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Arizona Corporation Commission  
**DOCKETED**

JAN 22 2007

DOCKETED BY	<i>MLL</i>
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**BEFORE THE ARIZONA CORPORATION COMMISSION**

9 JEFF HATCH-MILLER, CHARIMAN  
10 WILLIAM A. MUNDELL  
11 MIKE GLEASON  
12 KRISTIN K. MAYES  
13 BARRY WONG

14 IN THE MATTER OF THE APPLICATION OF  
15 ARIZONA PUBLIC SERVICE COMPANY FOR  
16 A HEARING TO DETERMINE THE FAIR  
17 VALUE OF THE UTILITY PROPERTY OF THE  
18 COMPANY FOR RATEMAKING PURPOSES,  
19 TO FIX A JUST AND REASONABLE RATE OF  
20 RETURN THEREON, TO APPROVE RATE  
21 SCHEDULES DESIGNED TO DEVELOP SUCH  
22 RETURN, AND TO AMEND DECISION NO.  
23 67744

24 IN THE MATTER OF THE INQUIRY INTO  
25 THE FREQUENCY OF UNLANNED  
OUTAGES DURING 2005 AT PALO VERDE  
NUCLEAR GENERATING STATION, THE  
CAUSES OF THE OUTAGES, THE  
PROCUREMENT OF REPLACEMENT POWER  
AND THE IMPACT OF THE OUTAGES ON  
ARIZONA PUBLIC SERVICE COMPANY'S  
CUSTOMERS

IN THE MATTER OF THE AUDIT OF THE  
FUEL AND PURCHASED POWER RACTICES  
AND COSTS OF THE ARIZONA PUBLIC  
SERVICE COMPANY.

Docket No. E-01345A-05-0816  
E-01345A-05-0826  
E-01345A-05-0827

**WRA/SWEEP POST-HEARING  
BRIEF**

AZ CORP COMMISSION  
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1 **I. WESTERN RESOURCE ADVOCATES (“WRA”)**

2 Western Resource Advocates (WRA) addressed five issues in its testimony: green power  
3 tariffs, demand side management (DSM) to reduce the urban heat island effect, renewable  
4 energy, APS’ proposed Environmental Improvement Charge, and a climate change management  
5 plan and commitment.

6 **Green Power Tariffs**

7 The addition of green power tariffs is in the public interest and WRA recommends  
8 adoption of a green power tariff for APS as described below. These tariffs will provide  
9 customers the option to purchase energy from renewable resources, resulting in an increase in the  
10 supply of renewable resources which emit little or no greenhouse gases or pollutants into the  
11 atmosphere. Such programs have been widely adopted throughout the country and, when  
12 effectively marketed, attract 1% or more of a utility’s customers (Berry direct testimony, p. 3).

13 APS proposed green power tariffs in its direct testimony (DeLizio direct testimony, pp. 7-  
14 10; Fox direct testimony, pp. 20-22). In response, WRA proposed several modifications to the  
15 green power tariffs (Berry direct testimony, pp. 4-6), and APS accepted most of these proposed  
16 changes (summarized in Berry surrebuttal, pp. 4-5). APS also proposed to revise the calculation  
17 of the green power premium in a manner that is different than that recommended by WRA.  
18 APS’ revised calculation of the premium would be acceptable to WRA with one additional  
19 change as explained below.

20 The elements of the green power tariff where APS and WRA agree are as follows:

- 21 • The initial premium should be \$0.01 per kWh or \$1.00 per month for each 100 kWh  
22 block (DeLizio rebuttal, p. 7).<sup>1</sup> In the percentage option, the premium, as applied to a  
23 customer’s entire kWh consumption, would be \$0.01 per kWh multiplied by the  
24 percentage of energy consumption that is to be green power (for example, at the 50%  
option, the rate applied to all kWh consumed would be \$0.005 per kWh).

25 <sup>1</sup> WRA accepts APS’ revised calculation of the initial premium in lieu of WRA’s original proposal (Berry, direct  
testimony, p. 5), subject to the annual revisions to the premium described later in this brief.

- 1 • The minimum block size, in the block option, should be 100 kWh per month (Lockwood  
2 rebuttal, p. 7, DeLizio rebuttal, p. 7, Berry direct testimony, p. 4).
- 3 • The Environmental Portfolio Surcharge (and any successor Renewable Energy Standard  
4 charge) and the Environmental Improvement Charge do not apply to green power kWh  
(DeLizio rebuttal, p. 9, Berry direct testimony, p. 4).
- 5 • The resources used to serve green power customers should not be used to meet any  
6 other obligations such as the Renewable Energy Standard or contracts to sell Renewable  
7 Energy Credits (Lockwood rejoinder, p. 8, Berry surrebuttal, pp. 5-6).
- 8 • APS should provide regular reports on customer participation, sales, revenues, green  
9 power resources, and costs of the green power program as part of its annual reports to  
10 the Commission on the Renewable Energy Standard (Lockwood rebuttal, p. 6, Berry  
11 direct testimony, p. 5).
- 12 • APS should seek Green-e certification for the green power program as a means to assure  
13 customers, through independent review, that the program is delivering energy from  
14 renewable resources and that the energy from those resources is not also being used to  
15 satisfy other obligations (Lockwood rebuttal, pp. 6-7, Berry direct testimony, p. 4).

13 There are several elements of the green power tariff where APS and WRA disagree:

- 14 • APS proposed that the green power premium be fixed until the next rate case (DeLizio  
15 rebuttal, pp. 8-9). In contrast, WRA believes that the premium should reflect the stable  
16 cost of renewable energy minus the fluctuating cost of conventional generation. Thus, in  
17 periods of high fossil fuel prices, for example, green power might be less costly than  
18 conventional generation, resulting in an effective premium that is negative.
- 19 • APS proposed that after green power resources are fully subscribed, new renewable  
20 energy resources would be acquired and a new rate would be filed for Commission  
21 review, reflecting the new resource costs and the most recent approved avoided cost  
22 filing (DeLizio rebuttal, pp. 8-9). Apparently the new green power rates would apply  
23 only to customers who had not subscribed under the initial green power tariff. The initial  
24 subscribers would continue to be served under schedules GPS-1A and GPS-2A. WRA  
25 believes that this process could lead to a proliferation of tariffs, confusing customers and  
adding unnecessary complexity to the program.

