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BEFORE THE ARIZONA CORPORATION

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Commissioner
SANDRA D. KENNEDY
Commissioner
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Commissioner

Arizona Corporation Commission
DOCKETED
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IN THE MATTER OF THE APPLICATION)
OF ARIZONA PUBLIC SERVICE)
COMPANY FOR APPROVAL OF THE)
COMPANY'S 2011 DEMAND SIDE)
MANAGEMENT IMPLEMENTATION)
PLAN)

DOCKET NO. E-01345A-10-0219
DECISION NO. 71950
ORDER

Open Meeting
October 19 and 20, 2010
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

Background

1. Arizona Public Service Company ("APS" or "the Company") provides electric service within portions of Arizona, pursuant to authority granted by the Arizona Corporation Commission ("Commission").
2. APS provides service in the counties of Apache, Cochise, Coconino, Gila, La Paz, Maricopa, Navajo, Pima, Pinal, Yavapai and Yuma. The Company services over 1.1 million customers in Arizona, including approximately 984,000 Residential and 120,000 Commercial customers.
3. On June 1, 2010, APS filed an application for approval of its 2011 Demand Side Management Implementation Plan ("2011 Plan"). The proposed 2011 Plan reflects changes to the existing APS DSM portfolio, and sets out the programs and measures by which APS plans to meet the energy savings goals agreed upon in the Settlement Agreement.

1 4. Two supplemental applications were filed on June 30, 2010 and August 2, 2010.
2 The supplemental filings include additional information on new programs and proposed changes to
3 existing DSM portfolio, along with updated budget information.

4 5. Scope of Review. This order summarizes the Company's proposed changes to its
5 DSM portfolio, discusses the estimated total program budget and sets out the Company's proposed
6 Demand-Side Management Adjustor Charge ("DSMAC"). Because the budget and DSMAC may
7 be modified by Commission action, no recommendations for the DSMAC have been included
8 herein. A recommendation, or alternative recommendations, regarding the DSMAC will be
9 addressed in the final order relating to the 2011 APS DSM Implementation Plan. Addressing the
10 DSMAC in this way will allow the impact of any Commission-ordered modifications or changes to
11 be taken into account when the adjustor rate is reset.

12 6. The focus of Staff's review and analysis in this order is the proposed new Residential
13 Conservation Behavior ("Conservation Behavior") Pilot Program. This review and analysis
14 includes recommendations regarding the proposed Conservation Behavior Pilot.

15 **Summary of Proposed Changes to the APS DSM Portfolio**

16 7. Residential: New. APS is proposing three new Residential programs: (i) the
17 Conservation Behavior proposed program (discussed herein); (ii) the Multi-Family Energy
18 Efficiency Program; and the (iii) Shade Tree Pilot Program.

19 8. Residential: Existing. APS is also proposing changes to existing programs: (i) for the
20 Consumer Products Program, an increase in CFL giveaways from 30,000 to 150,000; (ii) for the
21 Appliance Recycling Program, an expansion of eligibility to Non-residential customers with
22 appliances meeting current size restrictions; (iii) changes to the administration of Crisis Bill
23 Assistance to allow the Arizona Community Action Association to vet and monitor participating
24 agencies and determine allocation of funds.

25 9. Non-residential. APS is proposing multiple new measures for incorporation into its
26 existing Non-residential programs. These include (i) Controls/Sensors; (ii) Lighting; (iii) HVAC –
27 Cooling Tower; (iv) Building Envelope – Window Film/Screens; (v) IT/Data Center -- Computer
28 Power Management; (vi) Refrigeration; (vii) Energy Efficient Motor Rewind; (viii) Heat Pump

1 Power Management; (vi) Refrigeration; (vii) Energy Efficient Motor Rewind; (viii) Heat Pump
 2 Water Heaters; and (ix) Direct install lighting measure. In addition, APS is proposing a measure,
 3 Bid for Efficiency, which would allow Non-Residential participants to design their own custom
 4 Energy Efficiency projects and to bid for incentives within certain guidelines.

5 10. Demand Response and Load Management Programs. APS is requesting to recover the
 6 following costs through the DSMAC: (i) marketing and Measurement, Evaluation and Research
 7 (“MER”) costs related to demand response-related rates through the DSMAC; and (ii) costs
 8 associated with Home Energy Information Pilot Program (“HEI”).

9 **Estimated DSM 2011 Budget and Demand-Side Management Adjustor Charge (“DSMAC”)**

10 11. Estimated 2011 DSM Budget. The Company’s estimates for the overall DSM
 11 budget and its major components are listed in Table 1 and Table 2, below, and are intended to
 12 provide information on the size and scope of the APS DSM portfolio. The updated information
 13 from the August 2 filing were used, since these numbers reflect what the Company is currently
 14 proposing. (The final DSMAC will be approved by the Commission and reflect Commission
 15 actions with respect to the DSM portfolio, including decisions to approve, not approve, or modify
 16 individual programs or measures, or to include or not include certain costs in the DSMAC.)

