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BEFORE THE ARIZONA CORPORATION COMMISSION

WILLIAM A. MUNDELL
Chairman
JIM IRVIN
Commissioner
MARC SPITZER
Commissioner

IN THE MATTER OF THE GENERIC PROCEEDINGS CONCERNING ELECTRIC RESTRUCTURING.	DOCKET NO. E-00000-02-0051
IN THE MATTER OF ARIZONA PUBLIC SERVICE COMPANY'S REQUEST FOR VARIANCE OF CERTAIN REQUIREMENTS OF A.A.C. R14-2-1606	DOCKET NO. E-01345-01-0822
IN THE MATTER OF THE GENERIC PROCEEDINGS CONCERNING THE ARIZONA INDEPENDENT SCHEDULING ADMINISTRATOR.	DOCKET NO. E-00000A-01-0630
IN THE MATTER OF TUCSON ELECTRIC POWER COMPANY'S APPLICATION FOR A VARIANCE OF CERTAIN ELECTRIC COMPETITION RULES COMPLIANCE DATES	DOCKET NO. E-01933A-02-0069
IN THE MATTER OF THE APPLICATION OF TUCSON ELECTRIC POWER COMPANY FOR APPROVAL OF ITS STRANDED COST RECOVERY	DOCKET NO. E-01[illegible]

NOTICE OF FILING OF DIRECT TESTIMONY OF

THOMAS BRODERICK

ON BEHALF OF HARQUAHALA GENERATING COMPANY, LLC

Harquahala Generating Company, LLC, by and through its attorneys, hereby files the Direct Testimony of Thomas Broderick, Director, External Relations, West Region, PG&E National Energy Group, pertaining to the issues in "Track B" for the above-captioned proceeding.

RESPECTFULLY SUBMITTED this 12th day of November, 2002

QUARLES & BRADY STREICH LANG LLP
Renaissance One
Two North Central Avenue
Phoenix, AZ 85004-2391

By Roger Ferland
Roger K. Ferland
602.229.5607
Attorneys for Harquahala Generating Company, LLC

ORIGINAL and **21 COPIES** filed November 12, 2002, with:

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Phoenix, AZ 85007

Commissioner Jim Irvin
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, AZ 85007

Commission Marc Spitzer
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, AZ 85007

Lyn A. Farmer, Esq.
Chief Administrative Law Judge
Hearing Division
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, AZ 85007

Christopher Kempley, Esq.
Chief Counsel, Legal Division
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, AZ 85007

Ernest G. Johnson, Utilities Division
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, AZ 85007

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By Sarah Menne

BEFORE THE ARIZONA CORPORATION COMMISSION

WILLIAM A. MUNDELL
Chairman
JIM IRVIN
Commissioner
MARC SPITZER
Commissioner

IN THE MATTER OF THE GENERIC PROCEEDINGS CONCERNING ELECTRIC RESTRUCTURING.	DOCKET NO. E-00000-02-0051
IN THE MATTER OF ARIZONA PUBLIC SERVICE COMPANY'S REQUEST FOR VARIANCE OF CERTAIN REQUIREMENTS OF A.A.C. R14-2-1606	DOCKET NO. E-01345-01-0822
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IN THE MATTER OF THE APPLICATION OF TUCSON ELECTRIC POWER COMPANY FOR APPROVAL OF ITS STRANDED COST RECOVERY	[illegible]

DIRECT TESTIMONY OF THOMAS BRODERICK ON BEHALF OF HARQUAHALA GENERATING COMPANY, LLC

November 12, 2002

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Direct Testimony
Of
Thomas Broderick
Harquahala Generating Company LLC
November 12, 2002

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.

A. My name is Thomas Broderick. My business address is 845 N. 3rd Ave, Phoenix, AZ 85003. I am Director, External Relations, West Region, PG&E National Energy Group ("NEG"). Harquahala Generating Company, LLC ("HGC") is our 1,092 MW nominal power plant under construction just west of Tonopah, AZ.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL QUALIFICATIONS AND EXPERIENCE.