22 WRA recommends (Berry surrebuttal, pp. 5, 6) that both of these issues be resolved with  
23 a single tariff and a single set of rates by directing APS to propose revisions to the premium  
24 annually, effective on the anniversary of the effective date of the decision in this case. The  
25 revisions to the premium would take into account the costs of existing renewable resources and

1 any additional renewable energy resources serving green power customers and APS' currently  
2 estimated avoided costs. The premium equals renewable energy costs minus APS' avoided  
3 costs, expressed as cents per kWh, and would be calculated using the method described by Ms.  
4 Lockwood (rebuttal, pp. 5-6).

5 Lastly, APS' revised green power percent schedule allows residential and non-residential  
6 customers to obtain 100%, 50%, 35%, or 10% of their kWh as green power (DeLizio rebuttal,  
7 Attachment GAD-4RB, Schedule GPS-2A). APS argues that the 10% option is compatible with  
8 Green-e standards (Lockwood rejoinder, p. 9). However, WRA's reading of the Green-e  
9 standards indicates that the 10% option for residential customers conflicts with Green-e  
10 standards which require a 25% minimum.<sup>2</sup> The green power percent schedule should therefore  
11 be modified so as to apply the 10% option only to non-residential customers. APS noted  
12 (Lockwood rejoinder, p. 9) that any interested customer should be able to afford green power and  
13 that the 10% option helps accomplish this goal. WRA believes that residential customers who  
14 want a small portion of their consumption provided by renewable resources can use the block  
15 option which allows them to purchase a 100 kWh block each month for \$1.00. The average  
16 residential customer used 13,576 kWh per year in the test year (Standard Filing Requirement  
17 Schedule E-7, page 1), so the 100 kWh block would suffice for small purchasers, amounting to  
18 about 9% of average monthly consumption. This seemingly small issue is germane because the  
19 10% option for residential customers may cause APS' inadvertent disqualification from Green-e  
20 certification.

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21  
22  
23 <sup>2</sup> Green-e Renewable Electricity Certification Program, National Standard Version 1.3, Section III A, dated August  
24 14, 2006. This section states that, for percentage-of-use products, retail electricity offerings must offset at least 25%  
25 of a residential customer's electricity usage above and beyond any state mandated Renewable Portfolio Standard  
(RPS) renewable amount with new renewables. If a marketer or utility offers the option to offset less than 50% of a  
residential customer's electricity use, they must also offer a 100% option to residential customers.

1 **Demand Side Management to Reduce the Urban Heat Island Effect**

2 A major contributor to APS' peak load is the urban heat island effect. Cost effective  
3 reduction in the demand for electricity due to reduction of the urban heat island effect is in the  
4 public interest and WRA recommends that the Commission direct APS to establish a heat island  
5 reduction program as described below.

6 WRA and APS appear to agree that a DSM program to help reduce the urban heat island  
7 effect could be beneficial and should be carried out within the existing non-residential DSM  
8 programs as a custom project (Orlick rebuttal, pp. 12-14; Berry surrebuttal, pp. 2-3). Energy  
9 savings can be obtained from shade trees, cool roofs, and indirect effects due to urban vegetation,  
10 reflective building surfaces, and cool pavements (Berry direct testimony, pp. 16 -17, and Exhibit  
11 DB-6).

12 The DSM Collaborative established in Decision No. 67744 should assist APS in  
13 developing the details of the heat island reduction program. WRA recommends that APS invite  
14 practitioners in urban planning and landscape architecture, a representative from the Center for  
15 Urban Forest Research at the US Forest Service's Pacific Southwest Research Station (if  
16 available), and a representative from the Heat Island Group at the Lawrence Berkeley National  
17 Laboratory (if available) to participate in Collaborative meetings on the urban heat island  
18 reduction program in addition to the researchers from Arizona State University proposed by APS  
19 (Berry surrebuttal, p. 2).

20 APS and the Collaborative should actively seek out one or more specific neighborhoods  
21 in which to geographically concentrate a large number of urban heat island reduction measures  
22 so as to capture both direct and indirect savings from shade trees, cool roofs, and cool pavements  
23 and to achieve a high level of energy savings. In this respect the urban heat island reduction  
24 program would differ from typical DSM programs in which DSM measures are applied to  
25 customers scattered around APS' service territory. Further, implementation of the urban heat

1 island reduction program would likely require cooperation of a municipality as street trees and  
2 pavement are program elements (Berry surrebuttal, p. 2).

3 APS stated (Orlick rebuttal, p. 14) that the research underway at Arizona State  
4 University's Global Institute of Sustainability should yield substantial results before proceeding  
5 down the path of developing an entire heat island effect DSM program. In contrast, WRA  
6 recommends that the Commission direct APS to begin developing a heat island reduction  
7 program as quickly as possible (Berry surrebuttal, p. 3). It is not necessary to delay several years  
8 for more research to be completed before designing a cost effective urban heat island reduction  
9 program as there has already been over a decade of research on urban heat island reduction,  
10 some of which is cited in WRA's testimony (Berry surrebuttal, p. 3, note 1).<sup>3</sup> Delays in  
11 developing and implementing a heat island reduction program simply mean that APS will burn  
12 expensive fuel and plan for expensive generation capacity when a cheaper alternative is readily  
13 available.

#### 14 **Renewable Energy**

15 APS and its ratepayers face virtually unlimited cost exposure over the long run because  
16 of APS' heavy reliance on natural gas. Natural gas prices over the next 20 to 30 years are  
17 unpredictable, but they have been high in the past few years and are a major cause of APS'  
18 recent and proposed rate increases. It is in the public interest to cap APS' exposure to high  
19 natural gas prices with low cost, stably priced renewable energy.

20 WRA proposed that low cost, stably priced renewable energy be used as a hedge against  
21 the high costs of natural gas burned in power plants (Berry direct testimony, pp. 7-15). WRA's  
22 analysis in its direct testimony indicates that at recent natural gas prices, some renewable energy  
23

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24 <sup>3</sup> Ms. Orlick testified that she was unaware of the extensive research on urban heat island effects and measures to  
25 counter heat island effects. In light of the existence of significant research on heat island effects and measures to  
reduce the effects, APS' recommendation to delay development of a heat island program while awaiting results from  
Arizona State University is unsupported.

