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BEFORE THE ARIZONA CORPORATION COM.

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CHAIRMAN
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COMMISSIONER
SANDRA D. KENNEDY
COMMISSIONER
PAUL NEWMAN
COMMISSIONER
BRENDA BURNS
COMMISSIONER

Arizona Corporation Commission

DOCKETED

MAY 31 2011

DOCKETED BY *[Signature]*

IN THE MATTER OF THE APPLICATION OF
ARIZONA PUBLIC SERVICE COMPANY
FOR AUTHORIZATION FOR THE
PURCHASE OF GENERATING ASSETS
FROM SOUTHERN CALIFORNIA EDISON
AND FOR AN ACCOUNTING ORDER

Docket No. E-01345A-10-0474

AZ CORP COMMISSION
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NOTICE OF FILING

The Residential Utility Consumer Office ("RUCO") hereby provides notice of filing the Direct Testimony of Thomas H. Fish, Ph.D., and Royce Duffett, Engineer, in the above-referenced matter.

RESPECTFULLY SUBMITTED this 31st day of May, 2011

[Signature]
Daniel W. Pozefsky
Chief Counsel

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2 of May, 2011 with:

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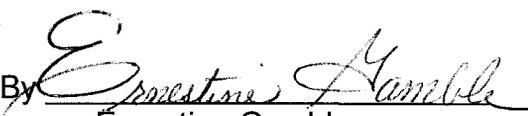
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ARIZONA PUBLIC SERVICE COMPANY

DOCKET NO. E-01345A-10-0474

**DIRECT TESTIMONY
OF
ROYCE A. DUFFETT, P.E.**

**ON BEHALF OF
THE
RESIDENTIAL UTILITY CONSUMER OFFICE**

MAY 31, 2011

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1 **INTRODUCTION**

2 **Q. Please state your name, occupation, and business address.**

3 A. My name is Royce A. Duffett. I am an Engineer with Ariadair Economics Group.
4 My business address is 1020 Fredericksburg Rd., Excelsior springs, MO 64024. I am
5 also owner of RAD Construction and Engineering, a Design/Build company, at 201 E.
6 Lexington, Richmond, MO 64085.

7

8 **Q. What does Ariadair Economics Group do?**

9 A. Ariadair Economics Group provides expert witness and consulting services in
10 administrative and judicial litigation proceedings.

11

12 **Q. Please describe your educational background.**

13 A. I hold a B.S. degree in Civil Engineering from University of Missouri –Columbia. I
14 am a registered Professional Engineer in the State of Missouri. My number is:
15 2002016645.

16

17 **Q. Please describe your professional experience.**

18 A. I was responsible for cost analysis and safety issues for utility asset relocation. I have
19 extensive experience with Design/Build construction projects including utility
20 assets/safety considerations. I have extensive experience in the adherence of

1 contracted work to the Missouri Department of Transportation: Plans, specifications,
2 special provisions and contracts. Construction and supervision of contractors to the
3 State of Missouri for roads, bridges and other transportation areas. I wrote and
4 approved change orders for contract changes and was responsible for over \$25M in
5 contracts per year.

6

7 **Q. What is the nature of your testimony in this proceeding?**

8 A. My testimony addresses engineering issues in Docket No. E-01345A-10-0474. We
9 were directed by the Residential Utility Consumer Office to Review the Application
10 of Arizona Public Service Co. (APS) in this proceeding and conduct an analysis of the
11 proposal, associated costs and prudence of APS' request for authorization to purchase
12 the generating assets of Units 4 and 5 of the Four-Corners generating plant owned by
13 SCE, close Four Corners plants 1, 2, and 3, and obtain an accounting order from an
14 engineering and cost perspective. My analysis of the engineering issues is geared to
15 evaluating the impact they may have upon implementation of the alternatives
16 considered by APS. My colleague, Dr. Thomas Fish, is presenting testimony
17 addressing the issues from a cost and economics perspective.

18

19 **APS APPLICATION**

20 **Q. Please provide a summary of the APS application.**

1 A. On November 22, 2010 APS filed an application for Commission authorization for
2 the purchase of Four Corners generating assets from Southern California Edison and
3 an accounting Order. The requested authorization was for the purchase of the
4 proportion of generating assets of the Four Corners plant units number 4 and 5 that
5 are currently owned by SCE. Coincidentally with the acquisition of units 4 and 5
6 APS wishes to close units 1, 2, and 3. Finally, because of anticipated capital costs and
7 expenses associated with the purchase, the Company is requesting an accounting
8 order.

9

10 **Q. What were the sources you reviewed?**

11 A. APS' Application and associated testimonies, the Sales and Purchase Agreement, the
12 letter from the Navajo Nation to the EPA, the proposed lease extension agreement, the
13 modelling they used to evaluate alternatives they consider, and their responses to our
14 and other data requests. These sources of information provided the basis of my
15 review of engineering considerations of the alternatives considered by APS with
16 respect to the future of the Four Corners plant. In addition, they provided an
17 understanding of the operations of Four Corners, the possible impacts of EPA
18 determinations, the consequences of losing part or all of the Four Corners base load
19 capabilities, as well as the importance of Four Corners to the overall operations of
20 APS in Arizona.

21

22 **Q. What were the alternatives you evaluated?**

1 A. APS proposed three alternatives for detailed consideration with respect to the Four
2 Corners plant. They are: First, Purchase SCE's 48% ownership interest in units 4 and
3 5 and, at the time of the transaction, retire units 1, 2 and 3; second, retire units 4, and
4 5 and continue to operate units 1, 2, and 3; and, third, replace the power lost from the
5 closure of Four Corners with combined cycle natural gas-fired unit located in the Palo
6 Verde area.

7

8 **Q. Did you identify any significant engineering difficulties associated with**
9 **implementation of the first alternative?**

10 A. No. With this alternative there would be no change in the operation of units 4 and 5.
11 Retiring units 1, 2, and 3 would not adversely impact the operations of the Four
12 Corners Plant. It would, however, have a capacity of 1540 MW rather than the current
13 2100 MW. APS, however, would enjoy a net gain of base unit generating capacity of
14 179MW.

15

16 **Q. Did you identify any significant engineering difficulties associated with the**
17 **implementation of the second alternative?**

18 A. No. As with the first alternative, there would be no significant change in the
19 operation of the plant. However, in this alternative, units 4 and 5 would be retired and
20 units 1, 2 and 3 would continue operations. Capacity would drop by 1540 MW to a
21 total of 560MW. APS would experience a net MW loss of 231MW.

22

1 **Q. Did you identify any significant engineering difficulties associated with**
2 **implementation of the third alternative?**

3 A. No. In response to Staff data request 4.1, APS provided a breakdown of the
4 components and capital costs for a 588MW combined cycle unit and the associated
5 incremental transmission costs. This alternative is assumed to be located in the Palo
6 Verde area and APS assumed generic combined cycle unit. I identified no unusual
7 engineering issues associated with the implementation of this alternative.

8

9 **Q. Would you summarize your conclusions with respect to engineering issues**
10 **associated with implementation of the three alternatives considered by APS?**

11 A. Yes. In my opinion, in its analysis of the three alternatives, APS used reasonable
12 engineering assumptions. From an operations viewpoint, the first two alternatives
13 considered by APS simply continue current operations of the plant but with different
14 units operational and retired for the two alternatives: Operate units 4 and 5, close
15 units 1, 2 and 3 for the first alternative and Operate units 1, 2 and 3, close units 4 and
16 5 for the second alternative. For the third alternative, however, a new combined cycle
17 plant, and associated transmission facilities, is assumed to be constructed and all five
18 of the Four Corners units are closed. In this alternative, APS used a generic a generic
19 plant as the basis for its comparative analysis.