A. A summary of my professional qualifications and experience is included in Exhibit TB-1 attached to this testimony.

Q. ARE YOU FAMILIAR WITH THE TESTIMONY OF APS WITNESSES MR. EWEN AND MR. CARLSON, THE ACC STAFF 10-25-02 TRACK B REPORT, THE 11-6-02 APS PRESENTATION AND APS' RESPONSES TO DATA REQUESTS IN THIS PROCEEDING?

A. Yes, my colleagues and I at the NEG endeavored to analyze these documents.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. 1. APS understated its current unmet needs in APS Schedule PME-1. In its calculations, APS omitted several APS customers, incorrectly assigned Pinnacle West supply contracts to APS, vastly overstated the economic level of output of its exiting units,

and overstated its RMR requirements. Thus, my direct testimony focuses primarily on recalculating APS' actual unmet needs. The result of my analysis is a restatement in Exhibit TB-2 of APS' Schedule PME-1.

2. I have re-calculated APS' current unmet needs in Exhibit TB-2 as:

	MW	MWh
2003	2,997	5,639,000
2004	3,286	6,694,000
2005	3,519	7,509,000
2006	3,762	8,602,000

To these figures I add approximately 1,946,000 MWh of potential economy interchange purchases that APS can obtain competitively at its discretion.

My re-calculations confirm the reasonableness of Staff's MW and MWh recommendations for APS contained in the 10-25-02 Staff report.

3. APS' proposal over relies on a product with a volatile price - economy interchange purchases. Thus, I recommend that APS issue an RFP in the March 2003 solicitation for the amounts in Exhibit TB-2 and drastically reduce the amounts it intends to procure as economy interchange. My proposal will preserve the ability of ACC Staff to apply a price to beat concept, whereas APS' proposal will make it very difficult.

4. I recommend the ACC Track B order embrace the use of economic criteria called "minimize the net present value of rate impacts" which is presently employed in the Colorado solicitation. This criteria best captures ACC Staff's goals and will result in APS purchasing an equivalent quantity of power that it previously intended to

purchase from its affiliate. If this criteria is embraced, the ACC will not have a need to "take over" the process, but rather APS will enjoy considerable business discretion.

5. My analysis herein exposes what APS has known for several years – the competition in the Track B process will be most fierce for its older and less efficient gas and oil units and between the merchants themselves, including Pinnacle West. In its own earlier plans, APS had created plans to virtually idle their fleet of older gas and oil units. Their actual purchases in 2001 and 2002 demonstrate they were well on their way to doing just that.

6. I recommend that APS file and the ACC approve a protocol for any future competitive procurement of economy interchange energy. The criteria for such a protocol should insure that APS solicits offers from the competitive wholesale market and in a manner that does not allow for inappropriate affiliate transactions or favoritism of particular parties. Such a protocol will reduce the incentive for APS to propose purchases outside of the Track B process.

1. DETERMINATION OF APS UNMET NEEDS

Q. WHY HAVE YOU RESTATED APS SCHEDULE PME-1 THAT SETS FORTH APS UNMET NEEDS?

A. APS has significantly understated both its current capacity ("MW") and energy ("MWh") unmet needs. My restatement in Exhibit TB-1 confirms the appropriateness of the much higher MW and MWh amounts set forth in the ACC Staff report of 10-25-02. As part of the process of restating Schedule PME-1, I present an economic criteria and a specific

formula that can be approved by the ACC and be employed by APS in its final determination of unmet need in January 2003 for use in the March 2003 solicitation. In the testimony that follows, I discuss each component of my restatement and proposed formula. I concentrate on the period 2003 to 2006, although under Staff's proposal contracts of longer duration can be approved when especially favorable economics are demonstrated.

1.A APS MW and MWh Forecasts

Q. WHAT ARE YOUR FINDINGS CONCERNING THE APS MW AND MWH FORECAST?

A. The method APS has selected in determining unmet needs in Schedule PME-1 defines their wholesale customers in a manner unfavorable to the merchants.

According to APS, its 2002 *weather normalized* peak load was 5,850 MW. In the past 5 years, APS' weather normalized peak load has grown an average of 231 MW per year from 4,692 MW to its present figure. Over the 5-year period 2003-2008, APS forecasts its load to grow an average of 268 MW per year.