1 resources are less costly than conventional generation and that the renewable energy can be  
2 obtained at fixed or stable prices (Berry direct testimony, pp. 8-10, Exhibits DB-2 and DB-3).  
3 Wind energy from projects installed in 2006 or 2007 is priced at around \$50 to \$60 per MWh  
4 and geothermal energy contracts signed in 2005 or 2006 are priced at around \$55 to \$61 per  
5 MWh (Berry direct testimony, Exhibit DB-3). These prices are cost competitive with natural gas  
6 fired power production at recent prices for natural gas (Berry direct testimony, p. 10 and Exhibits  
7 DB-2 and DB-3).

8 Low cost, stably priced renewable energy is best viewed as a hedge against high gas  
9 prices in an uncertain world where utilities cannot use price forecasts to effectively manage gas  
10 price risk over the long run (Berry, surrebuttal, p. 8; see also Ormond direct testimony, p. 7). To  
11 implement a long term hedge against high natural gas prices, WRA recommends that the  
12 Commission direct APS to seek to acquire 1,300 GWH per year of low cost, stably priced  
13 renewable energy under long term contracts starting within the period 2008 through 2010 and  
14 continuing for at least 15 years (Berry, direct testimony, p. 10).<sup>4</sup> This renewable energy is in  
15 addition to that obtained in compliance with Decision No. 67744.

16 WRA also proposed several procedural recommendations (Berry, direct testimony, p. 11).  
17 First, APS should file for Commission review, within 4 months of the date of the Commission's  
18 decision in this case, a renewable energy acquisition plan that incorporates input from interested  
19 parties obtained via a collaborative process. Second, APS should file reports with the  
20 Commission by March 1 of 2009, 2010, and 2011 describing its progress in meeting the goals  
21 and proposing actions to make up any deficiencies in meeting the goals. The Commission may  
22 set a course of action to deal with problems and deficiencies in meeting the goal (Berry, direct  
23 testimony, p. 12).

24  
25 <sup>4</sup> WRA's proposal is similar in magnitude and timing to that of the Interwest Energy Alliance (Ormond, direct  
testimony, p. 6).

1 WRA disagrees with APS' contention that the Renewable Energy Standard (RES) docket  
2 is the only proper venue in which to consider renewable energy (Lockwood rebuttal, p. 9). It is  
3 appropriate to consider additional renewable energy in this rate case. Much of the cost increase  
4 that APS proposes to recover through rates is due to higher fuel costs. To the extent that APS  
5 caps its exposure to high fossil fuel costs through use of renewable energy, future rate increases  
6 can be limited.

7 The Commission has authority to direct APS to seek to obtain additional renewable  
8 energy as a hedge against high natural gas prices under A.R.S. § 40-321(A) which provides that:

9  
10 "When the Commission finds that the equipment, appliances, facilities or service  
11 of any public service corporation, or the methods of manufacture, distribution,  
12 transmission, storage or supply employed by it are unjust, unreasonable, unsafe,  
improper, inadequate or insufficient, the Commission shall determine what is just,  
reasonable, safe, proper, adequate or sufficient, and shall enforce its determination  
by order or regulation."

13 Moreover, A.R.S. § 40-331(A) provides that

14  
15 "When the commission finds that additions or improvements to or changes in the  
16 existing plant or physical properties of a public service corporation ought  
17 reasonably to be made, or that a new structure or structures should be erected, to  
18 promote the security or convenience of its employees or the public, the  
commission shall make and serve an order directing that such changes be made or  
such structure be erected in the manner and within the time specified in the order.  
If the commission orders erection of a new structure, it may also fix the site  
thereof."

19 The acquisition of renewable energy resources falls squarely within the terms of these statutes.

20 Further, the RES rules alone are not adequate to provide a significant hedge against high  
21 natural gas prices over the long run for two reasons. First, the RES itself is not a settled matter.  
22 At this time, the outcome of the Attorney General's review of the RES is not known and the  
23 outcome of any possible lawsuit over the RES cannot be predicted with certainty. If the  
24 Commission directed APS to obtain the additional renewable energy proposed by WRA through  
25 its order in this rate case it may avoid these risks.

1 Second, the evidence presented by WRA in this case indicates that the quantities of  
2 renewable energy to be obtained under the RES do not provide an adequate hedge against high  
3 natural gas prices (Berry, direct testimony, p. 12). Under the RES, by 2010, for example, APS  
4 would be required to obtain 2.5% of its energy from eligible renewable resources, of which 80%  
5 would come from non-distributed resources, amounting to 2% of energy from low cost non-  
6 distributed resources. Yet APS expects that about 26% of its own-load generation in 2006 would  
7 come from gas-fired power plants (Ewen workpaper PME\_WP3, p. 3). More renewable energy  
8 than that required by the RES is needed to effectively hedge against high gas prices over the long  
9 run. WRA's proposal, when combined with the renewable energy obtained pursuant to Decision  
10 No. 67744, would result in APS obtaining 6% to 7% of its energy from renewable resources over  
11 the period 2010 to 2016 (Berry, direct testimony, p. 12 and Exhibit DB-4). This greater quantity  
12 of renewable energy is a more effective hedge, as it will displace about a quarter of APS' gas-  
13 fired generation (Berry, direct testimony, p. 12) instead of just 8% under the RES (non-  
14 distributed RES requirement of 2% divided by 26% of generation from gas-fired power plants).

15 Renewable energy will also reduce APS' emissions of carbon dioxide from combustion  
16 of fossil fuels. As a result, APS will be able to reduce the cost of meeting future greenhouse gas  
17 regulations (Berry, direct testimony, p. 15).

18 No party, including APS, testified against using renewable energy as a hedge against high  
19 natural gas prices. APS did, however, state concerns that renewable energy may not be a cost  
20 effective hedge against high natural gas prices for APS because renewable energy might cost  
21 more than conventional generation in that particular case (Dinkel rebuttal, p. 2). WRA believes  
22 that APS' inference about higher costs for renewable energy compared to the costs of natural gas  
23 fired generation cannot be supported over the long run because of the enormous uncertainty over  
24 future gas prices. It is not possible to reliably forecast the price of natural gas (Berry surrebuttal,  
25 p. 8) and the uncertainty over future gas prices means that neither the Commission nor APS can

1 ever be sure that renewable energy will be more costly than gas-fired generation at any particular  
2 time over the next 20 to 30 years. In general, a more diverse generation portfolio is more  
3 resilient to the effects of high fossil fuel prices than a portfolio with a small amount of renewable  
4 resources and a large amount of gas-fired generation.