20

1 **Q. Would you expect the precise combined cycle natural gas plant capital costs to**
2 **have resulted in a different recommendation, or be significantly different from**
3 **of the generic cc unit cost?**

4 **A. No.**

5

6 **Q. Does that conclude your testimony?**

7 **A. yes.**

8

9

10

Royce Duffett, P.E. Resume

rduffett@ariadairconomics.com

EDUCATION

1991-1994 B.S., Civil Engineering, University of Missouri

Special Courses: Numerous special courses dealing with safety, project management and planning, construction contract administration, and related issues.

REGISTRATIONS: Registered Professional Engineer in Missouri, No. 2002016645

POSITIONS

1994 – 2000 Construction Inspector Missouri Department of Transportation
– Kansas City, MO.

2000 – 2005 Resident Engineer, Missouri Department of Transportation.

2005 – present RAD Construction & Engineering, Owner.

2009 – present Ariadair Economics Group, Engineer.

EXPERIENCE

Summary Responsible for cost analysis and safety issues for utility asset relocation. Design/Build construction projects including utility assets/safety considerations. Extensive experience in the adherence of contracted work to the Missouri Department of Transportation: Plans, specifications, special provisions and contracts. Construction and supervision of contractors to the State of Missouri for roads, bridges and other transportation areas. Wrote and approved change orders for contract changes. Responsible for over \$25M in contracts per year. Operates the only design/build company in Missouri.

ARIZONA PUBLIC SERVICE COMPANY

DOCKET NO. E-01345A-10-0474

**DIRECT TESTIMONY
OF
THOMAS H. FISH, Ph.D.**

**ON BEHALF OF
THE
RESIDENTIAL UTILITY CONSUMER OFFICE**

MAY 31, 2011

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SUMMARY

1
2

3 Arizona Public Service Co. (APS) has requested authorization to purchase the 48%
4 ownership interest of Southern California Edison (SCE) in units 4 and 5 of the Four Corners
5 Generating Plant. Concurrent with its purchase of SCE's ownership interest APS requests
6 permission to retire Four Corners units 1, 2, and 3 of which APS is the 100% owner, at the
7 time of the purchase which APS proposes to occur on October 1, 2012. In addition, APS is
8 requesting an accounting order to allow it to defer costs associated with the transaction and to
9 provide assurance that APS will be permitted to fully recover its investment in and carrying
10 costs of units 1 – 3, and any additional costs incurred in connection with closure of these
11 units.

12 APS' Application states that the purchase price of SCE's ownership interest in units 4 and 5
13 decreases every month the transaction is delayed after October 1, 2012. Furthermore, it is
14 RUCO's understanding that SCE is not required to remove itself from Four Corners until the
15 termination of the lease in 2016. RUCO further understands that APS will not be required to
16 make EPA-required upgrades for some period of time.

17 I recommend that: (1) The Commission authorize APS to acquire SCE's ownership of units 4
18 and 5 under the terms requested except that the transaction would not occur until the earlier
19 of July 1, 2016 or when EPA mandated capital investment to address nitrogen oxide emission
20 for each of the plant's five units and/or additional particulate emissions controls on units 1 –
21 3 (estimated to be \$660M) is required; (2) The Commission should not approve the
22 Company's request for an accounting order; (3) if the Commission decides to authorize an
23 accounting order, then the conditions identified in the testimony should also be adopted; (4)
24 that APS not be permitted to earn a return on any deferred costs authorized by the
25 Commission; and, (5) the deferred accounts be terminated within 36 months of the
26 transaction or when rates from a general rate case are implemented subsequent to completion
27 of the transaction, whichever occurs first. This recommendation provides regulatory
28 certainty regarding the existence and operation of Four Corners along with certainty of
29 meeting APS' future base load requirements. It also provides rate payers the benefit of a
30 lower purchase price.

1

2 **INTRODUCTION**

3 **Q. Please state your name, occupation, and business address.**

4 A. My name is Thomas H. Fish. I am President of Ariadair Economics Group. My
5 business address is 1020 Fredericksburg Rd., Excelsior Springs, MO 64024.

6

7 **Q. What does Ariadair Economics Group do?**

8 A. Ariadair Economics Group provides expert witness and consulting services in
9 administrative and judicial litigation proceedings.

10

11 **Q. Please describe your educational background.**

12 A. I hold a B.A. degree in Economics from University of Missouri at Kansas City, a
13 M.A. degree in Economics from Central Missouri State University, and a Ph.D.
14 degree in Economics, with minor areas of study in Finance and Marketing, from
15 University of Arkansas. My resume is attached to my testimony.

16

17 **Q. Please describe your professional experience.**

18 A. I have provided expert witness and consulting services in Economics, Finance, Utility
19 Regulation, Industrial Organization, and related areas in administrative and judicial
20 litigation proceedings for over thirty years. I have also taught graduate and

1 undergraduate college classes in Economics, Finance, Quantitative Methods,
2 Financial Accounting, Managerial Accounting, Cost Accounting, Management and
3 related classes.

4

5 **Q. Please provide a summary of the APS application.**

6 A. On November 22, 2010 APS filed an application for Commission authorization for
7 the purchase of Four Corners generating assets from SCE and an accounting order.
8 The requested authorization was for the purchase of the proportion of generating
9 assets of the Four Corners plant units number 4 and 5 that are currently owned by
10 SCE. Coincidentally with the acquisition of units 4 and 5 APS wishes to close units
11 1, 2, and 3. Finally, because of anticipated capital costs and expenses associated with
12 the purchase, the Company is requesting an accounting order.

13

14 **Q. What is the nature of your testimony in this proceeding?**

15 A. My testimony describes and presents evaluations, observations and recommendations
16 regarding the issues in Docket No. E-01345A-10-0474. My analysis is geared
17 towards determining whether APS' request is in the ratepayer's best interest.
18 Coincidental with this, I have been directed to make a recommendation regarding
19 APS' request for an accounting order to defer related expenses. My colleague, Mr
20 Royce Duffett, is presenting testimony addressing engineering issues associated with
21 the Application.

22

1 **Q. What were the major components of your evaluation?**

2 A. I have reviewed, analyzed and evaluated the Company's application, its work papers
3 in support of its proposed acquisition of SCE's ownership interest in units 4 and 5 of
4 the Four Corners Plant, proposed closure of units 1, 2, and 3, and request for an
5 accounting order, and its responses to data requests submitted by RUCO and other
6 participants in the proceeding.

7
8 **Q. Where is the Four-Corners plant located?**

9 A. Four Corners is located on the Navajo Nation in Fruitland, New Mexico, about 25
10 miles west of Farmington. The plant consists of five generating units. Units 1, 2, and
11 3 are wholly-owned by APS and went online in 1963-1964. Units 4 and 5 are co-
12 owned by APS, SCE and four other utilities, and went on line in 1969-1970. The five
13 units generate 2,100 MW of baseload energy.

14
15 **Q. Where are the customers of the Four Corners plant located?**

16 A. The plants serve customers in Arizona, California, New Mexico, and Texas. Units 1-
17 3 are the smallest of the five units and have a combined output of 560 MW. Units 4
18 and 5 each provide 770 MW of electricity. SCE owns 48% of units 4 and 5, for a
19 total of 739 MW and APS owns 15% for a total of 231 MW. The other owners of
20 units 4 and 5 are Public Service Company of New Mexico (14%), Salt River Project
21 (SRP) (10%), El Paso Electric Company (7%) and Tucson Electric Power (7%). APS
22 operates the plants on behalf of all participants. APS current total ownership interest

1 in Four Corners provides 791 MW. If the Commission approves APS' request to shut
2 down units 1, 2, and 3 and acquire SCE's interest in units 4 and 5, APS' new
3 ownership interest in Four Corners would provide 970 MW. By approving this
4 Application, APS will acquire a net increase of 179 MW of baseload energy.