However, APS is forecasting a ***decline*** in its peak load from 5,850 MW in 2002 to 5,723 MW for 2003. This is the result of APS employing multiple definitions of its own peak load – they assign their wholesale customers to APS or Pinnacle West in various ways. In Schedule PME-1, APS has used the definition that reduces the APS load forecast with the consequence of limiting the amount of capacity and energy subject to competitive procurement.

Q. WHAT ARE THE VARIOUS DEFINITIONS OF PEAK LOAD THAT APS USES?

A. In APS responses to HGC data requests, APS provided two sets of peak load figures and in response to Staff they provided a 3rd set. They provided HGC *actual* peak load, which in 2002 on a weather normalized basis equaled 5,850 (HGC DR 1 Q. A.3c). They also provided an actual peak for *retail customers and current cost-of-service wholesale customers* - in 2002 this was 5,486 (HGC DR 1 Q.A.1). This second figure is 364 MW *less* than the former.

I tracked the second, lower forecast, to APS' calculation of its unmet needs in APS Schedule PME-1.

Q. WHAT EXPLAINS THE DIFFERENCE BETWEEN THE TWO PEAK LOAD FORECAST DEFINITIONS YOU HAVE CITED?

A. APS indicated, "APS forecasts prior to October 2001 included projections of peak demand and energy for Citizens, TOUA and Wickenburg." So, apparently APS desires these three APS power sales contracts to be supplied by Pinnacle West generation.

Q. WHAT IS THE CONSEQUENCE OF RE-ASSIGNING THESE 3 CONTRACTS FROM APS TO PWCC?

A. The change frees up over 300 MW of APS generation historically used to serve these customers. APS is proposing this generation be re-dedicated to serve APS retail customers. The primary consequence reduces both the amount of capacity and energy that APS would otherwise procure in this Track B proceeding. It therefore, reduces the amount that merchants such as Harquahala can compete for in the upcoming competition and merely awards these contracts to Pinnacle West generation.

Q. DO YOU RECOMMEND THAT THE ACC REQUIRE APS TO EMPLOY THE DEFINITION USED BY APS PRIOR TO ITS OCTOBER 2001 FORECAST?

A. Yes. I base this recommendation on the following:

1. APS' official actual peak load still contains these three wholesale customers.
2. APS has not provided actual language from these wholesale contracts specifically showing that Pinnacle West generation is the sole source for serving these customers.
3. Even if they have this information, these long-term contracts went to Pinnacle West after the 1999 Electric Rules and APS Settlements occurred and the contracts last into years when supply is to be competitively procured and so APS proposes that its retail customers be denied the benefit of the competitive wholesale market on an equivalent amount of generation. It would seem that specific approval by the ACC, with these factors in mind, would be needed before APS could cease serving these customers.

Thus, for the purposes of Track B both the MW and MWh to serve these contracts should be moved back into APS Schedule PME-1 and be competitively procured. APS provided a forecast for these three customers for 2003 totaling 313 MW and 1,621,448 MWh. In Exhibit TB-2, I have also used these same amounts for 2004-2006.

My only re-calculation of APS MW and MWh in Exhibit TB-1 is to place these three contracts back under the APS load and energy forecast. These contracts may not seem large in the grand scheme of things, but if Harquahala won them we would feel very fortunate indeed.

Q. IS APS' FORECAST OTHERWISE TOO LOW?

A. The October 2002 forecast of retail MW and MWh appears reasonable. However, chances are somewhat greater that it is too low than too high.

APS' data responses (HGC DR 1 Q.A.5.1) indicate a persistent under forecasting as opposed to frequent alternating back and forth in accuracy. Schedule PME-6 indicates that their MWh forecasts have been much more accurate than their peak load MW forecasts.

Forecasts prepared from 1992 to 1999 persistently under forecasted MW and MWh. Recently, a tendency to over forecast has emerged in forecasts from October 2000 on. However, APS's data response (HGC DR 1 Q.A.6.1) indicated that its most recent projection (October 2002), as compared to its prior April 2002 forecast reduced the 2003 peak load projection by 211 MW, a significant reduction, and one that was carried forward each year thereafter. APS stated that the basis for the large reduction was a "Correction of System Load Factor."