5 WRA offered several strategies for obtaining the lowest cost renewable energy as  
6 possible (Berry, surrebuttal, p. 8):

- 7 **1. Seek proposals not only from developer-owned projects, but also for projects that**  
8 **would be owned by APS.** If APS owned the facilities it may be able to lower the cost.  
9 Utility ownership of renewable energy resources is becoming more common.
- 10 **2. Get better information on wind integration costs.** These costs are likely to be smaller  
11 than the costs APS used in its evaluation of the 2005 renewable energy acquisition  
12 (Berry, direct testimony, pp. 14-15; Ormond direct testimony, pp. 2-5). APS'  
13 forthcoming wind integration study (Mr. Dinkel rebuttal, pp. 4-6) should address this  
14 need.
- 15 **3. Assign only the incremental costs of transmission to renewable energy.** If APS  
16 obtains renewable energy from a geothermal resource, for example, it will need  
17 transmission service to deliver the energy to the APS system. However, it will also need  
18 less transmission service somewhere else because it does not have to transmit power from  
19 another (conventional) resource to its customers. The proper cost to assign to renewable  
20 energy is not the cost of transmission from the illustrative geothermal project, but the  
21 difference in transmission cost between that needed for the geothermal project and the  
22 transmission cost avoided by the geothermal project.

23 APS should recover the costs of the recommended additions of renewable energy through  
24 the power supply adjustor (Berry, direct testimony, p. 13). To the extent that these resources  
25 qualify under the RES, they could be counted toward APS' RES goal.

Finally, no party testified that increasing the amount of renewable energy would  
compromise system reliability. Numerous detailed studies of other systems indicate that  
renewable energy in quantities greater than that proposed by WRA does not degrade system  
reliability and imposes only small integration costs in the case of intermittent resources (Berry,  
direct testimony, pp. 13-15).

1 **Environmental Improvement Charge (EIC)**

2 It is in the public interest to reduce the environmental impacts of power generation and to  
3 encourage utilities, including APS, to be willing partners in reducing those environmental  
4 impacts. Electric utilities account for the following shares of human-caused air emissions in the  
5 United States which have a wide range of deleterious effects on human health, visibility, and the  
6 environment in general (Berry, direct testimony, pp. 18-19, and Berry surrebutal, p. 9):

- 7 ● 33% of greenhouse gas emissions which are a cause of climate change
- 8 ● 67% of sulfur dioxide emissions
- 9 ● 22% of nitrogen oxides.
- 10 ● 43% of mercury emissions.

11 APS proposes an EIC to overcome regulatory lag in recovering substantial costs  
12 associated with environmental expenditures (Fox direct testimony, p. 9, DeLizio direct  
13 testimony, p. 3). The costs to be recovered through the EIC are investments and expenses  
14 associated with installation and maintenance of the environmental upgrades at APS' generation  
15 facilities.<sup>5</sup> The proposed tariff (Schedule EIC) indicates that costs would be associated with  
16 environmental improvements implemented on or after January 1, 2004 for which costs have not  
17 been fully recovered, ongoing environmental improvement projects, or prospective  
18 environmental improvement projects designed to comply with environmental standards required  
19 by federal, state, tribal, or local laws or regulations, including water, waste, and air standards.  
20 The air standards include limits for SO<sub>2</sub>, NO<sub>x</sub>, particulate matter, volatile organic compounds,  
21 and mercury.

22 WRA supports the concept of the EIC. It is reasonable to assume that APS will comply  
23 with environmental laws and regulations and would normally recover the costs of such

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24 <sup>5</sup> Costs to be entered into the EIC account are return on capital, depreciation, operation and maintenance expenses,  
25 property taxes, and associated income taxes (DeLizio direct testimony, p. 4 and Schedule EIC). At the time of a rate  
case, unrecovered costs could be put into base rates and the EIC would be reduced commensurately (DeLizio direct  
testimony, pp. 6-7).

1 compliance. The benefit of the EIC is that it encourages APS to either accelerate programs to  
2 comply with existing or anticipated environmental standards early or undertake voluntary  
3 environmental improvements that are not required by law by making cost recovery more timely  
4 and more certain. These actions would benefit Arizona and the Arizona environment, and may  
5 reduce APS' exposure to potential compliance costs in the future. No party to this case has  
6 argued that the environment is too clean and that proactive environmental programs are not in  
7 the public interest, *per se*.

8 Both Staff and RUCO recommended against approval of the EIC. However, RUCO  
9 (Diaz Cortez, direct testimony, p. 37) did not consider the benefits of accelerated or voluntary  
10 environmental improvements or reasons why APS would pursue accelerated or voluntary  
11 actions, but only considered mandated improvements in making its recommendation. Staff  
12 (Rowell, direct testimony, p. 14) raised the concern that the environmental benefits of the EIC  
13 are unknown. However, WRA believes that those benefits should be set forth in specific  
14 applications by APS to the Commission for changes in the charge and cannot be quantified in the  
15 abstract. For example, if APS proposed reducing sulfur dioxide emissions below mandated  
16 levels, it could explain the benefits at the time the proposal is made. APS did provide estimates  
17 of reductions in air emissions for the initial set of projects at the Cholla plant (Fox, rebuttal, pp.  
18 22-25 and Attachment EZF-1RB).

19 In sum, the EIC is beneficial because (Berry, direct testimony, p. 19):

- 20 • It makes the environmental impacts of resource choices more apparent to APS, the  
21 Commission, and ratepayers.
- 22 • Utilities should not be discouraged from complying with environmental regulations or  
23 pursuing beneficial environmental goals through fear of disallowances for doing the right  
24 thing.
- 25 • Utilities should be encouraged to take actions that reduce environmental damages caused  
by power generation, including compliance with regulations, actions taken in anticipation

1 of future regulation, or societally beneficial responses to environmental issues for which  
2 no regulation is imminent.

3 The EIC does not fit customary cost recovery precepts as indicated by RUCO (Diaz  
4 Cortez, direct testimony, pp. 35-36). But traditional ratemaking principles were not developed  
5 with proactive environmental efforts in mind. Where new circumstances have not fit traditional  
6 ratemaking canons, this Commission has been innovative while still protecting ratepayers from  
7 imprudent utility actions. For example, the Commission authorized a DSM charge for APS in  
8 Decision No. 67744 (Settlement Agreement paragraph 43) and authorized a surcharge for the  
9 Environmental Portfolio Standard and the Renewable Energy Standard, all of which recover  
10 costs approximately simultaneously with their expenditure.

