio Plan DSM Programs with the exception of the Low Income Program. APS is currently working on developing an RFP to solicit bids from potential contractors. A MER research plan will be developed once a MER evaluation contractor has been selected. APS has proposed an integrated approach where the MER contractor would be involved early on in the process. Data collection and tracking activities would be integrated directly into the program implementation process. The MER program tracking process involves determining performance metrics and utilizing a wide range of data collection and analysis activities designed to collect information about program performance. The MER installation and verification process would involve on-site verification that DSM measures were actually installed, on-site performance measurements to confirm the performance of the technology, and interviews with building system operators, as needed, to collect additional information about technology operations and controls. The program impact evaluation process would involve a wide array of analytic techniques including utilizing energy simulation models to estimate the savings achieved by the program and assessing the

degree to which savings are directly attributable to the program based on the results of research conducted by the MER.

Staff believes it would be beneficial to review APS MER research plan(s). Therefore, Staff recommends that APS submit its MER contractors' research plan, including performance metrics, for each DSM program within the Portfolio Plan, excluding the Low Income Program. APS should submit the research plan for Staff review within 30 days of the development of each plan.

Staff recommends approval of the MER Component of the Portfolio Plan with certain requirements regarding the research plan.

PROGRAM MARKETING

APS has provided a brief description of its marketing initiatives in its Application. Staff has reviewed them and finds them to be reasonable. Staff recommends that APS include a description of its DSM marketing activities for all Residential programs included in the Portfolio Plan and provide Staff with examples of marketing materials in its semi-annual reports filed with the Commission.

PROGRAM FLEXIBILITY

Program Flexibility

On November 14, 2005, APS filed revised flexibility language outlining its desire for flexibility in program budgets and incentives. This flexibility request was made for all residential and non-residential programs included in the Portfolio Plan. The issue of flexibility was further discussed at the DSM Collaborative working group meeting on November 15, 2005. Following the discussion and input from the DSM Collaborative, APS made additional changes to its flexibility language and filed an updated version with the Commission on November 21, 2005.

APS' flexibility request included flexibility for the Consumer Products Program, however, a decision had previously been made by the Commission in the Consumer Products Program docket. The flexibility request made on November 21, 2005, had not been considered by the Commission in that previous decision. Therefore, Staff is also addressing APS' flexibility request for the Consumer Products Program at this time.

In each of the Residential programs, APS outlined its desire to review incentive levels and other program elements and to modify them, as needed, during the first year from the approval date of these programs and periodically thereafter. APS has proposed to report any modifications resulting from such reviews in its semi-annual reports so that Staff could monitor them. Staff is concerned with some aspects of the flexibility language and the open-ended nature

of some of the shifting requested. Therefore, Staff has included some limitations to APS' proposed flexibility in its recommendations.

Staff acknowledges that there are arguments both for and against flexibility. APS is not certain, for example, what level of incentive would cause customers to take action and adopt energy-efficiency measures. In addition, APS does not know which programs would achieve greater interest and market penetration and which ones would not. APS has indicated that flexibility is a key to implementing a successful program so that it can make adjustments to maximize the results of the DSM programs. However, Staff is concerned that too much flexibility for new programs could result in loss of the Commission's ability to monitor and provide valuable input regarding certain aspects of the program while it is being developed and implemented.

After analyzing APS' November 21, 2005, flexibility request and consulting with APS about the intent of the flexibility language, Staff determined that APS was requesting flexibility to shift funding between any of the five budget categories within a given Residential DSM program. The five budget categories are Planning and Administration, Program Marketing, Program Implementation, Rebates and Incentives, Training and Technical Assistance, and Consumer Education. APS proposed limits on this shifting of funds only with regard to the Planning and Administration category. For the Planning and Administration category, APS proposed to make "reasonable efforts" to limit the amounts expended to 10 percent of the total funding for each program. Because these are existing programs, Staff has been able to review information related to residential Planning and Administration expenses in APS' semi-annual reports. For 2005, APS spent approximately 9.5 percent of its residential budget, excluding Low Income expenses, on Planning and Administration expenses. Staff's interest in assuring that overhead for program and administrative costs remain at a minimum is to ensure that APS maximizes the funds available for direct program expenses which will reduce demand and energy consumption, such as customer incentives. Staff recommends that Planning and Administration costs for the New Construction Program, HVAC Efficiency Program, and the Consumer Products Program not exceed 10 percent of the total program budget.