In general, forecasters can be expected to under forecast in the early stages of an economic recovery and over-forecast in the early stages of an economic downturn. Given that APS has just reduced its forecast and we are late in an economic downturn and on the precipice of an economic recovery, the chances are better than 50% that their current forecast is too low. APS has made a large reduction in its most recent October 2002 load forecast, reducing each and every future year and, is therefore, very likely to end the brief period of over forecasting which started with its October 2000 forecast.

1.B CAPABILITY OF APS UNITS

Q. DOES APS' FORECAST OF THE "PHYSICAL CAPABILITY OF APS UNITS" CONTAINED IN APS SCHEDULE PME-1 NEED RESTATEMENT?

A. Yes. As APS notes, their generation varies over time due to outage schedules, economic conditions and other reasons, so its necessary to examine this information closely, particularly as regards economic conditions. APS provided us some historical annual data for 1992-2001 and data through September 2002. The average annual output of the entire existing APS generation for the ten-years ended 2001, was 21,278,000 MWh. The highest year was 2001 at 24,446,051 MWh and the lowest year was 1995 at 19,602,493 MWh. The current year 2002 may end up being among the lowest years as APS generation has been displaced by its purchases from PWEC generation and unspecific "long-term purchases." Through September 2002, the APS units produced 17,095,066 MWh. At an earlier ACC Staff Track B workshop, APS provided its April 2002 forecast for its existing generation of 20,669,120 MWh for 2003 and 21,543,806 MWh for 2004. My analysis suggests that these figures provided by APS at the earlier workshops are reasonable, but that the figures in Schedule PME-1 are not. I build my case by focusing on APS' coal and nuclear generation.

The actual output of APS' coal and nuclear units was as follows:

1999	20,727,061 MWh
2000	21,347,118 MWh
2001	20,958,417 MWh
3-year average 1999-2001	21,010,865 MWh

Thus, I note that the most recent 3-year average of production by the APS coal and nuclear units is approximately equal to the APS forecast of generation for 2003 (at 20,669,120 MWh) and 2004 (at 21,543,896 MWh) for their entire existing generation base.

Q. HOW DID YOU REVISE SCHEDULE PME-1 IN LIGHT OF THIS AND OTHER DATA?

A. I inserted into Exhibit TB-2 the 3-year historical average of APS' coal and nuclear units generation in place of the figures APS used for Physical capability: 21,010,865 MWh. One could argue that even my figure over-states somewhat the future coal and nuclear output given the tightness of the wholesale market during 1999-2001 as coal and nuclear generation was, no doubt, being sold to other utilities during this time. It is, in part, for this reason that later in my testimony I recommend an economy interchange component for the coal and nuclear generation.

Q. CAN YOU MAKE FURTHER REASONABLENESS CHECKS ON THE APPROPRIATENESS OF USING THE PRODUCTION OF APS' COAL AND NUCLEAR UNITS IN DETERMINING UNMET NEEDS?

Yes. In 2001, APS purchased 504,985 MWh from Pinnacle West generation and through September 2002 APS purchased 1,554,314 MWh from PWEC generation. PWEC generation was just beginning to come on-line during these years and APS provided us its plans for purchasing much more in the future than these historical amounts.

However, the impact of APS purchases in 2001 and 2002 from Pinnacle West was already noticeable in reduced generation of APS' older gas and oil units. A few examples:

	2001	2002
Capacity Factors (ACC Staff DR 1 Q.MR 1.3):		
West Phoenix CC 2	60.2%	33.7%
Ocotillo Steam 2	38.5%	10.6%
Saguaro Steam 1	36.7%	9.3%
West Phoenix CT 1	18.4%	2.6%
Ocotillo CT 1	24.4%	3.8%
Yucca 4	11.9%	0.3%

In fact, as compared to 2001 (and 2000 for that matter), all 18 of the APS gas / oil units experienced significant reductions in capacity factor in 2002. This is no surprise since these are precisely the units for which merchant generation such as Pinnacle West's is designed to displace on an economic basis. This process was only just beginning in 2002 with Pinnacle West's Red hawk plant achieving initial commercial operation.