11 WRA recommends approval of the EIC or similar concept. WRA further recommends  
12 (Berry, direct testimony, pp. 19-20) that Schedule EIC be modified to explicitly include  
13 voluntary environmental improvements and to exclude penalties assessed for non-compliance  
14 with environmental regulations. If the Commission accepts RUCO's argument that no special  
15 rate treatment is needed in the case of compliance with mandatory environmental regulations,  
16 WRA proposes that the Commission adopt the EIC and apply it to cases where APS can show  
17 that it is accelerating compliance by at least one year or voluntarily reducing environmental  
18 impacts beyond those required by law.

### 18 **Climate Change Management Plan and Commitment**

19 Global climate change is a critical environmental issue and will remain so for many  
20 decades (Berry, direct testimony, pp. 20-21). APS' carbon dioxide emissions contribute to  
21 increased atmospheric concentrations of greenhouse gases and expose APS and its ratepayers to  
22 the costs of complying with future greenhouse gas emission regulations (Berry, direct testimony,  
23 pp. 21-22). It is in the public interest for APS and the Commission to directly and expeditiously  
24 address APS' greenhouse gas emissions and associated exposure to future compliance costs.  
25

1 WRA proposed (Berry, direct testimony, pp. 24-25) that, to enable APS to explicitly and  
2 fully take into account greenhouse gas emission risks when making resource decisions and to  
3 actively manage the risks associated with greenhouse gas emissions, the Commission should  
4 direct APS to undertake several interrelated tasks:

- 5
- 6 Task 1. **Management Plan.** Prepare, with public input, a greenhouse gas emissions  
7 management plan that: a) updates APS' inventory of greenhouse gas emissions,  
8 historical trends in greenhouse gas emissions and forecasts of greenhouse gas  
9 emissions, b) identifies senior managers responsible for greenhouse gas emission  
10 analyses and risk management, c) analyzes the financial and cost risks APS faces  
11 as a result of greenhouse gas emissions, d) identifies and analyzes risk  
12 management strategies, and e) outlines how APS will incorporate the preceding  
13 elements into its resource planning and selection activities going forward. This  
14 management plan should be submitted to the Commission no later than 18 months  
15 after the Commission's decision in this case.
- 16 Task 2. **Carbon Emission Reduction Study.** Conduct, with public input and with the  
17 assistance of outside expertise, an analysis of the applicability of coal technologies  
18 with significantly reduced carbon dioxide emissions, addressing the current status  
19 of and expected future progress in carbon dioxide emission reduction and carbon  
20 capture and sequestration options, including the expected costs of technologies  
21 reviewed. The study should also address the extent to which traditional utility  
22 regulation should be modified to encourage adoption of carbon dioxide emission  
23 reduction technologies and carbon capture and sequestration technologies. This  
24 analysis should be completed within 12 months of the Commission's decision in  
25 this case and should be used in Task 1. APS and participating members of the  
public should regularly review the work of the outside experts and provide input  
into the study.
- Task 3. **Commitment and Action Plan.** Prepare, with public input, a long term  
greenhouse gas emission reduction commitment and an associated action plan for  
Commission review and approval, addressing at a minimum: emissions covered,  
enforceability, incentives, benchmarks, targets and associated schedules, duration  
of the commitment, methods of implementation, estimated costs, cost recovery  
through the EIC or by other means, measurements of implementation progress, and  
conditions under which targets may be revised. The commitment and action plan  
should be submitted to the Commission at the same time as the management plan  
set forth in Task 1.

24 WRA also recommends (Berry, direct testimony, p. 25) that the Commission review and  
25 either approve, approve with modifications, or disapprove the management plan, carbon

1 emission reduction study, and company commitment and action plan at an open meeting or  
2 hearing. If the Commission disapproves the management plan, carbon emission reduction study,  
3 or commitment and action plan, it should provide direction on how to proceed with climate  
4 change risk management and associated cost recovery.

5 APS would be responsible for conducting the tasks, submitting the reports, and adopting  
6 a company commitment to greenhouse gas reductions. The public input recommended by WRA  
7 should be obtained via a collaborative of interested parties to this case that is established by the  
8 Commission in its decision in this case (Berry, direct testimony, p. 26). The collaborative should  
9 meet regularly with APS, provide advice to APS and its consultants, and review APS' drafts and  
10 proposals for carrying out the work inherent in each Task.

11 If the Commission rejects the EIC, WRA's recommendations on the climate change  
12 plans, studies, and commitments summarized above remain the same (Berry, direct testimony,  
13 pp. 26-27).

14 No party testified against the proposed planning, studies, development of commitments,  
15 or Commission review of the plans and commitments.

16 Lastly, if APS acquires or commits to acquire additional supply side resources prior to  
17 Commission approval of APS' climate change plans, analyses, and commitments as described  
18 above, WRA recommends that the Commission direct APS to follow a three step process (Berry,  
19 direct testimony, p. 26). First, APS should fully evaluate the potential costs of complying with  
20 greenhouse gas emission requirements or similar requirements that may be imposed by  
21 government for each resource that it considers. Second, no more than 30 days after committing  
22 to any new resources, APS should file with the Commission its evaluation of its potential cost  
23 exposure associated with future greenhouse gas emission requirements, its analysis of the  
24 resource options considered, and the reasons for selecting the winning resources. Third, at the  
25 time APS requests recovery of the costs of complying with any greenhouse gas emission

1 requirements applicable to those resources, the Commission should consider the prudence of  
2 APS' selection of the resources by reviewing APS' evaluation of the potential compliance costs  
3 at the time it evaluated its resource options and selected specific resources. No party testified  
4 against this proposal.<sup>6</sup>

## 5 **II. SOUTHWEST ENERGY EFFICIENCY PROJECT ("SWEEP")**

6 The Southwest Energy Efficiency Project (SWEEP) addressed the following issues in its  
7 testimony.

### 8 **Increasing Energy Efficiency in the APS Service Territory is in the Public Interest**

9 Increasing energy efficiency through cost-effective programs is in the public interest and  
10 will provide significant and cost-effective benefits for APS customers (residential consumers and  
11 businesses), the electric system, the economy, and the environment. (Schlegel direct testimony,  
12 p. 4).