APS' requested flexibility would also allow APS to shift up to 30 percent of budgeted funds between programs in the same sector (Residential or Non-Residential), but not across sectors, for a given budget year. Such shifts would be made to take advantage of better performance in one program than another by shifting funds from the poorer performing program to the better performing program. It was agreed within the DSM collaborative group that 20 to 25 percent was a generally accepted shifting range within the industry. Therefore, Staff recommends that APS should be limited to shifting a maximum of 25 percent of budgeted funds between the New Construction Program, the HVAC Efficiency Program, and the Consumer Products Program per calendar year.

APS has not proposed a cap on incentive levels. APS has indicated that, as a general guideline, incentives would be set at or below 50 percent of incremental cost. However, APS would provide the Commission with written justification when incentive levels exceed 50 percent of the incremental cost of the measure. This filing would be informational in nature.

APS has indicated that it has based its incentive levels on criteria such as customer payback periods and other customer acceptance criteria. Increasing an individual incentive could be helpful to make a measure or program more viable if customers are not responding to current levels of incentives. Likewise, it may become obvious that lower levels of incentives for a given measure or program could be offered without affecting the participation levels of popular energy-efficiency measures. Staff is interested in assuring that incentive amounts are set at a level that is necessary to move the market toward installing energy-efficiency measures, but that excessive incentives beyond what is needed to move the market not be offered. Therefore, Staff recommends that all financial incentives paid under the New Construction Program and the HVAC Efficiency Program be capped at a maximum of 75 percent of incremental cost. The Commission has previously approved a cap on incremental cost for the Consumer Products Program in Decision No. 68064.

It should also be noted that customers and home builders could also be eligible to receive tax credits for energy efficient HVAC equipment and new home construction, in addition to the incentives offered by APS. Staff believes it is appropriate to evaluate all available customer incentives including federal tax credits when determining the appropriate incentive amount. Therefore, Staff recommends that APS include the 2006 - 2007 Energy Star® federal tax credits when calculating the 75 percent cap on incremental costs under the HVAC Efficiency Program. Due to the fact that Staff believes there will be very few contractors eligible for the federal tax credit under the new home program, Staff is excluding the New Construction Program from the above recommendation.

The Company has also requested the ability to change baseline efficiency levels and customer incremental costs to the extent that the Federal Energy Policy Act or other energy standards may change during the implementation of a DSM program. Staff anticipates the results of the baseline study, for example, may in some cases change the base costs from which incremental costs are calculated, and Staff would expect APS to make such changes in its analysis.

Also included in APS' flexibility language is a provision that, for each program, dollars not spent in a given year would be automatically transferred (carried forward) to the next year's budget for the same program. All budget shifts and other program changes are to be reported in the semi-annual DSM reports submitted to the Commission explaining why the budget shifts and program changes were undertaken.

In addition to the provisions outlined above, APS would notify the Commission in writing of any budget changes that would result in a significant change to a program's cost-benefit ratio and in no case shall a budget change cause the cost-benefit ratio to be less than 1.0. APS has also indicated that significant changes to the budget or programs would be discussed by the DSM Collaborative group.

Staff recommends that APS inform the DSM Collaborative working group of progress and significant changes to budgets and/or incentive levels, under the Residential DSM programs included in the Portfolio Plan, prior to implementation of such changes.

It is important that substantial changes in the Residential programs do not occur after approval based upon flexibility language that may be granted in these programs. Therefore, Staff recommends that the nature/intent of the incentives offered as well as the nature/intent of the Residential programs included in the Portfolio Plan not be changed without Commission approval.

All program budgets and plans outlined in the Portfolio call for a three-year program encompassing 2005, 2006, and 2007. There are current programs and planning of revised programs. Staff believes that the portion of program flexibility allowing unused funds to roll forward into the next year is reasonable.

APS used a weighted average analysis for each particular group of like measures in its cost-benefit analyses. Utilizing this method could result in the group as a whole appearing to be cost-effective, while certain individual measures within that group would not be cost-effective. Staff is concerned that providing an incentive to customers to purchase a product that is not cost-effective is not appropriate. (Staff anticipates that some of the non-cost-effective measures may actually be cost-effective when Arizona-specific data from the baseline study can be utilized.) Therefore, Staff recommends that APS provide incentives only on individual measures that are cost-effective.