17 **Table 1: Estimated 2011 DSM Budget¹**

18 Energy Efficiency Program Costs	\$57,652,000
19 Measurement, Evaluation and Research	\$2,500,000
20 Total Energy Efficiency Costs (without Performance Incentive)	\$60,152,000
21 Performance Incentive	\$8,421,000
22 Total Energy Efficiency Costs (with Performance Incentive)	\$68,573,000
23 Demand Response	\$10,620,000
Total 2011 DSM Budget	\$79,193,000

24 **Table 2: Estimated 2011 Revenue Requirements for DSMAC**

25 Total 2011 DSM Budget	\$79,193,000
26 2009 Budget Carryover to 2011	\$5,332,979
Amount Recovered in Base Rates	(\$10,000,000)
Subtotal	\$74,525,979

27
 28 ¹ Table 1 and Table 2 have been revised to reflect updates from the August 2 filing, in order to provide the most current budget estimates.

Credit for Gains from Asset Sales	(\$118,079)
Recovery of True-up Balance	\$359,100
Total Revenue Requirement for DSMAC - 2011	\$74,767,000

12. Estimates for the DSMAC. The Company's June 1 filing provides a preliminary estimate of \$0.002682 per kWh for the DSM adjustor charge, or DSMAC. In the August 2nd filing, the estimated DSMAC was revised slightly upward to \$0.002694 per kWh (for a total increase of \$0.000012 per kWh). The change was due to increases in the estimates for the Existing Homes and Shade Tree programs, and to the performance incentive.

13. Adjustments to the DSMAC. The Company's estimated DSMAC of \$0.002694 is based on costs cited in the APS 2011 Implementation Plan, and includes the following adjustments: (i) a DSM budget carryover from 2009; (ii) the amount recovered from base rates (iii) recovery of a balance from the previous Plan year; and (iv) a credit for gains from asset sale.²

14. Initial Estimated Bill Impacts. On an annual basis, the monthly bill impact of the proposed \$0.002694 rate would be \$3.17 for a Residential household with average kWh usage. The estimated monthly bill impact during winter (lower usage) would be \$2.52 and during summer (higher usage) would be \$3.82. Commission actions, such as decisions to approve, to not approve, or to modify programs and measures, would affect the DSMAC rate and, therefore, the monthly bill impacts. (The specific bill impacts for the Conservation Behavior program are also listed, herein.)

15. Effective Date of New DSMAC. The DSMAC is scheduled to reset once a year, in March³, following Commission approval. The new DSMAC rate, designed to recover costs of the APS 2011 Demand Side Management Implementation Plan will not be reflected in rates until the first billing cycle of March 2011.

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² APS reported \$118,079 in Net Gains on Utility Property accounts as of December 31, 2009. Decision No. 71716 ordered that this amount be applied to the DSMAC account balance.

³ Settlement Agreement (Docket No. 08-0172, Page 29, Paragraph 14.6); approved in Decision No. 71448.

1 **New Residential Program**

2 **Residential Conservation Behavior (“Conservation Behavior”) Pilot Program**

3 16. *Program Description.* APS has proposed a new, behavior-based, Residential DSM
4 program. The application notes that “Normative messaging on energy use, combined with highly
5 targeted recommendations on how to improve, is the basis of the concept for the Conservation
6 Behavior program.”

7 17. The proposed Conservation Behavior pilot would not promote the purchase and
8 installation of a specific energy efficient measure, such as CFLs or high efficiency appliances.
9 Instead, using Comparative Home Energy Reports, the Conservation Behavior pilot would
10 promote changes in behavior and adoption of measures designed to reduce energy usage. The
11 reports would be provided approximately six times per year and would compare the energy usage
12 in a customer’s home with other homes in their area, educating customers about the norm for
13 similar households and encouraging a competitive approach to energy conservation. The reports
14 also include specific recommendations on how to improve a customer’s energy efficiency, such as
15 participating in other APS energy efficiency programs.

16 18. *Program Delivery.* Program delivery is planned to take place in several phases:

- 17 (i) The pilot phase would be used to test the behavior-based program concept in
18 Arizona, and to gather data on the program’s effectiveness. Usage patterns
19 and energy savings would be tracked. APS estimates the program could
20 start within 8-12 weeks of approval. The Company proposes a 12-month
21 pilot, schedule for January through December 2011;
- 22 (ii) Data from the program would be analyzed to determine the program’s
23 effectiveness, and program refinements would be identified. A report on the
24 results would be provided to the Commission within 90 days after the
25 conclusion of the pilot, with proposals regarding termination, redesign or
26 expansion;
- 27 (iii) If it is determined that the program delivers cost-effective energy savings,
28 APS is likely to propose expansion of the program in 2012 to a larger
group of Residential customers. The level of expansion is unknown at this
time, but the limiting factor would be cost-effectiveness; and
- (iv) The program would be evaluated to verify savings on an ongoing basis to
continue refinement of program delivery.