### 13 **The Commission Should Increase Energy Efficiency for APS Customers by Adopting the** 14 **Energy Efficiency Standard (EES) Proposed by SWEEP**

15 Specifically, the Commission should set APS DSM energy efficiency program goals in  
16 the form of an Energy Efficiency Standard (EES). (Schlegel direct testimony, p. 4). The EES  
17 should require APS DSM energy efficiency programs to: (1) achieve energy savings equal to at  
18 least 5% of total energy resources needed to meet retail load in 2010, and at least 15% in 2020;  
19 and (2) reduce summer peak demand by at least 5% of total capacity resources needed to meet  
20 retail peak demand in 2010, and at least 15% in 2020. (Schlegel direct testimony, p. 4).

21  
22  
23  
24 <sup>6</sup> In Decision No. 65347 (dated November 1, 2002), the Commission ordered that, as a condition of constructing  
25 Springerville Unit 4, the developers of Springerville Units 3 and 4, and not Tucson Electric Power Company  
ratepayers, should bear any risk of the costs of possible regulation of carbon dioxide emissions in the future (Finding  
of Fact 45).

1 **Achieving the Goals of the EES Would Provide \$1.4 Billion in Net Economic Benefits**  
2 **(Benefits Minus Costs) and other Benefits, and Would Create a 1,440 MW “Energy**  
3 **Efficiency Power Plant”**

4 Achieving the goals of the Energy Efficiency Standard would save consumers and  
5 businesses \$1.4 billion during 2005-2020, eliminate the need for about 1,440 MW<sup>7</sup> of new power  
6 plants by 2020 and the associated power line and pipeline infrastructure costs, provide 1,600  
7 GWh of cumulative annual energy savings in 2010 and almost 7,000 GWh in 2020, reduce  
8 average annual load growth in retail energy and summer peak demand by 32% (from 3.8% to  
9 2.6%), reduce electricity price spikes and the risks of natural gas price volatility, save precious  
10 water, and reduce air pollution and the carbon emissions that cause global warming. (Schlegel  
11 direct testimony, p. 5; Exhibit JS-1 in Schlegel direct testimony; SWEEP response to APS-  
12 SWEEP-2-7 attached herein as Exhibit JS-3).

13 The EES would result in a 1,440 MW “energy efficiency power plant” that would  
14 provide \$1.4 billion of net economic benefits (benefits minus costs), instead of building  
15 conventional power plants that would cost more and expose consumers to higher electricity  
16 prices, use precious water, and harm the environment. (Schlegel direct testimony, p. 5; SWEEP  
17 response to APS-SWEEP-2-7 attached herein as Exhibit JS-3).

18 **The Goals of the EES are Reasonable, and They can be Achieved with Cost-Effective**  
19 **Energy Efficiency Programs**

20 The proposed EES goals are both reasonable and achievable. (Schlegel direct testimony,  
21 p. 5). Other states and utilities have achieved energy savings equivalent to or greater than the  
22 EES goals that SWEEP proposes. (Schlegel direct testimony, p. 5-6).

23  
24  
25 <sup>7</sup> SWEEP clarified its estimate of the reduction in summer peak demand in response to a data request from APS  
(APS-SWEEP-2-7), attached herein as Exhibit SWEEP-JS-3.

1 **Similar Energy Efficiency Goals are Supported by Other Policy Makers in Arizona and the**  
2 **West**

3 Similar savings goals are supported by other policy makers in the west. Meeting the EES  
4 goals in Arizona would contribute substantially to the achievement of the adopted goal of the  
5 Western Governors Association (WGA) to increase energy efficiency 20% by 2020. (Schlegel  
6 surrebuttal testimony, p. 3). Also, in Arizona in August 2006, a diverse group of 35 Arizona  
7 stakeholders in the Climate Change Advisory Group provided a consensus recommendation to  
8 set electric energy savings goals of 5% savings by 2010 and 15% savings by 2020 through DSM  
9 programs, which is equivalent to the SWEEP EES proposal. (Schlegel surrebuttal testimony, p.  
10 3).

11 **The EES Goals Should be Adopted in this Proceeding, and the Goals Should be Based on**  
12 **Effects and Impacts, Not on Spending**

13 APS testified that it is premature to set energy and peak demand savings goals, and APS  
14 recommended spending targets. (Rebuttal Testimony of Teresa Orlick, APS, p. 3-4). APS also  
15 testified that while the current programs are ongoing until modified by the Commission, and  
16 therefore “evergreen,” and while the programs could be modified or increased in the future, there  
17 is no current commitment at APS or requirement for APS to increase the program budgets or  
18 savings. (Rebuttal Testimony of Teresa Orlick, APS, p. 3-4; Orlick response to cross-  
19 examination, October 20, 2006).

20 SWEEP testified that it is essential to set goals to implement Commission policy, in this  
21 proceeding. Clear, multi-year goals help utilities, stakeholders, and customers understand how  
22 the future electric system will meet future customer load, in a manner consistent with the policies  
23 of the Commission. Therefore, it is essential to have a goal for APS to achieve, with a clear  
24 commitment and explicit requirement, and to increase that goal beyond what APS was ordered to  
25 achieve in 2005. (Schlegel surrebuttal testimony, p. 3; Schlegel testimony and response to cross-  
examination, October 23, 2006).

1 SWEEP testified that it is important to focus primarily on the *effects and impacts* of energy  
2 and utility policies for setting goals, not primarily on the funding or spending levels. Simply  
3 spending money, even cost-effectively, should not be the primary focus of future goals for  
4 energy efficiency programs. (Schlegel surrebuttal testimony, p. 3-4).

5 **It is Essential to Increase Energy Efficiency Efforts to Reach More APS Customers**

6 In response to SWEEP's data requests, APS provided data on energy efficiency program  
7 spending through September 2006, and on the number of customers that participated, are  
8 committed to participate, or are in the pipeline to potentially participate in the future. (Schlegel  
9 testimony, October 23, 2006).

10 Based on review of the APS responses to SWEEP's data requests, it is clear that the total  
11 number of APS customers yet to reach is much greater than the number of customers  
12 participating to date. SWEEP summarized two examples: (Schlegel testimony, October 23,  
13 2006).

14 1. For new homes, see the APS response to SWEEP-APS-1-6: APS reports 2,803 homes  
15 committed to participate vs. 32,000 to 35,000 homes that will be built each year. This is  
16 equivalent to about 8% market penetration. (Schlegel testimony, October 23, 2006).