Also, in data responses, APS provided the April 2002 forecast of the APS planned purchased power from the Pinnacle West units. I also compare these figures to the unmet needs in APS Schedule PME-1 plus economy interchange purchases:

	From Pinnacle West	APS Schedule PME-1[1]
2003	5,728,434 MWh	4,196,000 MWh
2004	6,170,100 MWh	4,873,000 MWh
2005	7,217,000 MWh	7,923,000 MWh
2006	7,420,000 MWh	8,417,000 MWh

[1] Plus economy interchange amounts in APS Schedule PME-13.

For 2003 and 2004, the April 2002 planned purchases by APS from Pinnacle West are substantially in excess of APS' calculations of unmet need plus their proposed economy purchases. For 2005 and 2006, APS has proposed significant purchases – however, I have a major concern with the product (economy interchange) APS proposes for those years. At any rate, the figures above confirm that APS' April 2002 plan for generation by its entire existing fleet is equivalent to that which had been historically produced by its coal and nuclear units for reasons which include APS' plans to displace its own existing gas and oil units by purchases from Pinnacle West.

Q. THUS, FOR THE PURPOSES OF THE MARCH 2003 PROCUREMENT, YOU ASSIGN APS' COAL AND NUCLEAR UNITS TO MEETING APS NEEDS, BUT WANT TO COMPETE AGAINST THEIR MORE COSTLY UNITS?

A. Yes. Just as Pinnacle West wanted to economically displace these more costly units, so do we.

As an overview of the wholesale market, the merchants can win against the *total* cost of nuclear and against the cost of a *new* coal plant. The dispatch cost of most of the existing coal units is generally less than the merchant units. As a result, the competition is concentrated on older gas/oil units and between the new merchant units themselves.

Even though my testimony herein relies primarily on various comparisons of historical and future output of APS units, Pinnacle West units, and relative efficiencies, my colleagues have performed sophisticated production costing simulations for 2003-2006 integrating APS and merchant units into a single economic analysis using

"PROSYM" and the "EMSS" database. The vendor of this data may require us to obtain a confidentiality agreement if ACC Staff wishes to review the results. These simulations confirm my recommendation herein to compete for APS' older gas and oil units.

Q. TO GIVE THIS DISCUSSION EVEN MORE PERSPECTIVE, PLEASE INDICATE THE PHYSICAL CAPABILITY OF THE HARQUAHALA GENERATING FACILITY.

A. Harquahala is a nominal 1,092 MW facility. Below is its production capability at various capacity factors:

90%	8,609,000 MWh
75%	7,174,000 MWh
50%	4,783,000 MWh

In other words, the Harquahala facility, *alone* is capable at supplying the entire APS unmet need plus economy purchases through 2006 and represents multiples of what APS purchased from Pinnacle West in 2001 and 2002. If one includes the other parties in this case that have finished or nearly finished facilities, it becomes apparent that group is capable of supplying many multiples of the total APS unmet quantity plus economy purchases. Then, if you add other bidders that are no doubt going to appear, the competition for APS' gas and oil units will be very significant.

1.C CAPABILITY OF PURCHASE POWER CONTRACTS

Q. WHAT IS YOUR ANALYSIS OF THE APS EXISTING PURCHASED POWER CONTRACTS?

A. This question brings me to the next component of my re-calculation in Exhibit TB-2. Only very recently did APS identify that Pinnacle West had four short-term purchased power supply contracts that it desires to assign to APS customers which would have the effect of reducing APS' unmet needs in 2003. According to APS, these are Pinnacle West's "hedging" contracts with Constellation, Williams, and Morgan Stanley totaling 125 MW at 100% capacity factor for July through September 2003 (Staff DR 1, Q. MR 1.4) entered into by Pinnacle West. I believe Pinnacle West entered into these contracts as part of their unregulated trading and risk management activities (given the timeframe in which they were obtained). They are probably now above market contracts Pinnacle West wants to assign to APS retail customers, outside of the competitive procurement process. If allowed to do so, the net affect would be to transfer additional cost and risk to APS customers for the activities of Pinnacle West. In its data responses, APS defends the assignment of these contracts to APS but admits that they do not contain language that the contracts are dedicated to serve APS customers.

Q. HOW DO YOU RECOMMEND THESE CONTRACTS BE TREATED IN THIS PROCUREMENT?

A. They should remain at Pinnacle West. Each of these contracts were entered into after the competitive bidding rules and APS Settlement were concluded and they each contain initial delivery dates that are well after the established date for starting the procurement program, which date had been established long ago.