1 19. Eligibility and Impact on Other APS Programs. Although all APS customers are
2 potentially eligible for the program, the initial Conservation Behavior pilot would be limited to
3 approximately 80,000 customers. In addition to encouraging energy efficiency and conservation
4 generally, the Conservation Behavior program would be used to promote other APS energy
5 efficiency programs. The Company estimates that the Conservation Behavior program could
6 increase participation in these other programs by as much as 25 percent.

7 20. Staff has recommended that the pilot also be used to gather data on the
8 Conservation Behavior pilot's impact on customer participation in other APS DSM programs, and
9 that this data be evaluated and provided as part of the measurement and evaluation report APS
10 would provide to the Commission following completion of the program.

11 **Behavior-based Programs in Other States**

12 21. States Reviewed. Staff researched the performance of behavior-based programs in
13 other states, particularly California, Minnesota and Massachusetts. All three states have energy
14 efficiency goals and include behavior-based programs in their portfolios, on at least a pilot basis.

15 22. Massachusetts: Staff spoke with National Grid, a Massachusetts utility which is
16 conducting an OPower behavior-based program, and the Massachusetts Division of Energy
17 Resources ("DOER"), a state office which oversees energy efficiency programs.

18 23. Several Massachusetts DOER behavior-based programs are in the pilot stage.
19 These include programs from OPower and another company, GroundedPower. In discussions with
20 Staff, National Grid stated that its OPower behavior-based pilots⁴ began with 25,000 participants
21 and that its electric pilot has been expanded to 100,000 participants. The National Grid pilots are
22 designed to encourage conservation and energy efficiency and to promote participation in National
23 Grid's other energy efficiency programs (similar to the design of the Conservation Behavior
24 program proposed by APS).

25 24. Massachusetts DOER indicated that cost-effectiveness is the only criteria for
26 evaluating programs, including behavior-based programs. National Grid and the Massachusetts

27 _____
28 ⁴ National Grid has both gas and electric behavior-based pilots currently in place.

1 DOER both indicated that it was too early to form a conclusion concerning the cost-effectiveness
2 of the National Grid pilots. National Grid was “very confident” that its pilots would meet cost-
3 effectiveness, but indicated that it would not have an independent cost-effectiveness determination
4 until the spring of 2011. This evaluation will also include information on whether, and to what
5 degree, the program has been successful in increasing participation in other energy efficiency
6 programs. National Grid also noted that the behavior-based programs are less expensive than
7 other types of programs.

8 25. So far, National Grid has received both positive and negative feedback on the
9 program from customers. The negative feedback often revolves around privacy concerns, leading
10 a small number of participants to opt out. The opt out rate for the National Grid pilot is
11 approximately 1 percent. (Privacy concerns and the opting out process for the Arizona pilot are
12 addressed herein.)

13 26. *Minnesota*: According to the Minnesota Department of Commerce, Office of
14 Energy Security (which oversees energy efficiency programs), there are several OPower behavior
15 projects in Minnesota, at both investor-owned utilities and publicly owned utilities. These are pilot
16 programs, and their cost-effectiveness has not yet been finally established, but savings are running
17 2 to 2-1/2 percent for electric utilities. The Minnesota Office of Energy Security describes these
18 programs as “very competitive” in terms of dollars to kWh saved for Residential programs.

19 27. A study evaluating a specific Minnesota pilot program from OPower (formerly
20 Positive Energy) estimated savings of 2.1 percent at 80,000 households.⁵ One issue noted by the
21 study is that the effects of the behavior-based program are not long-term, and that “the effects
22 appear to decay” over time. The shorter lifespan has been built into the cost-effectiveness
23 calculation for the Conservation Behavior pilot (which attributes only a one year lifespan to the
24 behavior-based measure.)⁶

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27 ⁵ “Social Norms and Energy Conservation,” Hunt Allcott, November 14, 2009.

28 ⁶ This study also noted that the Reports had more of an impact on high-usage households, and that targeting households with higher consumption would “substantially increase” cost-effectiveness. (Staff questions whether this could be done without raising privacy concerns.)