5

6 **Q. Are the plants coal fired?**

7 A. Yes. Four Corners takes advantage of the large deposits of coal in the Four Corners
8 region. The Navajo mine, which supplies coal for the units, is located adjacent to the
9 plant and is owned and operated by BHP Billiton and supplies all of the plant's fuel.
10 The Four Corners Complex and the Navajo mine provide major economic benefits to
11 the Navajo Nation and its people.

12

13 **Q. Why did SCE decide to cease its participation in the operations of the Four**
14 **Corners generating Plant?**

15 A. It is my understanding that as a result of the introduction of rules established by the
16 California Public Utilities Commission to implement a state greenhouse gas law,
17 California utilities, including SCE, are prohibited from making life extending capital
18 expenditures at baseload power plants that do not meet certain greenhouse gas
19 emissions standards, including Four Corners. Earlier in 2010 SCE stated that it would
20 no longer make "life extending" capital investments in the plant and would divest or
21 otherwise terminate its 48% ownership share by 2016.

22

1 **Q. What happens if no one takes over SCE's ownership share of units 4 and 5?**

2 A. If no one takes over SCE's 48% share, the co-owners of units 4 and 5 may elect to
3 close those units, rather than assume the risk of a multimillion dollar EPA-mandated
4 expenditure for which there may be no subsequent recovery.

5 **ALTERNATIVES CONSIDERED**

6 **Q. What were the alternatives considered by APS?**

7 A. SCE was directed by the California PUC to discontinue its involvement with units 4
8 and 5 of Four Corners no later than 2016. Therefore, unless a replacement owner
9 could be found, units 4 and 5 would have to be closed. So, the decision was to either
10 find a new owner or close units 4 and 5. Because of its ownership interest in Four
11 Corners, plus the fact that it operates Four Corners, and other complicating factors,
12 APS became the primary candidate for ownership of SCE's interest in units 4 and 5.

13

14 **Q. Do you believe that if APS does not acquire SCE's interest in units 4 and 5 that the**
15 **entire Four Corners facility will have to shut down?**

16 A. Yes. Without another party to take over the 48% ownership interest of units 4 and
17 5, it is no longer economically feasible to operate Four Corners. Even units 1, 2 and 3
18 would have to shut down.

19

1 **Q. What are the complicating factors associated with SCE's withdrawal from its**
2 **ownership interest of units 4 and 5?**

3 A. APS has several significant factors to consider when determining whether to acquire
4 SCE's stake in Four Corners or to search for replacement energy. These factors
5 include: (1) Large capital expenditure requirements to satisfy expected EPA
6 requirements and to extend the life of all five Four Corners units; (2) large capital
7 expenditure requirements to replace units 4 and 5, plus time delays in constructing
8 suitable base load replacement; (3) the negative impact on the Navajo Nation of
9 closing the units, the requirement to extend or renew the land and coal lease with
10 the Navajo Nation, loss of jobs for the Navajo Nation; and, (4) the environmental
11 impacts of Four Corners.

12

13 **Q. What are the alternatives available to replace lost Four Corners Generation?**

14 A. Four Corners is a base load plant. That means its job is to run 24 hours a day seven
15 days a week to meet minimum system demand. Potential replacement alternatives
16 for any lost Four Corners generation include coal and nuclear which are large
17 baseload resources, geothermal and biomass/biogas, natural gas, solar and wind
18 generation. Solar and wind generation are unsuited to serve as base load
19 replacements that must run 24 hours a day seven days a week. Several of these
20 technologies, especially solar and wind generation, are being implemented by APS,
21 but not as baseload. Solar, does not generate at night and wind power requires

1 wind. The lead time, technical difficulties, and cost make the nuclear option a long
2 shot at best. Building a new coal fired baseload unit is extremely difficult to get
3 approved and very expensive.

4 Therefore, the Company analysed the alternatives of: (1) Purchasing SCE's
5 ownership interest in units 4 and 5 and decommissioning units 1, 2, and 3; (2)
6 continue to operate units 1, 2, and 3 including the cost of proposed
7 environmental regulations affecting those units; and, (3) replace any power lost
8 from Four Corners with newly constructed APS owned combined-cycle gas
9 generation located in the Palo Verde area.

10

11 **Q. Did the Company consider replacing the coal-fired Four Corners power with power**
12 **generated solely from renewable sources?**

13 A. Yes. However, RUCO finds that this is not a viable alternative. As stated above, wind
14 and solar are intermittent fuel sources. And crucial to this analysis and evaluation is
15 the fact that Four Corners energy serves APS' baseload obligation. In order to
16 provide reliable and continuous service to Arizona residents and business, any
17 renewable energy that serves baseload requirement must be backed up by another
18 fuel – such as natural gas, on an on-going and regular basis. In essence, APS would
19 have to be allowed recovery of 791 MW of replacement generation from wind
20 and/or solar as well as sufficient back-up generation from natural gas – either
21 through a newly constructed plant or from energy purchased on the wholesale

1 market. That is, the Company would be required to either construct the generating
2 capacity twice, once for the renewables and again for the back-up natural gas fired
3 unit or construct the renewables facilities and commit to the necessary back up via a
4 purchase power arrangement.

5

6 **Q. Would the alternative of using renewables as base load generation plant backed**
7 **up by merchant power purchases be a reasonable alternative?**

8 A. No. Although RUCO strongly supports the expansion of renewable resources in
9 APS's fuel mix RUCO does not support the use of renewables as a base load source of
10 energy. One of the main reasons to support the expansion of renewable energy is
11 the reduction of carbon emissions and other pollutants into Arizona's air. In an
12 unexpected way, this Application addresses this important consideration. By closing
13 units 1 – 3 and acquiring additional ownership in units 4 and 5, the amount of
14 mercury, carbon and other pollutants from Four Corners are reduced. Yet, at the
15 same time, Arizona residents have secured a reliable energy source.

16 Further, considering the facts of this case, RUCO is not comfortable with an
17 option that requires a sizeable amount of energy acquired from the wholesale
18 market to serve as a backup contingency for renewable energy. Even if the
19 merchant energy were available under a tolling agreement, the amount of energy
20 that would have to be acquired would be the total lost from the closure of Four
21 Mountains because of the inability of renewables to serve the base load requirement

1 of providing energy 24 hours a day 7 days a week. Finally, there may be
2 transmission constraints on energy availability from renewables, as there are on the
3 combined cycle alternative. Arizona ratepayers have fallen victim in the past to
4 natural gas hikes and this could occur with the renewables alternative using either
5 merchant purchased power or a newly constructed APS-owned plant. Ratepayers
6 should not be held captive to the whims of the wholesale market for such a large
7 stake of their baseload energy needs.

8

9 **Q. Are there any other alternatives that the Company could consider?**

10 A. APS could possibly replace Four Corners power with purchased power on the
11 merchant market from plants around Palo Verde, if it were available. This option,
12 however, does not appear to be viable. The Company could not find adequate
13 available long term supplies of merchant power to replace the Four Corners power.

14

15 **Q. Please summarize the results of the Company's analysis.**

16 A. The most economical alternative, according to the Company, is to purchase SCE's
17 ownership interest in units 4 and 5 and make the necessary environmental upgrades
18 to those units. This alternative is also optimal with respect to life cycle levelized
19 costs, customer benefits, and diversity of energy mix for APS¹. The capital cost for
20 alternative 1 is \$533.6M, or \$722,100 per MW, for alternative 2 is \$486.4M, or

¹ From APS Application and work papers.