If these Pinnacle West contracts are beneficial to APS customers, Pinnacle West can bid them in the upcoming competition to serve APS load, but they should not have an

automatic pass through. If they are the best deals, then they will be selected in the competition. Thus, the 955 MW and 1,798,000 MWh of contracts identified by APS in Schedule PME-1 should be reduced by 125 MW and 374,000 MWh, respectively.

Q. WHAT ABOUT THE APS CONTRACTS WITH PACIFICORP AND THE SALT RIVER PROJECT?

A. The parties to Track B were informed of these contracts some time ago. Some new information is contained in APS data responses (Staff DR 1 Q. MR1.5) indicating that the SRP contract is dispatched based on APS economics. Hence, APS retail customers can benefit from a comparison of the cost of economy interchange to the cost of buying under the SRP contract be procured as economy interchange on an on-going competitive basis.

Thus, in Exhibit TB-2, I include a range of potential economy interchange purchases for 2003-2006. As a check on my calculations, I note that APS data responses indicated that from 1998-2001, APS purchased a low of 1,788,000 MWh in 1998 to a high of 2,162,000 MWh in 1999. The four-year average over this period of APS purchases of economy interchange is 1,946 MWh.

1.D RMR GENERATION

Q. HAVE YOU MADE AN ADJUSTMENT TO THE RMR GENERATION IN SCHEDULE PME-1?

A. Yes, I recommend that this reduction to unmet needs be eliminated from the formula to determine unmet needs. First, there is substantial uncertainty concerning actual and future import limits to serving APS customers. Second, subjecting the RMR quantities, if any, to

competition can serve to demonstrate the validity of the calculated RMR. And most importantly, thirdly, my earlier analysis identified and confirmed APS' own actual results and further plans to idle its gas and oil fleet in favor of Pinnacle West purchases for 2003 and 2004 and prior to the in-service date of West Phoenix 5. Even in APS Schedule PME-1, APS projects very little RMR requirement for 2003. Since the RMR requirement is a future and not a present issue, it must be scrutinized carefully.

1.E FORMULA FOR UNMET NEEDS

Q. PLEASE SUMMARIZE YOUR FORMULA TO DETERMINE APS UNMET NEEDS FOR THE MARCH 2003 PROCUREMENT.

A. The formula for the current procurement can be summarized as:

1. Appropriately include all APS customers in capacity and energy forecasts.
2. Dedicate all existing APS coal and nuclear units to serving APS needs and augment those units with economy interchange purchases as future economics suggest.
3. Subject all APS gas and oil units to economic competition via RFP now.
4. Do not assign Pinnacle West's 2003 purchase power contracts to APS.
5. Subject APS' purchases from SRP to competition from economy interchange.
6. Do not create a set aside for RMR.
7. Compute APS' shortfall, if any, in EPS supply and subject it to competition from economy interchange.

However, now having provided this specific formula, I believe that the above 7 items are likely to occur anyways if the ACC orders APS to employ the economic criteria set forth below in Section 3: Economic Criteria.

2. ECONOMY INTERCHANGE PURCHASES & PROTOCOL

Q. NOW THAT YOU HAVE COMPLETED YOUR RECALCULATIONS OF THE VOLUME OF THE INITIAL PROCUREMENT, WHAT IS HARQUAHALA'S POSITION ON THE APS PROPOSAL TO PURCHASE MOST OF THEIR NEEDS AS ECONOMY INTERCHANGE?

A. I believe that APS can responsibly seek to procure now the entire quantity displayed in Exhibit TB-2 on a long-term basis. The balance of their need can be procured as economy interchange later on. We see no apparent reason for APS to delay procuring the amounts in Exhibit TB-2 on a *sound economic* basis for capacity and energy within the carefully structured Track B process.

Q. DO YOU HAVE ANY OTHER REACTIONS TO APS' PROPOSAL TO PROCURE ECONOMY INTERCHANGE IN LARGE QUANTITIES?

A. Yes. Harquahala and the NEG are very familiar with this product and buy and sell it virtually every day throughout the U. S. Also, economy interchange is an important component of most utilities' energy sales and purchase portfolios.

