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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

JEFF HATCH-MILLER, Chairman

WILLIAM A. MUNDELL

MIKE GLEASON

KRISTIN K. MAYES

BARRY WONG

IN THE MATTER OF THE APPLICATION
OF ARIZONA PUBLIC SERVICE COMPANY
FOR A HEARING TO DETERMINE THE FAIR
VALUE OF THE UTILITY PROPERTY OF THE
COMPANY FOR RATEMAKING PURPOSES,
TO FIX A JUST AND REASONABLE RATE OF
RETURN THEREON, TO APPROVE RATE
SCHEDULES DESIGNED TO DEVELOP SUCH
RETURN, AND TO AMEND DECISION NO. 67744

E-01345A-05-0826

E-01345A-05-0827

DOCKET NO. E-01345A-05-0816

NOTICE OF FILING
TESTIMONY

Federal Executive Agencies (FEA), by and through the undersigned attorney,
representing all Federal customers of Arizona Public Service Company, hereby provides
notice of filing the Surrebuttal Testimony of Dr Dennis Goins, in this proceeding.

RESPECTFULLY SUBMITTED this 26th day of September 2006.

FEDERAL EXECUTIVE AGENCIES

Arizona Corporation Commission

DOCKETED

SEP 27 2006

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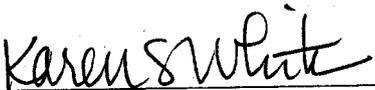
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By: 
KAREN S. WHITE, Lt Col, USAF

**STATE OF ARIZONA
BEFORE THE
ARIZONA CORPORATION COMMISSION**

DOCKET NO. E-01345A-05-0816

**IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC
SERVICE COMPANY FOR A HEARING TO DETERMINE THE FAIR
VALUE OF THE UTILITY PROPERTY OF THE COMPANY FOR
RATEMAKING PURPOSES, TO FIX A JUST AND REASONABLE RETURN
THEREON, TO APPROVE RATE SCHEDULES DESIGNED TO DEVELOP
SUCH RETURN, AND TO AMEND DECISION NO. 67744**

**SURREBUTTAL TESTIMONY OF
DR. DENNIS W. GOINS
ON BEHALF OF THE
FEDERAL EXECUTIVE AGENCIES**

September 27, 2006

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**STATE OF ARIZONA
BEFORE THE
ARIZONA CORPORATION COMMISSION**

**IN THE MATTER OF THE APPLICATION OF ARIZONA)
PUBLIC SERVICE COMPANY FOR A HEARING TO)
DETERMINE THE FAIR VALUE OF THE UTILITY)
PROPERTY OF THE COMPANY FOR RATEMAKING)
PURPOSES, TO FIX A JUST AND REASONABLE RATE)
OF RETURN THEREON, TO APPROVE RATE SCHEDULES)
DESIGNED TO DEVELOP SUCH RETURN, AND TO)
AMEND DECISION NO. 67744)**

Docket No. E-01345A-05-0816

**SURREBUTTAL TESTIMONY OF
DR. DENNIS W. GOINS
ON BEHALF OF THE
FEDERAL EXECUTIVE AGENCIES**

INTRODUCTION

- 1
- 2 **Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS**
3 **ADDRESS.**
- 4 **A.** My name is Dennis W. Goins. I operate Potomac Management Group, an
5 economics and management consulting firm. My business address is 5801
6 Westchester Street, Alexandria, Virginia 22310.
- 7 **Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN THIS CASE?**
- 8 **A.** Yes.
- 9 **Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**
- 10 **A.** I am appearing on behalf of the Federal Executive Agencies (FEA) served by
11 Arizona Public Service Company (APS).

1 Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

2 A. The purpose of my testimony is to address certain issues raised in the direct
3 testimony of Staff witnesses Erinn A. Andreasen and Michael L. Brosch. In
4 particular, I focus on their recommendations regarding a variant of the peak and
5 average allocation methodology and Ms. Andreasen's recommended revenue
6 spread. In addition, I provide comments on the energy cost allocation
7 methodology proposed by AECC's witness Kevin C. Higgins.

8 CONCLUSIONS

9 Q. WHAT CONCLUSIONS HAVE YOU REACHED ON THE BASIS OF
10 YOUR REVIEW OF STAFF'S DIRECT TESTIMONY ON COST OF
11 SERVICE AND REVENUE SPREAD?