1 \$1,047,100 per MW; and, for alternative 3 is \$865,7M, \$1,472,300 per MW. The
2 total MW per alternative varies.

3

4 **Q. What are the benefits identified by the Company as being associated with its**
5 **requested transaction?**

6 A. After analyzing several alternatives, APS determined that the best solution was to
7 retire units 1, 2, and 3 (560 MW of less efficient generation that is wholly-owned by
8 APS) and acquire SCE's share of units 4 and 5. This approach, in the determination
9 of APS, was the best alternative because:

- 10 • It saves APS customers money, providing them a nearly \$500 million net present
11 value benefit. APS estimated that the cost of purchasing SCE's share of and
12 installing the EPA-proposed environmental upgrades on units 4 and 5 is half what
13 it would cost APS to replace its Four Corners output with natural gas generation
14 and build the transmission needed to bring that power to customers.
- 15 • It has a lower customer bill impact than that of every likely alternative.
- 16 • It saves hundreds of jobs and millions of dollars of revenue that are critical to the
17 Navaho Nation and the local economy.
- 18 • Since units 4 and 5 will not be retired until 2038, it provides APS with more
19 options for construction of suitable base load generating plant.
- 20 • It significantly reduces Four Corners' carbon dioxide and other pollutant
21 emissions by retiring three less efficient coal units and installing environmental
22 upgrades on more efficient ones.
- 23 • It preserves the diversity of APS' current generation portfolio while tempering the

1 Company's exposure to volatile natural gas prices.

2 • It maintains APS' mix of reliable baseload energy. By providing a marginal 179
3 MW baseload capacity increase, it hedges the Company's energy mix against the
4 possibility that output from other coal units also at risk could be retired and helps
5 further defer the need for future baseload resources.

6

7 **Q. Does RUCO agree that the reasons stated above make approval of APS'**
8 **Application, subject to the conditions listed in this testimony in the public**
9 **interest?**

10

11 A. Yes. RUCO finds that for the reasons listed above, APS' acquisition of SCE's interest
12 in units 4 and 5 and the corresponding closure of units 1 – 3 are in the public
13 interest.

14

15 **Q. Could you provide a summary of the EPA issues facing the owners of the Four**
16 **Corners plant?**

17 A. Yes. The EPA issues identified by APS are:

18 • Clean Air Act Regional Haze rules.

19 • Coal Combustion by-products Regulation.

20 • Strict Emission Limitations for Mercury & Other Pollutants.

21 • New Source Review Violations.

22 • Federal Carbon Legislation

1

2 **Q. Did the Company provide an estimate of the capital costs associated with**
3 **compliance with EPA requirements?**

4 A. Yes. Compliance costs for the capital investment required for Selective Catalytic
5 Reduction (SCR) for NOx for all units and particulate emission controls for units 1, 2
6 and 3 are:

7 For the current ownership structure:
8 Units 1, 2 and 3, APS owns 100%: \$586M
9 Units 4, and 5, APS owns 15%: \$75M
10 Total: \$661M

11

12 For the proposed ownership structure:
13 Units 1, 2 and 3, APS shuts down \$0
14 Units 4 and 5, APS owns 15%: \$75M
15 Units 4 and 5, APS owns 48%: \$240M
16 Total: \$315M

17

18 **Q. Two of the three alternatives APS considered in its analysis were alternate**
19 **configurations of ownership and operation of the Four Corners units and the third**
20 **alternative considered gas-fired combined cycle generation plants. Did APS**
21 **consider building a new coal fired unit as an alternative?**

22 A. No. That alternative was not in the Application.

1

2 **Q. In your opinion, should they have considered that alternative?**

3 A. Not in any detail. The uncertainty and expense of constructing a new coal fired unit
4 would be extremely high. First, assuming APS could obtain permission to build the
5 plant, the capital cost is extremely high (for example, the recently completed
6 850MW latan 2 coal fired unit built by KCP&L had a capital cost of \$1.98B); and,
7 second, the uncertainty associated with the implementation of a carbon tax makes
8 modelling that alternative virtually impossible. Either way, there is little doubt that
9 the cost would far exceed APS' recommended alternative here.

10

11 **Q. In your opinion is the Company's requested alternative the best in all possible**
12 **situations?**

13 A. Yes. In my opinion, no one could reasonably envision situations where the
14 Company's requested alternative is not best. Given the information available, it is
15 best in this situation and there is relatively little sensitivity of the model solution to
16 changes in parameters. That is, the capital cost of combined cycle natural gas units
17 would have to decline significantly, the price paid for SCE's ownership interest
18 would have to increase substantially, a high carbon tax would have to be
19 implemented, or some combination of these events for the model solution to
20 change. For example, even terminating the 1,000 employees at the Four Corners
21 plant (which would cause serious economic harm to the Navajo Nation), and

1 replacing them with the 6 – 9 employees at a combined cycle natural gas plant in the
2 Palo Verde area, would not change the model outcome because the reduction in
3 labour cost is outweighed by the increase in capital and running costs of the
4 combined cycle natural gas plant.

5

6 **Q. Are there any other circumstances that could change the alternative selected?**

7 A. Yes, the EPA could require such huge capital investment, or mandate such a high
8 carbon tax, that the cost of compliance could force any carbon based generation to
9 be more costly than non-carbon based alternatives.

10

11 **Q. Do you believe that the Company should make its request and the Commission its
12 determination on highly extreme measures the EPA might implement?**

13 A. No. There are an almost unlimited number of requirements that could conceivably
14 be made by the EPA. To attempt to guess what they all may be would probably be
15 counterproductive. Generally, in utility regulatory proceedings a guiding principle is
16 that factors considered should be known and measurable to the extent possible. In
17 this situation many factors affecting the situation are not known and measurable.
18 Some, however, are more known and measureable than others. I would recommend
19 that the Commission consider those events, while not known with certainty are
20 reasonably known and measurable and are likely to occur, such as capital investment

1 to remove mercury from coal fired plants, rather than those factors that are
2 unlikely to occur in the near future, such as a \$500/ton carbon tax.

3

4 **Q. Did the Company consider, as one of its alternatives, utilization of combined cycle**
5 **merchant plants around Phoenix as an alternative in its analysis?**

6 A. The Company stated that it had tolling agreements with several of the plants and
7 that there was not enough capacity available to make up for the loss of base load
8 energy from the Four Corners plant. Since the capacity is not available, that
9 alternative was not considered as an alternative, although a newly constructed
10 combined cycle base unit was.

11

12 **Q. Did the Company act on its analysis of the alternatives available to it?**

13 A. Yes. The Company entered into a purchase and sales agreement with SCE for the
14 acquisition of SCE's interest in Four Corners units 4 and 5 and integrated that
15 purchase agreement with its determination to decommission Four Corners units 1, 2,
16 and 3.

17

18 **Q. Would you provide an overview of the purchase cost?**

19 A. Yes. In the Application APS identifies a purchase price of \$294M on October 1, 2012.
20 Mr. Schiavoni, at page 6 of his testimony, states that: "After months of negotiation,

1 SCE has agreed to sell its 48% ownership interest in units 4 and 5 – currently
2 providing 739 MW of cost effective base load energy – for \$294M and assume
3 certain decommissioning and reclamations costs, on the anticipated 10/1/2012
4 transaction date. This price increases or decreases by \$7.5M per month for each
5 month that the closing date is accelerated or delayed respectively. Also, the sales
6 purchase agreement at Section 2.7 addresses capacity rights which requires an SCE
7 payment of \$3M per month to APS under certain conditions (Section 3.2.(d)).