17 2. For nonresidential customers, see the APS response to SWEEP-APS-1-2 and the table  
18 in APS08338. Through September 2006, 16 nonresidential customers had participated, 9 in the  
19 Building Operator Training program. About 170 nonresidential customers are committed to  
20 participate or are in the pipeline. Contrast this with the total number of APS nonresidential  
21 customers, about 110,000 total (see Exhibit JS-2 and the APS customer data tables). Less than  
22 2% of the nonresidential customers have participated, are committed, or are in the pipeline.  
23 (Schlegel testimony, October 23, 2006).

1           Given how many APS customers there are to reach, and the high rate of customer and  
2 load growth in the APS territory, it is not premature to increase the APS DSM energy efficiency  
3 program goals. (Schlegel testimony, October 23, 2006).

4  
5           **The Existing Commission-Approved DSM Energy Efficiency Programs Should be  
6 Expanded to Achieve the Goals of the EES.**

7           The existing DSM energy efficiency programs should be expanded to achieve the goals  
8 of the EES. While some additional DSM energy efficiency programs or program elements may  
9 be needed to achieve the EES goals, and may also be valuable for providing additional benefits  
10 to APS customers, the primary mechanism for achieving the EES goals should be the expansion  
11 of existing programs already approved by the Commission. The existing programs are providing  
12 significant net benefits (over \$4.2 million of net economic benefits in 2005), and the net benefits  
13 continue to grow as more customers participate in the cost-effective DSM programs. (Schlegel  
14 direct testimony, p. 6; Schlegel surrebuttal testimony, p. 4-5).

15           **Adequate Funding Should be Authorized to Achieve the Goals of the EES and Secure the  
16 Associated Benefits**

17           The Commission should authorize adequate funding to achieve the goals of the EES.  
18 SWEET estimates that energy efficiency funding of \$0.002 per kWh of retail energy sales (2  
19 mills) will be necessary to achieve the EES goals. In 2007, the third year of the 2005-2007  
20 Portfolio Plan, total DSM energy efficiency funding should be increased from about \$25 million  
21 to \$38 million, an increase of about \$13 million. In 2008 and future years, total DSM energy  
22 efficiency funding should be equivalent to \$0.002 (2 mills) per kWh of retail energy sales, which  
23 would be \$56.8 million in 2008. The additional DSM funding for 2008 would amount to \$40.8  
24 million (the amount above the \$16 million per year authorized in Decision No. 67744).  
25 (Schlegel direct testimony, p. 6-7). Funding for any DSM demand response and load

1 management programs should be in addition to the energy efficiency program funding.  
2 (Schlegel direct testimony, p. 6-7).

3 The SWEEP-proposed annual energy efficiency funding pales in comparison to the \$900  
4 million to \$1 billion APS testified it is spending annually on infrastructure investments.  
5 (Schlegel response to cross-examination, October 23, 2006). Also, the energy efficiency  
6 programs are required to be cost-effective when compared to other potential investments APS is  
7 planning or implementing to meet customer needs. (Schlegel response to cross-examination,  
8 October 23, 2006).

9 Inadequate funding for DSM energy efficiency programs and the resulting  
10 underachievement of cost-effective energy efficiency would lead to higher total costs for  
11 customers. (Schlegel surrebuttal testimony, p. 5).

#### 12 **A Combination of DSM Funding and Cost-Recovery Mechanisms Should be Used**

13 Energy efficiency funding and cost recovery for the additional DSM funding and the total  
14 DSM funding could be accomplished through funding in base rates, a DSM adjustment  
15 mechanism, a system benefits surcharge, amortizing or capitalizing the DSM investments over  
16 time (to reduce rate impacts in early years), or a combination of funding mechanisms. SWEEP  
17 believes it would be best to build on the existing Commission-approved funding mechanisms  
18 (base rates and a DSM adjustor) and use a combination of mechanisms going forward. (Schlegel  
19 direct testimony, p. 7-8).

#### 20 21 **If the Commission is Concerned About Potential Rate Impacts, Additional DSM Funding and Cost-Recovery Mechanisms Should be Considered**

22 The Commission could choose to expand the current two-part approach or build upon it  
23 by using an additional DSM funding and cost-recovery mechanism for some or all of the  
24 additional funding needed to meet the goals of the EES, including amortization or capitalization  
25 mechanisms that would reduce the rate impacts of the DSM program funding increase in the

1 early years of the EES. (Schlegel surrebuttal testimony, p. 6). The Commission could choose to  
2 amortize or capitalize a portion of the DSM expenditures, similar to how investments in power  
3 plants are recovered through customer rates over time, thereby reducing the customer rate  
4 impacts of DSM programs in the early years of the EES. (Schlegel direct testimony, p. 8). For  
5 example, the Commission could spread the additional DSM costs to ratepayers across several  
6 years (e.g., 5 years) in a manner that acknowledges that the energy efficiency benefits are  
7 achieved over several years. (Schlegel direct testimony, p. 8).

8 **APS Should File an EES Implementation Plan for Commission Review and Approval**

9 APS should file an Implementation Plan to achieve the goals of the EES, covering the  
10 2008-2020 program years, in the spring of 2007, at the same time APS refiles the Non-  
11 Residential portion of its DSM Portfolio Plan (per Commission order). The EES Implementation  
12 Plan should be developed by APS with input from and review by the Collaborative DSM  
13 Working Group, which includes Staff and interested parties. The EES Implementation Plan  
14 would be reviewed by Staff, and then be reviewed and approved by the Commission prior to  
15 implementation for 2008 and future years. (Schlegel direct testimony, p. 9; Schlegel surrebuttal  
16 testimony, p. 6).

17 The EES Implementation Plan should include the historical DSM results for 2005-2006,  
18 and should include a forecast for the expansion of the existing Commission-approved DSM  
19 energy efficiency programs in 2007. The expansion of approved DSM programs in 2007 should  
20 proceed as a result of the order in this proceeding, and should not be postponed for the  
21 development, review, and Commission approval of the EES Implementation Plan (which should  
22 cover 2008-2020 DSM programs, plus potentially any remaining period in 2007 after  
23 Commission review and approval). (Schlegel surrebuttal testimony, p. 6).