12 A. I have concluded the following:

13 1. Cost-of-Service: Demand-related Cost Allocation. Staff witness Michael
14 L. Brosch recommends rejecting APS' proposed 4CP methodology to
15 allocate fixed production costs. Instead, Staff recommends a 4CP and
16 Average (4CP&A) allocation methodology, under which allocation factors
17 reflect a weighted combination of each class' 4CP demand factor and its
18 average demand¹ factor. The apparent rationale underlying Staff's
19 recommendation is that an energy-based allocation methodology is
20 necessary to ensure that lower load factor classes with high seasonal
21 demands (primarily air conditioning) are not assigned a disproportionate
22 share of the costs of APS' baseload generators. Instead, compared to
23 APS' 4CP methodology, the 4CP&A methodology assigns significantly
24 more of the fixed costs in APS' production function (including the cost of
25 baseload plants) to higher load factor General Service customers.

¹ Average demand equals annual kWh use divided by 8,760 hours.

1 Staff's 4CP&A methodology suffers from at least two major flaws.
2 First, the methodology double counts average demand in the peak demand
3 and energy (average demand) components of the 4CP&A allocation
4 factors. This occurs because average demand is a subset of coincident
5 peak demand. Second, although it allocates a higher percentage of fixed
6 production costs—especially baseload plant costs— to higher load factor
7 classes, the 4CP&A methodology does not allocate a similar higher
8 percentage of the fuel-cost savings from baseload plants to these classes.
9 Staff did not adjust its cost-of-service study to offset this asymmetry in
10 allocating production costs. Instead, under Staff's 4CP&A cost study,
11 each class is allocated average system fuel costs. As a result, higher load
12 factor classes bear the higher capital cost of baseload plants without a fuel-
13 cost savings offset—thereby creating an unjustified subsidy for lower load
14 factor Residential customers.

15 2. Cost-of-Service: Energy-related Cost Allocation. AECC witness Kevin C.
16 Higgins recommends modifying APS' allocation of energy-related
17 production costs to reflect hourly energy costs differences by customer
18 class. He does this by mathematically linking hourly energy costs to
19 hourly kWh use by class. Results from his hourly energy cost analysis
20 show that the APS 4CP and Staff 4CP&A cost studies—both of which use
21 kWh consumption unadjusted for hourly cost differentials to allocate
22 energy costs to classes—understate the energy-related cost responsibility
23 of Residential customers and overstate the energy-related cost
24 responsibility of higher load factor General Service customers.

25 3. Revenue Spread. Staff witness Erinn A. Andreasen recommends using
26 results from Mr. Brosch's 4CP&A cost study as a guide for spreading
27 Staff's proposed revenue increase. Staff's recommended revenue spread
28 relies on results from a seriously flawed cost study. In addition, Staff's

1 revenue spread exacerbates the interclass revenue subsidy problem that I
2 discussed in my direct testimony. In particular, Staff's revenue spread
3 increases the interclass revenue subsidy that Residential customers
4 *receive*—going from around \$38.6 million under present rates to nearly
5 \$43.9 million. This occurs even when the subsidy is measured relative to
6 cost responsibility determined in Staff's recommended 4CP&A cost study.
7 This result is similar to what happens under APS' proposed revenue
8 spread, and in both cases General Service customers bear most of the
9 subsidy burden—which for them goes from around \$39.4 million to
10 almost \$47.5 million under Staff's revenue spread based on its 4CP&A
11 cost study.

12 **RECOMMENDATIONS**

13 **Q. WHAT DO YOU RECOMMEND ON THE BASIS OF THESE**
14 **CONCLUSIONS?**

15 **A.** I recommend that the Commission:

16 1. Reject Staff's proposed 4CP&A allocation methodology, and instead
17 approve APS' average 4CP methodology to allocate fixed production
18 costs. As I noted in my direct testimony, the 4CP methodology reflects the
19 principal factors—coincident summer peak demands—driving the need for
20 generation capacity on the APS system. Staff's recommended 4CP&A
21 methodology dilutes the impact of APS' summer peak demands and
22 ignores the dominant summer peaking characteristics of the APS system.
23 As a result, the 4CP&A methodology understates cost responsibility for
24 classes with relatively low load factors and high summer peak demands.
25 Moreover, because of its serious flaws, Staff's 4CP&A cost study does not
26 provide a reasonable basis for determining class cost of service.