8

9 **Q. In your opinion is the sales and purchase contract price and terms reflective of the**
10 **market value of SCE’s interest in Four Corners units 4 and 5 under the current**
11 **conditions?**

12 A. Yes.

13

14 **Q. From an economic perspective how is the fair market value of an asset**
15 **determined?**

16 A. From an economic perspective there is no such thing as “fair” market value for a
17 capital asset or any other type of good or service. The market value of a capital asset
18 can be determined by arm’s length negotiations between a self-interested willing
19 and knowledgeable buyer and a self-interested willing and knowledgeable seller.

20

1 **Q. Is it your understanding that the terms of the purchase, including price, were**
2 **determined by arm's length negotiations between a self-interested willing and**
3 **knowledgeable buyer (APS) and a self-interested willing and knowledgeable seller**
4 **(SCE)?**

5 A. Yes. In its response to STF 2.10 (c-e) APS stated: "These factors (economic, political,
6 and environmental referred to in the data request) were considered by both parties,
7 each having their own positions and underlying assumptions. Through negotiations
8 the parties ultimately agreed to the \$294 million purchase price."

9

10 **Q. From an economic perspective could the negotiated price and terms of the**
11 **transaction be considered to be like a loss of use fee?**

12 A. Yes. The \$7.5M reduction in price per month from October 1, 2012 on could
13 reasonably be considered to be the use value of SCE's ownership interest in units 4
14 and 5 through July 1, 2016. Therefore, the \$294M purchase price at October 1, 2012
15 can also be considered a point estimate by the parties of the replacement cost of the
16 energy lost to SCE after the transaction that date until July, 1, 2016.

17

18 **Q. In your opinion would it be better for the transaction to close on October 1, 2012**
19 **or at a later date?**

1 A. In my opinion absent the uncertainties inherent in the transaction such as the timing
2 of EPA decisions, possible carbon tax, the expiration of the lease with the Navajo
3 Nation, and so on, it would be much better to defer the transaction until closer to
4 the time that the EPA mandated capital investments are required.

5

6 **Q. Why?**

7 A. First, because delaying the close of the transaction would mitigate the size of the
8 corresponding rate increase without any regulatory “harm” to the utilities. Second,
9 APS is not in extreme need at this time of the additional 179 MW of base load the
10 transaction will provide. APS would be able to continue to use its 15% ownership of
11 the output of units 4 and 5 as well as the output of units 1 – 3 to meet its base load
12 requirements. Third, SCE may not incur possible immediate incremental cost of
13 procuring replacement base load energy and APS may not incur the immediate
14 capital, and possible Operating and Maintenance (O & M) costs, of acquiring the
15 additional ownership in units 4 and 5 and the immediate closure of units 1 – 3.
16 Fourth, it is my understanding that an immediate reduction of 739 MW of low cost
17 base load generation plant from SCE’s generation portfolio could be difficult to
18 replace. A delay in closing could provide SCE with this base load for a considerable
19 period of time.

20

21 **Q. Does the proposed transaction have an impact on APS’ base load generating**

1 **capacity?**

2 A. Yes. A shutdown of units 4 and 5 would result, according to APS, in APS losing
3 231 MW of a reliable and economic baseload resource now serving APS customers.
4 Units 1 – 3 provide APS customers another 560 MW of baseload energy. Although
5 units 1 - 3 currently comply with all environmental regulations, they will require
6 significant environmental-driven capital investment over the next five years if they
7 are to remain in service. The first expected tranche, \$235 million for mercury
8 emission controls, could come as early as the end 2014; the second, a potential \$351
9 million to comply with “Best Available Retrofit Technologies” (“BART”) visibility
10 requirements, is due as early as 2016. Units 1 – 3 are cost-effective for APS
11 customers now, but, according to APS, the math changes when a total of \$586 million
12 is to be spent in five years to keep them online. In addition there is the uncertain
13 impact of potential future carbon costs. If all five units are retired, APS will lose 791
14 MW of baseload resource that currently provides 19% of the Company’s generation
15 needs. That could be expected to necessitate implementation of the third alternative,
16 the combined cycle natural gas plant in the Palo Verde area. The increase in capital
17 and running costs of this alternative, according to APS, is a doubling of the increase
18 in averaged customer bills from 4% to 8%.

19

20 **Q. Are these environmental costs only estimates?**

21 A. Yes. They are the best guess at this time.

22

1 **FOUR CORNERS ENVIRONMENT**

2 **Q. What environmental factors did APS identify as impacting the proposed**
3 **transaction?**

4 A. According to APS, there are political, economic and natural environmental forces at
5 play behind the Company's application. The five generating units at the Four Corners
6 Plant have a base load capacity of 2100 MW of which about half, 1053 MW, is
7 provided to Arizona and 791 MW is provided to APS customers. If Four Corners
8 were to stop generating energy, APS states that the resulting void would be filled in
9 the most part by new natural gas generation. Natural gas prices have historically been
10 more volatile and more expensive than coal. New transmission lines would also
11 likely be required to deliver this power to customers. Both the new generating and
12 transmission plant require significant capital investment. This, in turn, would further
13 increase capital costs. So natural gas generation carries with it both cost and
14 reliability concerns. In addition to these concerns is the potential damaging blow of
15 Four Corners closure on the Navajo Nation.

16

17 **Q. Do the owners of the Four Corners Plant lease land from the Navajo Nation?**

18 A. Yes. Four Corners is located on the Navajo reservation pursuant to a lease that
19 expires in 2016. Before installing any environmental controls that would extend the
20 life of the plant beyond then, the plant's participants must negotiate and gain Navajo
21 Council approval of reasonable lease renewal and right-of-way extension agreements
22 with the Nation. This has been approved by the Council but still needs to go through
23 a few more administrative steps. Because environmental improvements must begin
24 soon, (especially if mercury controls for units 1 – 3 are required as early as the end of

1 2014) for all practical purposes, these agreements need to be quickly approved. In
2 addition, an extension of the existing fuel agreement between APS and BHP must also
3 be negotiated.

4
5 **Q. Does APS have any alternatives with respect to the Four Corners Plant that do**
6 **not adversely affect rate payers?**

7 A. Not according to the Company. Every alternative relating to Four Corners will cause
8 customer bills to rise.

9
10 **Q Will there be additional costs associated with the additional 179 MW of base load**
11 **energy the transaction produces for APS?.**

12 A. Yes. APS, however, argues that the additional costs of the new generation will be
13 mitigated in part by the reduced operating costs resulting from decommissioning units
14 1 – 3. In addition, because units 4 and 5 are about 10% more efficient than units 1 –
15 3, they produce the same amount of energy at 10% lower fuel costs, producing a fuel
16 cost savings. The Company also argues that transaction costs will also be offset by
17 the additional fuel savings that result from the displacement of 179 MW of generation
18 that would otherwise be produced by natural gas-fueled generating units or purchased
19 from the wholesale market. The fuel savings could be significant depending on the
20 cost of natural gas at the time, and would accrue to customers quickly as they run
21 through the Company's Power Supply Adjustor.

22
23 **Q. With respect to the additional costs associated with the transaction, do you agree**
24 **with APS' analysis?**

1 A. There is no doubt that APS will incur capital costs associated with the Four Corners
2 plant if it remains in operation. Some of the O & M expenses identified by APS may
3 not occur. Depending upon the timing of the transaction, certain additional O & M
4 costs may not occur in 2012 and 2013. Also, because of the increased efficiency of
5 units 4 and 5 compared to units 1 – 3, the increased efficiency may offset increases in
6 some O & M costs. In addition, since the additional 179 MW of base load generating
7 capacity is not needed yet, the more efficient Four Corners units 4 and 5 could
8 possibly offset additional O & M costs by replacing less efficient production in
9 other base load units.

