

1 **BEFORE THE ARIZONA CORPORATION COMMISSION**

2
3 COMMISSIONERS

4
5 JEFF HATCH-MILLER, Chairman
6 WILLIAM A. MUNDELL
7 MIKE GLEASON
8 KRISTIN K. MAYES
9 GARY PIERCE

10
11
12 IN THE MATTER OF THE APPLICATION
13 OF ARIZONA PUBLIC SERVICE COMPANY
14 FOR A HEARING TO DETERMINE THE FAIR
15 VALUE OF THE UTILITY PROPERTY OF THE
16 COMPANY FOR RATEMAKING PURPOSES,
17 TO FIX A JUST AND REASONABLE RATE OF
18 RETURN THEREON, TO APPROVE RATE
19 SCHEDULES DESIGNED TO DEVELOP SUCH
20 RETURN, AND TO AMEND DECISION NO.
21 67744.

DOCKET NO. E-01345A-05-0816

22
23 IN THE MATTER OF THE INQUIRY INTO THE
24 FREQUENCY OF UNPLANNED OUTAGES
25 DURING 2005 AT PALO VERDE NUCLEAR
26 GENERATING STATION, THE CAUSES OF
27 THE OUTAGES, THE PROCUREMENT OF RE-
28 PLACEMENT POWER AND THE IMPACT OF
29 THE OUTAGES ON ARIZONA PUBLIC
30 SERVICE COMPANY'S CUSTOMERS.

DOCKET NO. E-01345A-05-0826

31
32
33 IN THE MATTER OF THE AUDIT OF THE
34 FUEL AND PURCHASED POWER PRACTICES
35 AND COSTS OF THE ARIZONA PUBLIC
36 SERVICE COMPANY.

DOCKET NO. E-01345A-05-0827
POST-HEARING BRIEF OF
INTERWEST ENERGY ALLIANCE

37
38
39 The Interwest Energy Alliance (the "IEA") submits the following post hearing
40 brief in connection with the above-referenced matter.

41 **I. Introduction.**

1 On June 27, 2003, Arizona Public Service Company (“APS”) filed with the
2 Arizona Corporation Commission (“Commission”) an application for a rate increase
3 and for approval of purchased power contract. In Decision No. 67744 (April 7, 2005)
4 the Commission approved, with modifications, the Settlement Agreement related to
5 the Case.

6 On November 4, 2005, APS filed an application with the Commission for a rate
7 increase and to amend Decision No. 67744. The Commission also granted Interwest
8 Energy Alliance’s (“IEA”) Application to Intervene on August 4, 2006.

9 On November 9, 2005, The Commission opened a docket to investigate the
10 unplanned outages during 2005 at the Palo Verde Nuclear Power Generating Station.
11 The Commission also opened a docket to audit the fuel and purchased power
12 practices and costs of APS.

13 On January 31, 2006, APS filed an amended application.

14 Then by Procedural Order issued September 18, 2006, the Commission
15 consolidated the above-referenced matters.

16 The IEA participated in the consolidated proceeding and hearing before the
17 Commission.

18 **II. Discussion.**

19 The IEA raised three issues in its testimony, use of an independent evaluator
20 for renewable energy bids, regular scheduled purchases for renewable energy and
21 support for performance standards for purchase of clean energy resources.

22 **A. Use an Independent Evaluator to Review Requests for Proposal for** 23 **Renewable Energy Resources.** 24 25

1 EIA recommends that an independent expert be employed in future renewable
2 energy resources Requests for Proposal (RFP) processes, conducted by APS, to help
3 ensure fair assignment of costs and evaluation of bids. Specifically, there are two
4 areas there an independent evaluator (IE) would be beneficial to the procurement
5 process.

6 First, an IE would help to set the market reference price by which renewable
7 energy resources are evaluated. The Commission in Decision No. 67744 required
8 APS to purchase energy from 100 MW of renewable energy but only if the price of
9 renewable energy was no more than 125% of the market price of conventional
10 resources (reference price). The 125% market price chosen was critical to the
11 outcome of the bid process. If a market price is chosen that is based on partially or
12 wholly on depreciated assets or low or unrealistic estimates for new traditional fuels
13 then renewable energy projects may not be purchased base on the cost comparison.
14 The IE would help ensure that a fair market reference price is set.