SUMMARY OF RECOMMENDATIONS

- a) Staff recommends approval of the New Construction Program.
- b) Staff recommends approval of the HVAC Efficiency Program with certain modifications and requirements.
- c) Staff recommends that APS continue to analyze ways to expand the proposed HVAC Efficiency Program throughout APS' service territory. Staff also recommends that APS provide a report to Staff that presents the results of APS analysis commensurate with the 13-month filing requirement approved in Commission Decision No. 68488. The report should address the feasibility of expanding the program and APS should also provide information related to program participation by measure outside of the Phoenix-metropolitan area.
- d) Staff recommends that APS undertake customer education and marketing efforts that promote customer understanding that efficiency requirements for APS HVAC incentives are higher than minimum Energy Star® requirements, and that there are differences in efficiency requirements for an APS incentive and for a federal tax credit. In addition, APS should include reference to the Energy Star® website, Internal Revenue Service website, or other appropriate websites so customers can make an informed decision about which unit would most appropriately meet their needs. Staff also recommends that APS take appropriate actions to aggressively educate HVAC contractors to ensure they have

been informed about the differences in efficiency requirements for the APS incentive, the federal tax credit, and Energy Star® standards.

- e) Staff recommends that APS move forward with its implementation of the Quality Installation measure upon Commission approval. In addition, Staff recommends that the Quality Installation measure be performed by APS Qualified Contractors who have been trained in Quality Installation techniques and a Manual J or equivalent calculation should be required as a component of the Quality Installation measure in order for a customer to be eligible for the incentive.
- f) Staff recommends that the incentive payments for the Quality Installation measure be separated from the incentive for the HVAC unit and be set at \$100. In addition, the Quality Installation measure should only reflect work associated with Quality Installation, such as HVAC equipment sizing, achieving manufacturer recommended airflow specifications, and refrigerant charge adjustment.
- g) Staff recommends that the incentive payments for the HVAC System Testing and Repair measure be set at 75 percent of the incremental cost of the testing and repair work that was performed. Staff also recommends that the incentive be capped at \$250.
- h) Staff recommends that APS submit its MER contractors' research plan, including performance metrics, for each DSM program within the Portfolio Plan, excluding the Low Income Program. APS should submit the research plan for Staff review within 30 days of the development of each plan.
- i) Staff recommends approval of the MER Component of the Portfolio Plan with certain requirements regarding the research plan.
- j) Staff recommends that Planning and Administration costs for the New Construction Program, HVAC Efficiency Program, and the Consumer Products Program not exceed 10 percent of the total program budget.
- k) Staff recommends that APS should be limited to shifting a maximum of 25 percent of budgeted funds between the New Construction Program, the HVAC Efficiency Program, and the Consumer Products Program per calendar year.
- l) Staff recommends that all financial incentives paid under the New Construction Program and the HVAC Efficiency Program be capped at a maximum of 75 percent of incremental cost.
- m) Staff recommends that APS include the 2006 - 2007 Energy Star® federal tax credits when calculating the 75 percent cap on incremental costs under the HVAC Efficiency Program.

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- n) Staff recommends that APS inform the DSM Collaborative working group of progress and significant changes to budgets and/or incentives levels, under the Residential DSM programs included in the Portfolio Plan, prior to implementation of such changes.
- o) Staff recommends that the nature/intent of the incentives offered as well as the nature/intent of the Residential programs included in the Portfolio Plan not be changed without Commission approval.
- p) Staff recommends that APS provide incentives only on individual measures that are cost-effective.
- q) Staff recommends that APS include a description of its DSM marketing activities for all Residential programs included in the Portfolio Plan and provide Staff with examples of marketing materials in its semi-annual reports filed with the Commission.



Ernest G. Johnson
Director
Utilities Division

EGJ:JDA:EAA:lhmJFW

ORIGINATORS: Jerry Anderson and Erinn Andreasen

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BEFORE THE ARIZONA CORPORATION COMMISSION

- JEFF HATCH-MILLER
Chairman
- WILLIAM A. MUNDELL
Commissioner
- MARC SPITZER
Commissioner
- MIKE GLEASON
Commissioner
- KRISTIN K. MAYES
Commissioner

IN THE MATTER OF ARIZONA PUBLIC
SERVICE COMPANY FOR APPROVAL OF
ITS DEMAND-SIDE MANAGEMENT
PROGRAM PORTFOLIO PLAN AND
RELATED PROGRAMS