10

11 **Q. Does APS suggest that its proposed transaction could have a positive**
12 **environmental impact?**

13 A. Yes. APS proposes that its preferred alternative would result in the emission of fewer
14 environmental pollutants due to the higher efficiency of units 4 and 5, providing a
15 cleaner energy resource for customers than currently exists. They state that if the
16 application is approved and the Company accelerates the retirement of units 1 – 3, the
17 plant's capacity would be reduced from 2,100 MW to 1,540 MW and additional
18 emission controls would be installed on units 4 and 5. Consequently, the plant would
19 burn about 2.6 million fewer tons of coal each year compared to what it would if all
20 five units remained online, significantly lowering the emission of pollutants into the
21 atmosphere.

22

1 **ACCOUNTING ORDER**

2 **Q. What is an accounting order?**

3 A. An accounting order is a ratemaking mechanism that provides regulated utilities the
4 ability to defer costs that would otherwise be expensed using generally accepted
5 accounting principles.

6

7 **Q. Are there any alternatives considered by APS that do not require significant**
8 **capital investment on its part?**

9 A. No. Whatever alternative is ultimately determined by the Commission to be in the
10 best interests of all parties, it would appear that the transaction will require significant
11 capital investment by APS. According to APS, at page 19 of its Application, if the
12 proposed transaction moves forward, customer bills would increase by about 4% by
13 2017. If the plant owners shut down all units in 2016 and APS replaced the lost
14 energy with natural gas the effect on ratepayers would double as APS bills would
15 increase by about 8% using today's gas prices.

16

17 **Q. The Company is requesting an accounting order. What does APS request from**
18 **an accounting order?**

19 A. With respect to the accounting order, APS requests an accounting order that will: (1)
20 allow the Company to defer for future recovery depreciation and amortization costs,
21 operations and maintenance costs, property taxes, final coal mine reclamation, and
22 carrying charges associated with APS acquiring SCE's share of units 4 and 5; and (2)
23 provide assurance that APS will be allowed to fully recover its investment in and

1 carrying costs of units 1-3, and any additional costs (such as decommissioning and
2 mine reclamation) incurred in connection with the closure of those units.

3

4 **Q. Why would expensing costs result in the inability of APS to recover them?**

5 A. Because of regulatory lag. The Company argues that expenses related to capital
6 investments are not recovered under traditional regulatory procedure until the capital
7 asset is included in rate base and rates are implemented that allow the utility to
8 recover those costs on a going-forward basis, prior to that those expenses are
9 foregone. That is, the owners are subsidizing rate payers because the Company is not
10 provided the opportunity to recover in rates all of its legitimate cost of providing
11 service.

12

13 **Q. In your opinion is the APS estimated ratemaking cost deferral on the proposed**
14 **acquired portion of Four Corners units 4 and 5 consistent with the facts and**
15 **assumptions used in their evaluation of the alternatives?**

16 A. From APS' perspective the request may be consistent with the facts and assumptions
17 used in their analysis and evaluation of the alternatives. However, in my estimation
18 the request is an overreach. The regulatory lag argument made by the Company is
19 only part of the story. The costs that APS can be expected to incur and the benefits to
20 ratepayers as a result of the acquisition occur in every transaction where a utility
21 purchases assets. The utility benefits at the end of the life of the asset when it is
22 removed from service, but because of regulatory lag, continues to earn on the assets.

1 Effectively there is a trade-off in the traditional regulatory arena: Rate payers benefit
2 at the beginning of the life cycle of the asset and the utility benefits at the end. An
3 accounting order can skew this sharing of benefits away from the traditional joint
4 sharing to an over-recovery by the utility. APS actually has a great deal of control
5 over their ability to recover costs because they decide when to file a general rate case.

6

7 **Q. If the Commission approves an accounting order, does that guarantee that APS**
8 **will recover all its costs?**

9 A. No. The costs are only deferred. The Commission, in the Company's next rate case,
10 must still determine the prudence of the costs.

11

12 **Q. Does the Company provide arguments in support of its request for an accounting**
13 **order?**

14 A. Yes. APS provides arguments in support of its request for an accounting order
15 authorizing cost deferral and facilitating the early retirement of units 1 – 3 as follows:
16 (1) APS customers will enjoy substantial long-term cost savings if the Application is
17 approved. (2) The long-term cost advantage comes at a significant short-term cost
18 that would have to be absorbed entirely by APS, absent the accounting order
19 permitting deferral. (3) There is the \$294 million purchase price and the increased
20 operating expenses associated with the additional ownership. (4) APS will assume
21 certain of SCE's assets and liabilities, such as those associated with final plant
22 decommissioning and coal reclamation, which APS will record at fair value at the

1 time of the acquisition (The Company includes the Purchase and Sales Agreement as
2 part of its application). These new costs amount to an estimated \$70 million per year
3 (APS spreadsheet 13928). Without the ability to defer the costs, APS claims that it
4 will lose the ability to recover them.

5

6 **Q. When will the capital investment associated with anticipated EPA rulings**
7 **become necessary?**

8 A. According to Company witness Schiavoni at page 4 line 25 through page 5 line 6, if
9 the proposed rules become final, APS will have to install the equipment and incur the
10 capital costs by approximately 2016, or possibly as early as the end of 2014 for
11 mercury removal capital investment for units 1 - 3. In addition, the California PUC
12 prohibits SCE from using Four Corners energy by 2016.

13

14 **Q. If the Company is authorized to acquire the SCE ownership interest in units 4**
15 **and 5 but defers closing the deal until after 2013 can it be expected to incur**
16 **additional O & M expenses in 2013?**

17 A. Absent any significant capital investment prior to completing the transaction, and
18 APS does not identify any, there should be no significant incremental O & M
19 expenses in 2013.

20

21 **Q. If the Company is authorized to acquire the SCE ownership interest in units 4**
22 **and 5 but defers closing the deal until after 2013 will it incur additional PSA**
23 **costs in 2013?**

1 A. No. The PSA would continue operating as it has in the past until the transaction
2 occurs. However, after the transaction is completed, under the Company's PSA
3 customers could immediately benefit from the fuel savings that will result from the
4 proposed transaction. However, because of the 90/10 sharing component of the PSA,
5 the Company would have only ten percent of that savings available to help offset the
6 transaction's costs.

7

8 **Q. In your opinion is there any compelling reason for APS to close the transaction**
9 **on October 1, 2012, rather than closer to 2016?**

10 A. No. In fact, it would appear to be in APS' and SCE's best interest to complete the
11 transaction closer to 2016 than on October 1, 2012. It gives SCE access to 739 MW
12 of low cost base load energy for up to four years at no additional cost to APS.
13 There is value to SCE because the purchase and sales agreement reduces the cost of
14 the plant by \$7.5M each month after October 1, 2012 that the transaction occurs. It
15 would be in APS' best interest to complete the transaction closer to 2016 than on
16 October 1, 2012 because it allows APS to continue operations as usual without
17 incurring additional costs, provides a source of reasonable priced additional base load
18 energy (179 MW), and defers and reduces possible significant capital expenditures. If
19 mandatory mercury removal (estimated at \$235M) is mandated by the end of 2014,
20 then a closing date of 2014 would be beneficial to both parties, i.e., SCE get the use
21 of the plant until then and APS saves \$7.5M per month from October, 2012 until the
22 end of 2014.

1 And, of course, delaying the closing date delays the rate increase associated
2 with the closing. This is especially important given APS' expected rate case filings
3 over the next five years.