15 Second, an IE is critical to ensure that additional, unreasonable transaction or
16 systemic costs are not assigned or added to the price of a bid in any future renewable
17 energy solicitations. The IEA proposes that APS include an IE that has direct
18 experience with wind and other renewable energy resources in the bid process. This
19 person may be chosen by the Commission and report to the Commission.

20 IEA has concerns about the methodology used when APS conducted its 2005 RFP
21 for renewables and believes that the company attributed higher than necessary costs
22 to wind energy projects. As detail in the Ormond Direct Testimony, APS'
23 integration costs assigned to wind energy projects were 10 times the cost actually

1 incurred by any other utility with similar penetration rates (Ormond direct, page 3 and
2 4). In the letter dated July 19, 2006 from Mr. Jack Davis' to Commissioner Kris
3 Mayes filed in this docket, Mr. Davis stated that the company added a spinning
4 reserve charge of \$10 - \$20 per MWh for wind projects evaluated in the 2005
5 renewables RFP.

6 Ancillary services charges are the costs incurred by a utility to integrate the output
7 from a wind project into their system. In the electric industry ancillary services
8 include the costs of regulation, load following and unit commitment. Spinning
9 reserves are a subset of regulation costs.

10 Several utilities around the country have conducted studies in order to determine
11 the projected cost of ancillary services (including spinning reserves) resulting from
12 wind on their system (Ormond direct, page 3). The highest cost for wind integration
13 from these studies is projected to be \$4.97 per MWh for Xcel Energy with a wind
14 penetration rate of 15%. At a system penetration rate of 5% Xcel projected a cost of
15 \$1.85/MWh. APS assigned a cost of \$10-20 per MWh for a project that would have a
16 penetration rate of only 2%. APS has assigned a cost that is at least double the cost
17 found at any penetration rate by any US utility, and more than 10 times the cost
18 actually incurred by utilities with similar penetration rates.

19 The cost of ancillary services APS used was based on an input for spinning
20 reserves requirement of 25% of the nameplate rating for wind projects.¹ This
21 methodology was inappropriate because energy from a wind plant can not be treated
22 in isolation from the remaining systems and the assumption that 25% of nameplate

¹ Western Resource Advocates data request (WRA5-2).

1 spinning for reserve is unrealistic. A spinning reserve requirement of 25% for a wind
2 project with a capacity factor of 25-30% assumes that the utility needs to provide
3 back up power (through spinning reserves) for each and every MWh of wind energy
4 on their system. The method employed by APS assumes the wind component of
5 reserve is needed even when the wind is not blowing.

6 The actual experience with wind generation in California and elsewhere in the
7 U.S. has proven that a “one for one backup” overstates the real impact on spinning
8 reserves by over an order of magnitude. APS operates a flexible, large dynamic
9 system which routinely experiences significant variation in both generation and
10 loads. The system is designed to operate smoothly to react to fluctuations in output,
11 such as those created from adding a relatively small amount of wind energy, for
12 example 100 MW or less than 2% of the systems capacity. Based on the experience
13 of similar-sized utilities, IEA believes APS can effectively add wind energy to their
14 system within the cost range experienced by other utilities.

15 In response to IEA’s concern about the improper addition of costs in the bid
16 evaluation process APS proposed conducting a Wind Integration Study (Dinkel
17 rebuttal, page 4 and 5). IEA supports this study effort and believes it will provide the
18 utility with valuable information on their system and the impacts of integrating wind
19 energy. However, the study, in and of itself, is not sufficient to eliminate the need for
20 an IE.

21 Barbara Lockwood of APS states in her rebuttal testimony, page 8, lines 6-10, that
22 an IE is not necessary because the annual independent programmatic review of the
23 utility’s renewable resource selection process contained in R14-2-1812 of the

1 proposed REST rules is sufficient oversight of the utility RFP renewable resource
2 procurement process. However, the REST review process only reviews application
3 of the utility's program generally and then at the end of each year in a post hoc
4 fashion. The IE proposed by IEA would be integral to the RFP process and help
5 provide renewable-energy specific information for the RFP document and review
6 process; including setting a reference price and evaluating integration costs.