DOCKET NO. E-01345A-05-0477
DECISION NO. _____
ORDER

Open Meeting
April 4 and 5, 2006
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

1. Arizona Public Service Company ("APS") is certificated to provide electric service as a public service corporation in the State of Arizona.
2. On July 1, 2005, APS filed an application for approval of its Demand-Side Management ("DSM") Portfolio Plan and related programs ("Portfolio Plan" or "Application"). The Portfolio Plan includes various DSM programs that would provide DSM opportunities for both residential and non-residential participants. The Portfolio Plan was filed in response to APS' DSM obligations provided for in Commission Decision No. 67744. APS filed revisions to its original filing on November 14, 2005, and November 21, 2005.
3. Under Commission Decision No. 67744, APS is obligated to spend at least \$16 million per year, or \$48 million over the initial three-year period of 2005 to 2007, on Commission-approved DSM programs and to implement and maintain a collaborative DSM working group to facilitate stakeholder input on program development and implementation. Decision No. 67744

1 approved a Preliminary Energy-efficiency DSM Plan. APS was to file a final plan within 120 days
2 of the Decision. The Portfolio Plan is the final plan. Drafts of the DSM programs contained in the
3 Portfolio Plan were discussed within the DSM collaborative group.

4 4. The Application consists of residential and non-residential categories. The Non-
5 Residential Programs were approved by the Commission in Decision No. 68488 on February 23,
6 2006. At this time, Staff is addressing the Residential New Construction Program (“New
7 Construction”), the Residential Existing Homes Heating, Ventilating, and Air Conditioning
8 Efficiency Program (“HVAC Efficiency”), the budget for Measurement, Evaluation, and Research
9 (“MER”), and flexibility for the Consumer Products Program. The “Energy Wise” Low Income
10 Program (“Low Income”) is being addressed in Docket No. E-01345A-05-0414. APS has
11 estimated that it will spend about \$9.8 million for the New Construction and HVAC Efficiency
12 Programs and \$3.9 million for MER¹ over a three-year period.

13 5. This order does not address the details of the Low Income Program or the
14 Performance Incentive. The Consumer Products portion of the Residential Program was
15 previously approved in Commission Decision No. 68064. This order addresses the details of the
16 New Construction Program, the HVAC Efficiency Program, the MER budget, flexibility for the
17 Consumer Products Program, and certain procedural and reporting requirements for all of the
18 Residential Programs included in the Portfolio Plan

19 6. Staff estimates that the proposed Residential New Construction and HVAC
20 Efficiency Programs for three years could result in about \$10.3 million of net benefits to society
21 over the lifetime of the measures. In addition, Staff estimates that these two Residential Programs
22 could reduce APS’ annual peak demand by about 17.7 megawatts (“MW”) and energy
23 consumption by about 553,000 megawatt-hours (“MWh”) over the life of the measures.

24 7. Staff’s recommendations are summarized below:

25 a) Staff has recommended approval of the New Construction Program.
26
27

28 ¹ Approximately \$500,000 of the MER budget has been allocated to cover the cost of the baseline study.

- 1 b) Staff has recommended approval of the HVAC Efficiency Program with certain
2 modifications and requirements as described below.
- 3 c) Staff has recommended that APS continue to analyze ways to expand the proposed
4 HVAC Efficiency Program throughout APS' service territory. Staff also has
5 recommended that APS provide a report to Staff that presents the results of APS
6 analysis commensurate with the 13-month filing requirement approved in
7 Commission Decision No. 68488. The report should address the feasibility of
8 expanding the program and APS should also provide information related to
9 program participation by measure outside of the Phoenix-metropolitan area.
- 10 d) Staff has recommended that APS undertake customer education and marketing
11 efforts that promote customer understanding that efficiency requirements for APS
12 HVAC incentives are higher than minimum Energy Star® requirements, and that
13 there are differences in efficiency requirements for an APS incentive and for a
14 federal tax credit. In addition, APS should include reference to the Energy Star®
15 website, Internal Revenue Service website, or other appropriate websites so
16 customers can make an informed decision about which unit would most
17 appropriately meet their needs. Staff also has recommended that APS take
18 appropriate actions to aggressively educate HVAC contractors to ensure they have
19 been informed about the differences in efficiency requirements for the APS
20 incentive, the federal tax credit, and Energy Star® standards.
- 21 e) Staff has recommended that APS move forward with its implementation of the
22 Quality Installation measure upon Commission approval. In addition, Staff has
23 recommended that the Quality Installation measure be performed by APS Qualified
24 Contractors who have been trained in Quality Installation techniques and a Manual
25 J or equivalent calculation should be required as a component of the Quality
26 Installation measure in order for a customer to be eligible for the incentive.
- 27 f) Staff has recommended that the incentive payments for the Quality Installation
28 measure be separated from the incentive for the HVAC unit and be set at \$100. In
addition, the Quality Installation measure should only reflect work associated with
Quality Installation, such as HVAC equipment sizing, achieving manufacturer
recommended airflow specifications, and refrigerant charge adjustment.
- g) Staff has recommended that the incentive payments for the HVAC System Testing
and Repair measure be set at 75 percent of the incremental cost of the testing and
repair work that was performed. Staff has also recommended that the incentive be
capped at \$250.
- h) Staff has recommended that APS submit its MER contractors' research plan,
including performance metrics, for each DSM program within the Portfolio Plan,
excluding the Low Income Program. APS should submit the research plan for Staff
review within 30 days of the development of each plan.
- i) Staff has recommended approval of the MER component of the Portfolio Plan with
certain requirements regarding the research plan.