4
5 **Q. In your opinion, is there any compelling reason for the Commission to decide**
6 **this matter at this time?**

7 A. Yes. A decision now serves to avert significant uncertainties. These include:

- 8 1. Ability to negotiate a lease renewal of the land.
- 9 2. Ability to negotiate a new lease for fuel.
- 10 3. Stability of the Navajo Nation's economy and employment rate.
- 11 4. Stability in APS' ability to meet its future baseload requirements.
- 12 5. Stability in APS' position among investors and shareholders.

13

14 **Q. Do you agree that APS should be given an accounting order for non-depreciation**
15 **and amortization O & M costs and other miscellaneous charges as they request**
16 **in the Application?**

17 A. No. In my opinion a strong argument can be made that total non-depreciation and
18 amortization costs could be expected to decline as a result of the transaction. First,
19 APS is replacing 560 MW of relatively inefficient base load generating capacity with
20 739 MW of relatively efficient base load generating capacity. This could be expected
21 to lower the non-depreciation and amortization O & M costs, at least of the first 560
22 MW of efficient energy. Second, the additional 179 MW of base load capacity is also

1 relatively efficient capacity. Since APS does not currently require the extra 179 MW
2 of capacity to meet its base load demand, that capacity could be used to replace a like
3 amount of relatively inefficient base load capacity. The net result could be, if not a
4 net reduction in O&M costs directly related to this transaction at the Four Corners
5 plant, at least to APS' system overall.

6

7 **Q. Are you recommending that no O & M expenses be allowed in the accounting**
8 **order?**

9 A. No. In the event the Commission does authorize an accounting order for this
10 transaction, I recommend that the Commission direct the Company to demonstrate
11 that any deferred O & M expenses be demonstrated to be greater than what otherwise
12 would have occurred and that comparison be made to units 1 – 3.

13

14 **Q. In your opinion, how long should the deferred accounts requested by APS last?**

15 A. In my opinion the deferred accounts should last only so long as necessary to get them
16 placed in rate base. In my opinion that would be the shorter of the time when rates
17 are implemented as the result of a general rate case that ends after the date of the
18 transaction, or 36 months from the time of the transaction.

19

20 **Q. Is APS requesting that a return be earned on the deferred accounts?**

1 A. Yes. APS is requesting a return equal to its pre-tax embedded weighted cost of
2 capital from its last rate case, 12.21%.

3

4 **Q. Do you agree that APS should be authorized to earn a pre-tax embedded**
5 **weighted cost of capital of 12.21%?**

6 A. No. If the Commission authorizes an accounting order to accompany the transaction
7 the Company should not be authorized to earn a guaranteed return on any deferred
8 accounts. That would simply be guaranteeing the Company a return rather than
9 providing it with an opportunity to recover that return via its operating efficiency.
10 The Company has not provided any support for earning a return on those deferred
11 accounts at all. Therefore, it should not be permitted to earn a return on those
12 accounts.

13

14 **Q. In your opinion, should the Commission issue an accounting order as requested**
15 **by the Company?**

16 A. No.

17

18 **Q. If the Commission decides to grant APS' requested accounting order, should it**
19 **include conditions?**

20 A. Yes.

21

1 **Q. In your opinion, what should those conditions be?**

2 A. I would recommend that the Commission adopt conditions similar to those it
3 adopted in Decision No. 67405, the Sundance decision.

4

5 **Q. Would you summarize those?**

6 A. Yes. In that case APS requested authority to defer for future recovery all capital and
7 operating costs associated with the acquisition, with a debt return, net of any savings
8 produced by the acquisition of Sundance. APS argued that savings from the purchase
9 of the Sundance Plant (such as reduced fuel costs and reduced power cost), would
10 reduce the amount of deferrals associated with capital and operating costs each year.
11 APS also makes that argument in this case. The conditions placed on the accounting
12 order in Docket No. E-01345A-04-0407, Decision No. 67504 were:

13 “ No deferrals shall be recorded unless its PSA continues to recognize off-
14 system sales as a credit (reduction) to the recoverable balance.” (p. 26)

15 “ The deferral period shall stop if off-system sales are no longer recognized as a
16 credit.” (p. 26)

17 “ Debits to the deferred costs shall terminate no later than 36 months after the
18 completion of the transaction or on the effective date of rates authorized in any rate
19 case subsequent to the transaction.” (p. 27)

20 “ No cost of money shall be applied to any deferred amounts.” (p. 27)

21

22 “ Overhead costs shall not be deferred.” (p. 31)

23 “ Deferred direct costs shall only be debited when supported by an analysis
24 conducted by the Company demonstrating that those costs have not been otherwise
25 recovered.” (p. 31)

26 “ Projections may be used to calculate the net savings components (fuel costs,
27 purchased power and off-system sales) of deferred costs. The projections shall have

1 identical parameters, except to recognize the inclusion of the Sundance Generating
2 Station, to eliminate bias and manipulation and to facilitate accurate measurement of
3 net savings.” (p. 35)

4 “ The results of the projections shall be reported as part of the monthly filings
5 required for the PSA.” (p. 36)

6 “ APS shall participate in the net savings/costs related to fuel and purchased
7 power costs and off-system sales at the same percentage ragte as it participates in the
8 PSA.” (p. 36)

9

10 **NAVAJO NATION IMPACT**

11 **Q. Are there positive benefits to the Navajo Nation of allowing the proposed**
12 **transaction to move forward?**

13 **A.** APS argues in its application that if its proposed transaction moves forward:

14 • Jobs would be saved and no Four Corners employee would suffer a layoff as a result.

15 APS expects that all position reductions resulting from the retirement of units 1 – 3
16 would occur naturally, through retirement or otherwise. Currently the plant and
17 supplying mine employs over 1000 workers, more than 75% of them Native
18 Americans. Loss of these positions would be detrimental to the Navajo Nation which
19 already suffers from nearly 50% unemployment.

20 • The Navajo Nation and surrounding community would continue to benefit from over
21 \$100 million in yearly payroll.

22 • The Navajo Nation would continue to receive more than \$60 million annually in tax,
23 fee and royalty contributions, due to the continued operation of units 4 and 5. Loss of
24 this money would reduce its general fund by over 30% just when more people will be
25 needing assistance and less money will be available.

26

1 **Q. As part of the negotiations for an extension is APS including a Preference Plan**
2 **for Native Americans, and especially Navajos?**

3 A. Yes. This is Exhibit C in the lease extension documentation. As explained in the
4 Preference Policy Statement employment at Four Corners is non-discriminatory and
5 on qualifications except that preference will be given to qualified Native Americans
6 and, to the extent allowed by law, APS will give preference to qualified Navajos
7 rather than to other Native Americans.

8

9 **RECOMMENDATIONS**

10 Q. Would you please summarize your recommendations?

11 A. Arizona Public Service Co. (APS) has requested authorization to purchase the 48%
12 ownership interest of Southern California Edison (SCE) in units 4 and 5 of the Four
13 Corners Generating Plant. Concurrent with its purchase of SCE's ownership interest
14 APS requests permission to retire Four Corners units 1, 2, and 3 of which APS is the
15 100% owner, at the time of the purchase which APS proposes to occur on October 1,
16 2012. In addition, APS is requesting an accounting order to allow it to defer costs
17 associated with the transaction and to provide assurance that APS will be permitted to
18 fully recover its investment in and carrying costs of units 1 – 3, and any additional
19 costs incurred in connection with closure of these units.