7 The other reason that a Wind Integration Study can not replace is IE is that the
8 study proposed is exclusive for wind energy. Renewable energy technologies are
9 rapidly changing and diverse. Each technology has its own characteristics, cost
10 structure and system integration needs. Expertise in various types of renewable
11 energy systems is needed to provide the Commission and APS with up-to-date
12 information that can be used to evaluate bids and the bid evaluation process to ensure
13 that the process is fair as possible. Due to APS' limited experience with large-scale
14 renewable energy technologies an IE will provide critical expertise to the utility that it
15 does not yet possess.

16 **B. Implementation of a RFP Schedule for Regular Purchases of Renewable**
17 **Energy.**

18 IEA recommends that APS be required to solicit for renewable energy resources
19 on a regular basis. A solicitation for 150MW of renewable energy in years 2007,
20 2009 and 2011 could provide approximately 25% of the new generation needed
21 between 2007 and 2012. APS is currently required under Decision No. 67744 (April
22 7, 2005) to purchase renewable energy for 10% of their new capacity needs. EIA
23 believes that procuring more renewable energy resources in the next decade is of

1 critical importance as the utility will largely have to rely upon volatile and
2 increasingly-expensive gas-fired generation to meet growth in that period².

3 IEA believes that the use of a competitive RFP for all renewable energy
4 technologies will allow APS to choose from the greatest diversity of projects. A
5 competitive process tends to drive down prices providing the utility with least-cost
6 resources. Solicitations are also good for determining the breadth of projects
7 available in the region. From the RFP process APS can chose the resources that meet
8 their system and resource requirements.

9 The use of a solicitation process is also important as Arizona has no annual
10 Integrated Resource Plan (IRP) Process. For renewable energy providers an IRP
11 provides two important sources of information: 1) it details the long term plans for a
12 utility so generation providers can determine the future potential market and 2) it
13 provides publicly available cost comparisons of technology. Currently a renewable
14 energy provider interested in the Arizona market can review information related to
15 the Environmental Portfolio Standard and the Renewable Energy Standard and Tariff
16 (REST) to assess the amount of energy necessary for compliance but there is no
17 information available on when and how supplies might be procured and which type of
18 resources are being considered or preferred.

19 IEA finds three reasons APS should accelerate acquisition of and bids for 450
20 MW of renewable energy in the next six years. First, renewable energy resources are
21 stably priced; next, renewable energy resources are not subject to the cost of
22 environmental air regulations and are not vulnerable to changes in or addition of new

² Direct Testimony of Don Robinson, Page 13, lines 6-11.

1 environmental regulation; and renewable energy is less costly to consumers in the
2 long run.

3 APS ratepayers benefit from the increased purchase of electricity generated from
4 renewable energy resources because renewable energy is not subject to fluctuation in
5 fuel prices. In all cases, except biomass, no fuel needs to be purchased so there is no
6 cost for fuel.

7 Recently Arizona and the U.S. have seen significant increases in fossil fuel prices.
8 As a result, the Commission approved a Power Supply Adjustment (PSA) for fuel and
9 purchase power costs. One purpose of the PSA is to allow the utility a flexible
10 mechanism to recover fuel price increases and the cost of purchased power and to be
11 able to pass fluctuating costs on to consumers expediently.

12 In the direct testimony of Mr. Don Robinson on page 13, lines 6-11 he states that
13 “between 1991 . . . and 2006, APS’ energy needs from gas-fired generating facilities
14 and purchased power will increase from 9% to approximately 29%. As a result, gas
15 and purchased power will constitute nearly 70% of the Company’s total fuel and
16 purchased power expenses by 2006.”³ This high reliance on natural gas-fired
17 generation and volatility of natural gas markets subjects Arizona consumers to market
18 price fluctuation.

19 The risk of gas price fluctuations is recognized by the industry. On page 13 lines
20 19-22 of the direct testimony of Don Robinson the states “In the recent Request for
21 Proposal (“RFP”) that was held pursuant to Decision No. 67744 to seek at least 1000
22 MW of new long-term generation supply beginning in 2007, *no bidder was willing to*

³ Direct Testimony of Don Robinson, Page 13, lines 6-11.