1 **Q. HOW DOES THE 4CP&A METHODOLOGY DIFFER FROM THE 4CP**
2 **METHODOLOGY?**

3 **A.** Instead of focusing on system peaks—the principal drivers of APS' generation
4 capacity requirements—Staff's 4CP&A methodology relies on energy (average
5 demand) to allocate a significant portion of APS' fixed production costs. The
6 apparent rationale underlying Staff's recommendation is that an energy-based
7 allocation methodology is necessary to ensure that lower load factor classes with
8 high seasonal demands (primarily air conditioning) are not assigned a
9 disproportionate share of the costs of APS' baseload generators. Mr. Brosch
10 states this rationale somewhat differently. He says:

11 ...Even though APS is a summer peaking utility,...its generation
12 facilities are required to serve customers during all of the non-peak
13 hours of the year. Many of the costs incurred by APS to own, operate
14 and maintain its power plants could be much lower if the Company
15 were concerned only with meeting demand during the four peak hours
16 of the year.³

17

18 In my judgment, use of an energy weighted 4CP and Average
19 production allocation approach is necessary for APS to reflect cost
20 causation for production investment and is also reasonable for expenses
21 because generating capacity non-fuel O&M costs are incurred both to
22 meet peak demand and to minimize fuel and operating costs....⁴

23 **Q. IS STAFF'S RECOMMENDED COST-OF-SERVICE METHODOLOGY**
24 **REASONABLE?**

25 **A.** No. The rationale underlying Staff's choice of the 4CP&A methodology is
26 debatable. A host of factors—for example, cost, available resource options,
27 environmental and siting constraints—influence how a utility plans and operates
28 its system. But the factor that determines how much capacity it needs is peak

³ Ibid. at 11:19 – 12:2.

1 demand. Moreover, the 4CP&A methodology suffers from at least two major
2 flaws—one intrinsic and one that arises from Staff's failure to correct the
3 asymmetrical allocation of energy-related production cost that occurs in its
4 4CP&A cost study. More specifically, the methodology:

- 5 1. Double counts average demand. Under Staff's recommended 4CP&A
6 methodology, APS' fixed production costs are allocated on the basis of a
7 weighted combination of average (energy) and coincident peak demands.
8 Double-counting occurs because average demand is a subset of coincident
9 peak demand. This double counting causes Staff to allocate a
10 disproportionate and inequitable share of APS' fixed production costs to
11 higher load factor classes.

12 Staff could have avoided this double counting by using an average and
13 excess demand allocation methodology that incorporates coincident peak
14 demands. The 4CP&A methodology rests on the implicit assumption that
15 average demand is the principal determinant of a utility's decision to build
16 baseload plants that provide relatively low-cost energy year-round. A
17 logical corollary is that excess demand—the difference between peak and
18 average demands—is the principal determinant in decisions to build
19 peaking and intermediate plants that operate fewer hours and at much
20 higher variable cost. However, instead of advocating an average and
21 excess demand allocation methodology that incorporates coincident peak
22 demands, Staff proposed a 4CP&A methodology that blends average and
23 peak demands in a manner that bears no discernible relationship between
24 capacity planning and capacity costs allocated to customer classes.

- 25 2. Produces an asymmetrical allocation of production plant and fuel costs.
26 Under the 4CP&A methodology, higher load factor classes are allocated a
27 higher percentage of fixed production costs—especially baseload plant

⁴ Ibid. at 14:27-31.

1 costs. However, the methodology does not include a mechanism to
2 allocate a similar higher percentage of the fuel-cost savings from baseload
3 plants to these classes. Such an adjustment is necessary to align allocated
4 fixed and energy-related production costs. Without the adjustment, higher
5 load factor classes that pay average fuel costs subsidize lower load factor
6 classes that also pay average fuel costs.