20 APS' Application states that the purchase price of SCE's ownership interest in
21 units 4 and 5 decreases every month the transaction is delayed after October 1, 2012.
22 Furthermore, it is RUCO's understanding that SCE is not required to remove itself

1 from Four Corners until the termination of the lease in 2016. RUCO further
2 understands that APS will not be required to make EPA-required upgrades for some
3 period of time.

4 I recommend that: (1) The Commission authorize APS to acquire SCE's
5 ownership of units 4 and 5 under the terms requested except that the transaction
6 would not occur until the earlier of July 1, 2016 or when EPA mandated capital
7 investment to address nitrogen oxide emission for each of the plant's five units and/or
8 additional particulate emissions controls on units 1 – 3 (estimated to be \$660M) is
9 required; (2) The Commission should not approve the Company's request for an
10 accounting order; (3) if the Commission decides to authorize an accounting order,
11 then the conditions identified in the testimony should also be adopted; (4) that APS
12 not be permitted to earn a return on any deferred costs authorized by the Commission;
13 and, (5) the deferred accounts be terminated within 36 months of the transaction or
14 when rates from a general rate case are implemented subsequent to completion of the
15 transaction, whichever occurs first. This recommendation provides regulatory
16 certainty regarding the existence and operation of Four Corners along with certainty
17 of meeting APS' future base load requirements. It also provides rate payers the
18 benefit of a lower purchase price.

19

20 **Q. In your opinion, do your recommendations reduce the benefits identified by the**
21 **Company?**

22 **A. No. The benefits are amplified by my recommendations.**

1

2 **Q. Does that conclude your testimony?**

3 **A. Yes.**

4

5

Direct Testimony of Thomas Fish, Ph.D.
On Behalf of the Residential Utility Consumer Office
APS Docket No. E-01345A-10-0474

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Curriculum Vita

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EDUCATION

University of Arkansas Ph.D., Major: Economics. Minors: Marketing/Management, Finance, and Quantitative Methods.

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EXPERIENCE

Administrative proceedings – participated in over 80 proceedings involving economics, statistics, accounting, finance, market structure and industrial organization issues in telecommunications, electric, and oil and natural gas distribution industries.

Managerial experience – Over 20 years experience in managing private businesses. Experience in personnel, economics, market research, finance, accounting, and operations management. Managed technical departments in several firms and was group manager in many major projects.

Judicial proceedings – participated in over 70 proceedings involving antitrust, contract damages, insurance defense, economic loss, market structure and performance, and other related economics/statistics/finance issues.

Other engagements – participated in over 75 private industry and governmental engagements involving economics, market structure, statistics, finance, and operational issues.

Teaching Experience –Through July, 2003 Professor of Business and Economics at William Jewell College. Duties included teaching classes in Economics, Finance, Quantitative Methods, and Management.

Taught classes at Webster University, Avila College, and Longview Metropolitan College on an adjunct basis between 1984 and 1997. Taught graduate and undergraduate

classes in the areas of Management, Marketing, Financial Accounting, Finance, Statistics, Quantitative Methods, and Economics.

Experience

- 1981-1986 Regulatory Consulting and Expert Witness Services. Ariadair Economics Group. Concentration on Regulatory Consulting and Expert Witness Services for Regulatory Commissions and Consumer Advocates.
- 1986-1987 Directory, Economics Department, LMSL Consultants, Overland Park, Kansas. Concentration on Regulatory Consulting and Expert Witness Services for Regulatory Commissions and Consumer Advocates.
- 1987-Present Judicial and administrative litigation consultant and expert witness, Ariadair Economics Group. Regulatory consulting and the regulatory experience led to a large number of utility antitrust and related litigation engagements in addition to regulatory Commission and Consumer Advocate regulatory engagements. During the period 1981 -2000 taught on an adjunct basis at local colleges including Avila University and Webster University. During the period 1981-1999 had Consumer Advocate clients in Arizona, Nevada, Illinois, Ohio, Pennsylvania and Maine. Also during this period had Commission clients in Nebraska, Oklahoma, Tennessee, Pennsylvania, Missouri, and South Dakota,
- 2001-2006 Professor of Business and Economics at William Jewell College, Liberty, Mo. During this period also had several judicial litigation engagements involving asset valuation and economic loss..

PUBLICATIONS

"An Analysis of Valuation of Community Bank Stocks." Quarterly Community Bank Journal, April, 1983.

"An Analysis of Trends in Prices of Community Bank Control Sales." Quarterly Community Bank Journal, July, 1983.

"An Analysis of Publicly Traded Multi-Bank Holding Company Market Performance After Acquisition of Community Banks." Quarterly Community Bank Journal, October, 1983.

"Derivation of a Valuation Index for Community Bank Control Sales." Quarterly Community Bank Journal, January, 1984.

RESEARCH

Professional Presentation

"An Econometric Model of Missouri." Presented at the Missouri Valley Economic Association, 1974.

Consulting Research

Economic Impact of Various Utility Rate Structures on State and Regional Economies.

Demographic Analysis of Economic Regions.

Determination of Market Characteristics and Parameters for Jet Aircraft Manufacturing Firms.

Determination of Optimal Refinancing and Capital Structuring and Corresponding Cost of Capital and Return for Acquisitions and Mergers.

An Econometric Analysis of NECPA Pricing Policies.

An Econometric Analysis of the Effect of the Proposed 15% Severance Tax (Senate Bill #892) on the Economy of the State of Kansas.

Curtailment of Demand Econometric Model for Cincinnati Bell Telephone Company's Service Area.

Development of Control Procedures for Large Construction Projects.

Development of Automatic Bill of Materials Systems of Manufacturing Processes.

Development of Planning and Forecasting Models.

Utilization of Economic Analysis in Business Decision-Making Situations (Seminar).

A Long-Term Forecast of Relative Costs of Alternative Energy Sources.

Analysis of the Validity of Sampling Procedures for Determination of the Growth Component of the DCF Model.

Analysis of the Relative Risk of Customer Classes of Electric Companies.

Development of EDP Models for Determining Optimal Price, Financing Strategy, and Expected Return for Corporate Acquisitions and Mergers.

Analysis of Asset Valuation in Bankruptcy Cases.

Direct Testimony of Thomas Fish, Ph.D.
On Behalf of the Residential Utility Consumer Office
APS Docket No. E-01345A-10-0474

Preparation of Bank Charter Applications and Supporting Economic/Demographic Analyses.

COLLEGES COURSE TAUGHT

Management

Bank Management
Financial Management
Global Issues in Business
Human Resource Management
International Business Management
Introduction to Business
Introduction to Management
Marketing Research
Organization and Management
Organizational Behavior
Small Business Management
Strategic Management
Telecommunications Management

Finance

Financial Management
Intermediate Finance
International Finance
Portfolio Selection
Principles of Finance
Readings in Finance
Seminar in Finance I
Seminar in Finance II

Quantitative Methods

Business Math
Econometrics I
Econometrics II
Quantitative Analysis I
Quantitative Analysis II
Statistics I
Statistics II

Computer Information Systems/Information Technology

Computer Applications in Business
IT Systems Analysis and Design
Systems Analysis and Design I

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APS Docket No. E-01345A-10-0474

Systems Analysis and Design II

Economics

Advanced Microeconomics
Business Cycles and Forecasting
Current Issues in Economics
Econometrics I
Econometrics II
Fiscal Policy
Industrial Organization
Intermediate Macroeconomics
Intermediate Microeconomics
International Economics
Macroeconomics
Managerial Economics
Microeconomics
Money and Banking
Principles of Econ I
Principles of Econ II
Readings in Economics

Financial Accounting

Cost Accounting
Federal Income Tax
Financial Accounting I
Financial Accounting II
Intermediate Financial Accounting
Managerial Accounting