1 *accept the risk of gas price volatility*⁴ (emphasis added). With the additional reliance
2 on natural gas the price volatility risk for consumers increases. Consumers are not
3 responsible for which resources are chosen to meet their energy needs but they bear
4 the risk and the burden of fuel price increases.

5 Unlike variable fuel cost generation, the cost of producing energy from a
6 renewable energy project is not subject to fuel price fluctuations. Renewable energy
7 projects costs are known from the first day of operation and those costs do not change
8 (subject only to annual adjustments tied to the inflation index).

9 The second reason for requiring procurement of more renewable energy resources
10 is the air emissions benefits. Because wind energy generation produces no air
11 emission and other renewable energy resources emit few, if any emissions that are
12 regulated by state and federal agencies, ratepayers are not saddled with the current or
13 future cost of emissions control and reduction.

14 In the direct testimony of Mr. Ed Fox on pages 10-12 he detailed the regulated air
15 emissions from coal-fired generation that include sulfur dioxide, nitrogen oxides,
16 particulate matter and mercury. Each of these pollutants requires unique emissions
17 control equipment and controlling the release of each of these emissions has a cost.

18 As a result of changing environmental regulation and a desire to reduce
19 environmental emission APS is requesting approval of an Environmental
20 Improvement Charge (EIC). The EIC, as proposed, would levy a charge of \$0.000152
21 per KWh⁵ on most classes of customers. The first application of the EIC, for only one
22 power plant, Cholla, is expected to cost consumers at least \$135 million in initial

⁴ Direct Testimony of Don Robinson, Page 13, lines 19-22.

⁵ Direct Testimony of Greg Delizio, Page 2, line 8.

1 emission control upgrades over the next few years, according to Mr. Ed Fox’s direct
2 testimony, page 12 lines 15 and 16. The EIC is proposed to be used for clean up of
3 the emissions associated with other coal-fired generating units in the future.
4 Renewable energy does not impose any such emission or cost burdens upon the
5 ratepayers.

6 EIA also believes that carbon dioxide will one day be a regulated pollutant and
7 regulation thereof will incur a cost for consumers. In his direct testimony on page 9
8 line 21 Mr. Ed Fox states that there is an “increased probability” that carbon dioxide
9 will be regulated. Since coal fired power plants can last from 30 to 50 years it is
10 likely that any existing or new plant may be subject to carbon dioxide regulation
11 taxation and the additional cost of compliance associated with regulation.

12 The third reason IEA believes that increased procurement of renewable energy is
13 beneficial is these resources are likely to be less costly when compared in total life
14 cycle cost (capital cost, operation and maintenance and fuel) to fossil fuel generation.
15 Renewable energy projects are capital intensive and all the costs, but operation and
16 maintenance, are in the initial up-front or capital costs. Initial costs for renewable
17 energy projects may be more expensive compared to bids for conventional fuels.
18 However, if the full project cost, including capital, O & M, and fuel of a generation
19 source is included, then the price of fossil fuel generation may change substantially,
20 and be more expensive over the life of a project.

21 In verbal testimony at Court Transcript, Volume ___, Page ___, Lines ___, in
22 response to a question by Commissioner Wong, Mr. Ed Fox affirmed that APS has
23 not done an “apples to apples” comparison of fossil generation to renewable energy

1 generation. Yet, APS states that renewable energy will be more expensive for the
2 foreseeable future.⁶

3 EIA recommends that renewable energy resources be compared to conventional
4 resources by using a life cycle cost method. To identify the true cost of a resource
5 one needs to look beyond the initial purchase price of the commodity and include all-
6 in costs. Thus, the proposed EIC, which represents the partial costs of emissions
7 remediation and the Purchase Supply Adjuster, for fuel price increases, should be
8 factored into the cost of fossil resources when resources are being evaluated for
9 procurement.