7 Staff did not adjust its cost-of-service study to offset this
8 asymmetrical allocation of production costs. Instead, under Staff's
9 4CP&A cost study, each class is allocated average system fuel costs.⁵ As a
10 result, higher load factor classes bear the higher capital cost of baseload
11 plants without a fuel-cost savings offset—thereby creating an unjustified
12 subsidy for lower load factor Residential customers.

13 **Q. HAS MR. BROSCHE RECOMMENDED THE 4CP&A METHODOLOGY**
14 **IN ANY REGULATORY PROCEEDING IN THE PAST FIVE YEARS?**

15 **A.** No. In response to a data request from FEA, Mr. Brosch did not cite any case in
16 the past five years in which he recommended the 4CP&A methodology.⁶ He
17 noted that he had recommended the 4CP average and excess (4CPA&E)
18 methodology, which he claims is a variant of the 4CP&A methodology. As I
19 noted earlier, a coincident peak average and excess allocation methodology would
20 avoid the double counting inherent in the 4CP&A methodology by treating the
21 average and the excess demand components separately.

⁵ See Staff's response to data request FEA/Staff 1-5(a), which states: "Mr. Brosch allocated all energy-related production costs in the same manner as APS, using a non-time differentiated energy allocation factor derived from relative KWH sales among customer classes, adjusted for energy losses to the generation input level."

⁶ See Staff's response to data request FEA/Staff 1-2(a).

1 **Q. SHOULD THE COMMISSION USE STAFF'S RECOMMENDED 4CP&A**
2 **COST STUDY IN DETERMINING CLASS COST OF SERVICE?**

3 **A.** No. Staff's 4CP&A cost study is seriously flawed and provides no reasonable
4 basis for determining class cost of service.

5 **ENERGY-RELATED COST ALLOCATION**

6 **Q. WHAT APPROACH DID APS PROPOSE FOR ALLOCATING ENERGY-**
7 **RELATED PRODUCTION COSTS?**

8 **A.** APS proposed allocating energy-related production costs on the basis of loss-
9 adjusted kWh sales by customer class. Under this approach, each class is
10 allocated system average fuel costs.

11 **Q. IN YOUR DIRECT TESTIMONY, DID YOU RECOMMEND REJECTING**
12 **THE APS APPROACH ?**

13 **A.** No. In my opinion, the APS approach is reasonable (but subject to improvement)
14 when combined with a methodology that emphasizes peak demands in allocating
15 fixed (demand-related) production costs—for example, APS' proposed 4CP
16 allocation methodology. However, the approach is unreasonable if combined with
17 an energy-based fixed-cost allocation methodology that links capacity planning
18 decisions with trade-offs between capital and fuel costs—for example, Staff's
19 recommended 4CP&A methodology.

20 **Q. COULD THE APS APPROACH BE IMPROVED?**

21 **A.** Yes. One improvement would be to link allocated fuel costs more closely to
22 energy consumption by time of use. AECC witness Kevin C. Higgins
23 recommends modifying APS' allocation of energy-related production costs to
24 reflect hourly energy costs differences by customer class. In his analysis of APS'

1 energy costs and load data, he mathematically linked hourly energy costs to hourly
2 kWh use by class.

3 **Q. WHAT DID HIS ANALYSIS SHOW?**

4 **A.** Results from his hourly energy cost analysis showed that the APS 4CP and Staff
5 4CP&A cost studies—neither of which reflects a time-differentiated energy cost
6 allocation—understate the energy-related cost responsibility of Residential
7 customers and overstate the energy-related cost responsibility of higher load factor
8 General Service customers.

9 **Q. SHOULD AECC'S TIME-DIFFERENTIATED ENERGY COST**
10 **ALLOCATION APPROACH BE ADOPTED?**

11 **A.** Yes, in particular if the Commission requires APS to allocate fixed production
12 costs using the 4CP&A methodology. AECC's energy cost allocation approach
13 mitigates one of the major flaws of the 4CP&A methodology—that is,
14 disproportionately allocating fixed baseload production costs to higher load factor
15 General Service customers without offsetting those costs by fuel-cost savings
16 attributable to such capacity.