24 Since Staff will participate directly in the development of the EES Implementation Plan  
25 as part of the DSM Collaborative Working Group, the Commission should provide up to 60 days

1 for Staff review of the EES Implementation Plan after it is filed by APS. (Schlegel direct  
2 testimony, p. 9).

3  
4 **Any Underspending of the \$48 Million DSM Energy Efficiency Spending Requirement for  
2005-2007 Should be Carried Over and Spent in Subsequent Years**

5 APS may be able to meet the requirement set forth in Decision 67744 to spend \$48  
6 million on Commission-approved DSM programs by the end of 2007, depending on customer  
7 and market response to recently-implemented programs. However, it is possible that due to the  
8 newness of the programs, the time lags associated with the implementation of some large  
9 projects, and the delays in getting the programs in the field, including Staff review and  
10 Commission approval taking longer than expected, APS may not meet the spending requirement.  
11 As APS proposed,<sup>8</sup> any underspending of the \$48 million through 2007 should be carried over  
12 and spent in subsequent years, in addition to the annual budget for each of the future program  
13 years. (Schlegel surrebuttal testimony, p. 2). SWEEP requests an explicit Commission order on  
14 this issue in this proceeding, in case APS does not meet its \$48 million spending requirement.  
15 (Schlegel surrebuttal testimony, p. 2).

16 **The Commission Should Approve the DSM Performance Incentive**

17 SWEEP supports the proposed performance incentive, including the basis of 10% of net  
18 benefits (APS share), and the cap of 10% of spending. This mechanism was reviewed and  
19 supported by the DSM Collaborative, and was included in the APS DSM Portfolio Plan.  
20 (Schlegel surrebuttal testimony, p. 6-7).

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<sup>8</sup> Rebuttal Testimony of Teresa Orlick, APS, p. 3.

1  
2 **The Commission Should Reject APS' Proposal for Net Lost Revenue Recovery**

3 SWEEP supports the position of Staff (Anderson)<sup>9</sup> that net lost revenue recovery not be  
4 allowed. SWEEP does not support the recovery of net lost revenues in any event, even if there  
5 was not a performance incentive for APS. (Schlegel surrebuttal testimony, p. 7).

6 **APS Should Develop an Urban Heat Island Effect Program or Program Element**

7 SWEEP supports WRA's testimony<sup>10</sup> proposing mitigation of Urban Heat Island Effects  
8 in metropolitan areas through APS DSM programs. SWEEP believes that APS should either  
9 propose an Urban Heat Island Effect DSM program, or further develop an Urban Heat Island  
10 Effect program element within the already-approved programs, with input from the APS DSM  
11 Collaborative. (Schlegel surrebuttal testimony, p. 7).

12  
13 **The Commission Should Adopt WRA's Recommendations on Climate Change Risk Management**

14 SWEEP supports WRA's recommendations on climate change risk management.<sup>11</sup>  
15 Specifically, the Commission should direct APS, with input from the DSM Collaborative, to  
16 prepare a climate change management plan, a carbon emission reduction study, and a climate  
17 change commitment and action plan, within 12-18 months of the Commission's decision in this  
18 case. (Schlegel surrebuttal testimony, p. 8). SWEEP believes some portions of the climate  
19 change plans (e.g., the updated inventory, early identification of actions and strategies to reduce  
20 climate change risk, and linkages between managing climate change risk and other policies of  
21 the Commission and activities of APS, such as DSM energy efficiency programs and support for  
22 renewable energy) should be filed sooner than within 12 months. (Schlegel surrebuttal  
23 testimony, p. 8).

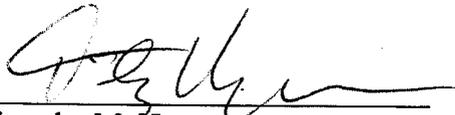
24  
25 <sup>9</sup> Direct Testimony of Jerry Anderson, Staff, p. 8-9.

<sup>10</sup> Direct Testimony of David Berry, WRA, p. 15.

<sup>11</sup> Direct Testimony of David Berry, WRA, Summary of Recommendations, p. 28.

1 DATED this 22<sup>nd</sup> day of January, 2007.

2 ARIZONA CENTER FOR LAW IN  
3 THE PUBLIC INTEREST

4 By 

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11 ORIGINAL and 13 COPIES of  
12 the foregoing filed this 22<sup>nd</sup> day  
13 of January, 2007, with:

14 Docketing Supervisor  
15 Docket Control  
16 Arizona Corporation Commission  
17 1200 W. Washington  
18 Phoenix, AZ 85007

19 COPIES of the foregoing  
20 transmitted electronically  
21 this 22<sup>nd</sup> day of January, 2007, to:

22 All Parties of Record

23   
24  
25

**Exhibit SWEEP-JS-3**

**SWEEP Response to APS Data Request APS-SWEEP-2-7  
SOUTHWEST ENERGY EFFICIENCY PROJECT (SWEEP)  
RESPONSES TO ARIZONA PUBLIC SERVICE COMPANY'S  
SECOND SET OF DATA REQUESTS  
APS RATE CASE DOCKET NO. E-01345A-05-0816**

APS-SWEEP-2-7 Please provide all workpapers, documentation, and studies, if any, in hard copy and in Excel format, if available, that supports your discussion of the benefits that would result from achieving the EES goals, discussed at page 5 of your testimony.

**RESPONSE:** The benefits of achieving the goals of the EES are described in my direct testimony, on page 5, and documented in Exhibit JS-1 attached to my direct testimony. Since Exhibit JS-1 is in energy units (GWh and kWh), I estimated the benefit of "eliminating the need for about 1,000 MW of new power plants by 2020" in the following manner. First, I estimated the growth in peak demand in the APS service territory by 2020 to be about 4,500 MW, using an average annual growth rate of 3.8%. Second, I checked my estimate of APS growth in peak demand (MW) with APS documents, specifically the Pinnacle West press release, dated May 17, 2006, regarding the Annual Meeting, in which Bill Post stated that, "over the next decade, customer demand for electricity will grow by about 3,000 megawatts." (See file SWEEP\_ResponseAPS2-7\_PW\_PressRelease\_MWGrowth.) If customer demand will grow 3,000 MW in 10 years, it will likely grow about 4,500 MW in 15 years, confirming my estimate. Finally, I multiplied the growth in customer demand (4,500 MW) by the 32% reduction in load growth due to the EES documented in Exhibit JS-1. The result was an estimated reduction of 1,440 MW by 2020, which is significantly higher than 1,000 MW.