10 Finally, IEA advocated for and supports the new REST for the procurement of
11 renewable energy resources. EIA finds that soliciting for an additional 450 MW of
12 non-distributed renewable energy resources is complementary to the standard. The
13 REST, as adopted by the Commission is a floor, or a minimum for the procurement of
14 renewable energy resource. The rule does not specify a ceiling or a cap on the
15 amount of renewable resources the utility should procure. The primary purpose of the
16 purchasing 450MW of renewable energy in the next six years is to avoid additional
17 costs to ratepayers in the short term as a result of fuel cost fluctuation and long term
18 environmental compliance that will result from the purchase of more fossil fuels. The
19 energy obtained as a result of IEA's recommendation would count toward the REST.
20 As a policy, the REST creates long term requirements for renewable energy and
21 instructs utilities to develop distributed resources that are not covered by this
22 testimony.

⁶ Verbal Testimony of Ms. Barbara Lockwood, Court Transcript at Volume V. Page 1010, Lines 2-5.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

C. Initiate a Collaborative Process to Develop Clean Energy Performance-Based Initiatives.

EIA recommends that performance-based incentives be created, through a collaborative process, to reward and encourage APS to procure clean energy resources, namely renewable energy and energy efficiency. The current system provides little incentive for APS to purchase clean energy resources. To earn a profit Investor Owned Utility (IOU) make large capital investments in power plants and/or transmission lines and in return, the regulatory agency grants them a rate of return (profit) on their investment. While this system has worked well in the past it does not provide financial incentives for the purchase of renewable energy or the conservation of energy through energy efficiency. This is due to the fact that APS is not building most large renewable energy projects; they are purchasing the energy from other providers. Thus, they are not investing capital and are not eligible to earn a profit on most renewable energy resources. In the future APS may construct, operate and maintain wind, geothermal and other renewable energy systems but it does not at this time.

Renewable energy accounts for less than 1% of retail sales but as the amount grows the impact on the company will concomitantly grow. Under today system it is more profitable for APS to build fossil fuel generation (or purchase an existing fossil plant) and the associated transmission than to invest in cleaner systems. If the Commission sees a value in the utility diversifying its generation resources,

1 conserving natural resources and adding clean energy resources then the Commission
2 may want to consider establishing financial incentives.

3 EIA recommends that incentive be allowed, in lieu of a rate-of-return earned
4 profit, for adding renewable energy generation to its portfolio. As an example of an
5 incentive, APS could be allowed to recover, from ratepayers, a small assessment per
6 kWh for energy from 450 MW of procurement proposed in this testimony. If
7 desirable, the incentive could be designed to stimulate certain actions such as early
8 procurement of renewable energy resources or purchases projects locate in Arizona.

9 The Commission has created requirements (Decisions No. 67744, 63486 and
10 63364) for APS to procure some clean resources. These requirements are policy
11 “sticks” that can be augmented by creating incentives or “carrots” for the utility to
12 pursue clean energy resources. Without a financial incentive it may not be in the best
13 interest of the utility (on behalf of their shareholders) to change from their traditional
14 pattern of building or purchasing fossil fuel resources. IEA recommends that clean
15 energy resources should be procured in greater amount because of supply and price
16 concerns and environmental cost considerations.

17 IEA recommends establishing a stakeholder group that would use a collaborative
18 process to develop incentives for consideration by the Commission. The process
19 should produce recommendations within a short time period, such as 9 months. The
20 stakeholders could include representatives from APS and its investors, the financial
21 community, renewable energy industries, consumer and clean energy advocacy
22 groups, the Residential Utility Consumer Office, small, medium and large customer
23 classes and commission staff, as well as the public.

1

2 The group should review incentives provided in other states to utilities for energy
3 efficiency and development of renewable energy resources; review policies that
4 decouple utility rates from energy sales; make specific recommendations on the type
5 and amount of incentives to be considered by the Commission; analyze the impact of
6 any proposed incentive on ratepayers; and evaluate the impact of an incentive on
7 attaining relevant renewable energy or conservation and efficiency requirements.

8 The electric utility industry is at a critical juncture. Over the past 15 years electric
9 utilities have transitioned from coal-fired generation to cleaner, more efficient natural
10 gas-fired turbines. APS is expected to increase its use of natural gas for the next
11 decade until it can return to coal as their primary generation source.