17 **REVENUE SPREAD**

18 **Q. HOW DID STAFF SPREAD ITS RECOMMENDED REVENUE**
19 **INCREASE AMONG CUSTOMER CLASSES?**

20 **A.** Staff witness Erinn A. Andreasen recommended using results from Mr. Brosch's
21 4CP&A cost study as a guide⁷ for spreading Staff's proposed \$204 million (9.56
22 percent) revenue increase from rates.⁸ In general, she proposed increases close to
23 the system average increase for the Residential (9.69 percent) and General Service

⁷ See Erinn A. Andreasen, direct testimony at 2:7-14 and 5:4-10.

⁸ In her direct testimony, Ms. Andreasen obviously misspoke when she said Staff recommended a \$203,993 million increase in revenue from rates. See Erinn A. Andreasen, direct testimony at 2:4. Her calculated

1 (9.52 percent) classes. Within each of these major classes, she recommended
2 differential increases to bring specific rate schedules closer to cost of service as
3 measured by results from Staff's 4CP&A cost study.

4 **Q. DID STAFF ADDRESS THE PROBLEM OF INTERCLASS REVENUE**
5 **SUBSIDIES IN ITS REVENUE SPREAD?**

6 **A.** No. Ms. Andreasen did not mention interclass subsidies in her direct testimony,
7 and made no adjustments in her proposed revenue spread to address the problem.
8 However, she discussed relative rates of return by customer class at length.

9 **Q. DOES THE CURRENT INTERCLASS SUBSIDY PROBLEM WORSEN**
10 **UNDER STAFF'S PROPOSED REVENUE SPREAD?**

11 **A.** Yes. Results from 4CP&A cost studies conducted by Staff indicate that the
12 interclass subsidy from General Service to Residential customers goes up under
13 Staff's revenue spread.⁹ As shown in Table 1S below, the Residential subsidy
14 increases to almost \$43.9 million, while the subsidy paid by General Service
15 customers goes to almost \$47.5 million. These results are troubling since, as I
16 noted earlier, cost responsibility as measured in Staff's 4CP&A cost study is
17 understated for Residential customers and overstated for General Service
18 customers. In other words, even the 4CP&A methodology cannot hide a major
19 problem—Residential rates under Staff's revenue spread are far below cost of
20 service, while General Service rates are well above cost of service.¹⁰

revenue spread is based on an overall rate increase of approximately \$204 million.

⁹ Michael L. Brosch, direct testimony at Attachment MLB-3 and Staff's response to FEA/Staff 1-8.

¹⁰ This finding is consistent with results from APS' 4CP cost study.

Table 1S. Interclass Subsidies Under Present APS Rates and Staff Proposed Revenue Spread (\$000)

<u>Class</u>	<u>Present Rates</u>	<u>Staff Spread</u>
Residential	38,574	43,878
General Service	(39,421)	(47,466)

Note: positive (negative) number reflects subsidy received (paid)

Source: Michael L. Brosch, direct testimony, Attachment MLB-3 and Staff response to FEA/Staff 1-8.

1

2 **Q. IS STAFF'S REVENUE SPREAD REASONABLE?**

3 **A.** No. Staff's recommended revenue spread relies on results from a seriously flawed
4 4CP&A cost study that provides little useful guidance on appropriate rate
5 increases for particular rate schedules. In addition, even if one accepted the
6 4CP&A methodology, Staff's revenue spread would still be unreasonable since it
7 exacerbates the interclass revenue subsidy problem for APS' two major customer
8 classes.

9 **Q. SHOULD THE COMMISSION ADOPT THE STAFF'S REVENUE**
10 **SPREAD?**

11 **A.** No. I recommend that the Commission reject Staff's proposed revenue spread,
12 which relies on a flawed 4CP&A cost study and also exacerbates the interclass
13 revenue subsidy problem for major customer classes. To address these issues, the
14 Commission should require APS to spread its allowed revenue increase using
15 guidelines delineated in my direct testimony. The key elements of these
16 guidelines are to.

- 17 ■ Reduce interclass revenue subsidies by half.
- 18 ■ Increase rates for subsidized classes by up to 150 percent of the
19 average system rate increase (excluding the EIC).

1

- Not allow a rate decrease for any class—even if cost-of-service results indicate that a decrease is justified.

2

3 **Q. DOES THIS COMPLETE YOUR SURREBUTTAL TESTIMONY?**

4 **A.** Yes.