- 1 j) Staff has recommended that Planning and Administration costs for the New
2 Construction Program, HVAC Efficiency Program, and the Consumer Products
3 Program not exceed 10 percent of the total program budget.
- 4 k) Staff has recommended that APS should be limited to shifting a maximum of 25
5 percent of budgeted funds between the New Construction Program, the HVAC
6 Efficiency Program, and the Consumer Products Program per calendar year.
- 7 l) Staff has recommended that all financial incentives paid under the New
8 Construction Program and the HVAC Efficiency Program be capped at a maximum
9 of 75 percent of incremental cost.
- 10 m) Staff has recommended that APS include the 2006 - 2007 Energy Star® federal tax
11 credits when calculating the 75 percent cap on incremental costs under the HVAC
12 Efficiency Program.
- 13 n) Staff has recommended that APS inform the DSM Collaborative working group of
14 progress and significant changes to budgets and/or incentives levels, under the
15 Residential DSM programs included in the Portfolio Plan, prior to implementation
16 of such changes.
- 17 o) Staff has recommended that the nature/intent of the incentives offered as well as the
18 nature/intent of the Residential programs included in the Portfolio Plan not be
19 changed without Commission approval.
- 20 p) Staff has recommended that APS provide incentives only on individual measures
21 that are cost-effective.
- 22 q) Staff has recommended that APS include a description of its DSM marketing
23 activities for all Residential programs included in the Portfolio Plan and provide
24 Staff with examples of marketing materials in its semi-annual reports filed with the
25 Commission.

26 8. Staff's recommendations as set forth in Finding of Fact No. 7 are reasonable and
27 should be adopted.

28 CONCLUSIONS OF LAW

1. APS is certificated to provide electric service as a public service corporation in the
State of Arizona.

2. The Commission has jurisdiction over APS and over the subject matter of the
Application.

3. The Commission, having reviewed the Application and Staff's Memorandum dated
March 27, 2006, concludes that it is in the public interest to approve the Residential New

1 Construction Program, the Residential Existing Homes HVAC Program, Consumer Products
2 flexibility, and the MER portion of APS' Portfolio Plan as modified herein.

3 ORDER

4 IT IS THEREFORE ORDERED that the Residential New Construction Program, the
5 Residential Existing Homes HVAC Program, Consumer Products flexibility, and the MER portion
6 of APS' Portfolio Plan are approved as modified herein.

7 IT IS FURTHER ORDERED that the recommendations proposed by Staff listed in Finding
8 of Fact No. 7 are approved.

9 IT IS FURTHER ORDERED that this decision should become effective immediately.

10 **BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION**

| | | |
|--------------|--------------|--------------|
| CHAIRMAN | COMMISSIONER | COMMISSIONER |
| COMMISSIONER | COMMISSIONER | |

17 IN WITNESS WHEREOF, I BRIAN C. McNEIL, Executive
18 Director of the Arizona Corporation Commission, have
19 hereunto, set my hand and caused the official seal of this
20 Commission to be affixed at the Capitol, in the City of
21 Phoenix, this _____ day of _____, 2006.

22 _____
23 BRIAN C. McNEIL
24 Executive Director

25 DISSENT: _____

26 DISSENT: _____

27 EGJ:JDA:EAA:lhmvJFW

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