12 While coal is abundant the cost per kWh to generate power from coal have risen
13 considerably as reflected in the Western Governors' Association, Advanced Coal
14 Task Force Technology Working Group Data on the costs of coal-fired generation⁷ In
15 addition, coal is also the most polluting of fossil fuels, with numerous land-use,
16 consumptive water and pollution impacts.⁸

17 Ormond Direct Testimony, page 13 documents numerous reports that describe
18 and quantify the benefits and availability of renewable energy resources. The reports
19 substantiate significant potential to conserve energy and avoid building new
20 generation and transmission, and documents the tremendous abundance of renewable

⁷ Exhibit IEA-3, Western Governors' Association, Clean and Diversified Energy Advisory Committee, Advance Coal Task Force Technical Work Group at :
<http://www.westgov.org/wga/initiatives/cdeac/coal.htm>

⁸ See *Arizona Public Service Company v. Aztec Land and Cattle Company*, Cause No. CV2006-0339, Superior Court, Navajo County, wherein APS may incur significant additional water use costs in order to operate the coal-fired Cholla Power Plant, an issue which has not been discussed during this proceeding.

1 energy resources that can be tapped throughout the Interior West to meet Arizona's
2 load growth. IEA believes that the Commission should encourage APS to move
3 toward the next generation of electricity generation technology – renewable energy
4 and move away from fossil technology that saddles ratepayers with the costs of fuel
5 price increases, air emissions regulations, water use restrictions and possible carbon
6 regulation. Developing an incentive to help spur action by APS is in the best interest
7 of the State as well as APS' ratepayers.

8 **III. Conclusion.**

9
10 APS is expected to become more reliant over the next decade on gas-fired
11 generation and then turn to pulverized coal in the long term. This increased use of
12 fossil generation exacerbates two risks for consumers; exposure to volatile and rising
13 natural gas prices and potential cost of future air emission regulations.

14 Barriers exist to increased use of renewable energy resources which IEA believes
15 can be mitigation by the adoption of our recommendations.

16 Under the current procurement system APS earns less profit from renewables
17 than fossil generation. Utilities, as an industry, are resistant to change and are also not
18 conversant with renewable energy resources as they are with fossil generation.

19 Federal policy already provides approximately \$3 of subsidy for fossil and nuclear
20 generation compared to only \$1 for renewable energy technologies⁹, and renewable
21 energy technologies are believed to be more costly partly because of lack of

⁹ Exhibit IEA-2, Federal Financial Inventions and Subsidies in Energy Markets 1999: Primary Energy, September 1999, Department of Energy, Energy Information Administration

1 understanding of cost structure as well as lack of life-cycle cost analysis that may
2 omit future environmental costs and fail to quantify of other risks.

3 Therefore, IEA recommends that an Independent Evaluator be included in future
4 RPF processes for the procurement of renewable energy resources to ensure that a fair
5 market reference price is created and that additional costs are not assigned to specific
6 renewable energy projects.

7 IEA recommends that the Commission require APS to solicit bid for 150MW of
8 renewable energy in 2007, 2009 and 2011. Such regularly scheduled bids will provide
9 notice to the industry for project development, and use of an all-renewable source
10 RFP will create a competitive process to drive down prices. Greater procurement of
11 renewable energy resources will protect consumers from short- and long-term fuel
12 price increases as well as current and projected future emissions regulations.

13 IEA also recommends that a collaborative stakeholder process be used to evaluate
14 and develop performance-based incentives and review decoupling of rates from
15 revenues that will encourage APS to procure clean energy resources. This stimulus is
16 intended to change the current dynamic of resisting procurement or purchase of
17 renewable energy and expansion of energy efficiency efforts because these activities
18 are less profitable for the company.

19 Respectfully submitted this 22 day of January 2007.

20

21

22

23

24

Douglas V. Fant
Counsel for Interwest Energy Alliance

1 3655 W. Anthem Way
2 Suite A-109 PMB 411
3 Anthem, AZ. 85086
4 (602) 770-5098
5

6 The original and 17 copies
7 of the foregoing have been filed
8 as of January 22, 2007 with:

9
10 Docket Control
11 Arizona Corporation Commission
12 1200 W. Washington
13 Phoenix, AZ. 85007
14

15 Copies of the foregoing have
16 been mailed, faxed, or trans-
17 mitted electronically as of
18 January 22, 2007 to:

19
20 All parties of record
21

22 _____
23 Douglas V. Fant