1 28. California: In California, behavior-based programs were originally considered non-
 2 resource programs and savings from these programs were not counted toward energy savings, but
 3 this has now changed. In April 2010, the California Public Utilities Commission (“CPUC”) issued
 4 a decision allowing energy savings from behavioral programs to be credited toward energy
 5 savings. The CPUC *Decision Determining Evaluation, Measurement and Verification Processes*
 6 *for 2010 Through 2012 Energy Efficiency Portfolios* (Decision 10-04-029, dated 4/8/2010) noted
 7 “savings on the order of 1.5 to 3.5 percent across sample populations.”⁷ This Decision also ordered
 8 a stringent, historical, approach to measuring behavior-based program results, to ensure, “that the
 9 program provides added valued to efforts already underway, and that projected savings will
 10 materialize as real and verifiable.” The announcement regarding the decision noted that “[t]he
 11 experience through a number of pilots in California and other region [sic] shows that these
 12 programs can produce a very real capacity for significant and measurable energy savings.”

13 29. Proposed Budget for the Conservation Behavior Pilot. The proposed budget for the
 14 Conservation Behavior program is listed below:

Program	Residential Conservation Behavior
Rebates and Incentives	\$0
Training and Technical Assistance	\$0
Consumer Education	\$25,000
Program Implementation	\$897,000
Program Marketing	\$0
Planning and Administration	\$95,000
Financing	\$0
Program Total Cost	\$1,017,000

21 30. Addressing Privacy Concerns. The application notes that “[t]he target population
 22 will be selected and then randomly assigned to a participant group and a control group. . . .” As
 23 was noted in Massachusetts, some customers may have concerns about protecting personal data
 24 concerning their usage. In response to an inquiry from Staff, APS stated that “[p]rotecting the
 25 privacy of APS customers . . . is of the utmost importance and informs all aspect of program
 26 _____

27 ⁷A study including a review of data from a California pilot cited a 2.1% reduction in energy consumption. The study
 28 also cited a 1.2% reduction from a differently designed Washington State pilot. *Evidence from Two Large Field Experiments that Peer Comparison Feedback Can Reduce Residential Energy Usage*, Ian Ayres, Sophie Raseman, and Alice Shi.

1 design.” The Company notes that implementation contractor will be contractually obligated to
 2 maintain the confidentiality of customer information. Data is encrypted during transfer, access is
 3 restricted, and the data “is presented in an aggregated and anonymous manner.” APS also stated
 4 individually identifiable information will not be retained by the implementation contractor once
 5 the work is complete.

6 31. Customers selected for participation in the Conservation Behavior pilot can opt out
 7 of the pilot, or switch to emailed reports, in three ways: (i) by calling the APS customer service
 8 number; (ii) through the Home Energy Reporting web portal; or (iii) by sending an email to APS
 9 customer service.

10 32. Staff has recommended that customer privacy be carefully protected and that
 11 customers have a simple and clearly communicated avenue for opting out of participation, should
 12 they choose to do so.

13 33. Cost-Effectiveness. Staff’s analysis projects a benefit-cost ratio of 1.27 for the
 14 Conservation Behavior pilot program, making the program cost-effective based on current
 15 projections. The pilot would be used to gather actual data in order to verify the cost-effectiveness
 16 of the program.

17 34. Other Benefits. The Conservation Behavior program would be used to promote
 18 participation in other APS energy efficiency programs, in addition to promoting other conservation
 19 and energy efficient behaviors. There are also estimated environmental savings, which are noted
 20 below.

21 35. Environmental Savings. The Conservation Behavior pilot’s estimated quantified
 22 environmental benefits are listed below. Although not yet monetized, these estimated savings
 23 provide insight into the scale of environmental savings potentially available from the pilot.

24 **Estimated Environmental Savings**

25 Water	7,925,000 gallons
26 SOx	111 lbs.
27 NOx	2,114 lbs.
28 CO2	22,475,000 lbs.

1 IT IS FURTHER ORDERED that customer privacy be carefully protected and that
2 customers have a simple and clearly communicated avenue for opting out of participation, should
3 they choose to do so.

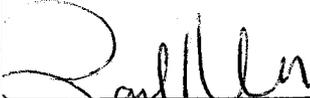
4 IT IS FURTHER ORDERED that this Decision shall become effective immediately.

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

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8 CHAIRMAN

COMMISSIONER

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11 COMMISSIONER



COMMISSIONER



COMMISSIONER

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13 IN WITNESS WHEREOF, I, ERNEST G. JOHNSON,
14 Executive Director of the Arizona Corporation Commission,
15 have hereunto, set my hand and caused the official seal of
16 this Commission to be affixed at the Capitol, in the City of
17 Phoenix, this 15th day of November, 2010.

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19 ERNEST G. JOHNSON
20 EXECUTIVE DIRECTOR

21 DISSENT: _____

22 DISSENT: _____

23 SMO:JMK:lhm\WVC
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