Our policy position throughout this proceeding has been that APS should seek a *balanced* portfolio consisting of a variety of products of various durations. We have also repeatedly indicated how attractive the power market, like the home mortgage market, is

today and thus, that APS can lock in favorable long-term purchases now to the benefit of its retail customers.

Hence, we would anticipate APS to procure a portion of their unmet needs as economy interchange, but not anywhere close to the large magnitudes they are now proposing. I have included a range of possible economy purchases in Exhibit TB-2. It is appropriate for utilities, like APS, to rely on economy purchases for reasonable uncertainties in the load forecast, uncertainties in the energy forecast for supply by the Environmental Portfolio Standard (the EPS is 170,000 MWh in 2007), and especially for on-going economic comparison of the economics of the SRP contract with the market, and to augment variations in their coal and nuclear generation. For example, APS' data responses indicated major outages at its Palo Verde facilities in the fall of 2003, 2005 and 2007 that will require them to replace the lost output. A portion of this reduction can be satisfied by economy interchange.

But, there is simply no basis for delaying the competition between APS' high heat rate and the merchants' low heat rate facilities for the simple reason that they cannot beat a new merchant producer using today's most modern equipment.

However, if the ACC is inclined to accept APS' proposal to rely very heavily on economy interchange in this procurement, we feel compelled to point out the following about their economy interchange proposal:

1. The APS economy interchange proposal maximizes the likelihood of price volatility due to its reliance on the very short-term market. If there has been any lesson learned, it should be that an over reliance on the short-term market puts retail customers at risk.

Such heavy reliance undermines this Track B process. Its ironic to me that Mr. Carlson, in his testimony, on one hand laments the lack of time remaining between completion of the March 2003 contracts and the start of contracts for the third quarter of 2003, but on the other hand, APS proposes to acquire so much economy interchange which is normally procured only days if not hours before delivery.

2. The APS proposal results in the vast majority of the procurement occurring outside of the current process. In fact, APS' witness, Mr. Carlson, expresses agreement with ACC staff that economy purchases can be made much as they are today. First, this likely mischaracterizes ACC Staff's position insofar as Staff had not received APS' proposal before their report was issued. Second, APS would procure outside of the reach of the independent monitor and away from the light of this process and it allows APS to purchase large amounts of energy from Pinnacle West generation under less than arms length procedures and without oversight. Thirdly, a number of the typical practices today for procuring economy interchange are not competitively friendly and favoritism is frequent. While, we are appreciative that APS has begun a dialogue on how its process for procuring economy interchange can be improved, they have not made any specific commitments to do so in this proceeding. Lastly, their proposal undermines ACC Staff's support for long-term contracts in circumstances of especially strong economics (using Staff's price to beat) for the simple reason that people will be bidding on a very limited range of products for a very limited duration.

3. The APS economy interchange proposal limits the competition to fuel prices. Other categories of future costs of APS existing units should factor into the competition. For

example, their capital budgets. Such budgets include the costs of environmental programs. So, through their proposal APS has merely attempted to overly narrow the areas of this already limited competition.

4. The APS proposal needlessly extends the drama of much of the competition into the future. As noted earlier herein, the process of reducing the output of APS' older gas and oil units is already well underway and cannot be reversed since the heat rates of the merchants' new technologies, including those of Pinnacle West, are dramatically lower than these older units. It will be many years hence when the power market is once again briefly limited in supply that these units will operate on a temporary basis. There is no need to pretend and plan on operating, for example, Ocotillo at full physical capability when it will be displaced year after year by the new units. APS can, with confidence, go to the market now to purchase on a multi-year basis the output from such new units. And the small balance it can purchase from the economy interchange market.

5. Because economy interchange purchases are of short duration, the APS proposal may falsely keep APS and Pinnacle West's hopes alive that the Track B program is temporary. The sooner APS can accept that this program is here to stay, as the Public Service Company of Colorado has done, the sooner its retail customers can benefit to the fullest extent.

6. The APS proposal is substantially different from its own earlier proposal for a descending clock auction and will result in most of the procurement occurring outside of the process Staff and the other parties have worked so hard to achieve. Even APS

acknowledges this. If APS cannot complete their auction process, it's better to go forward with a large RFP now than wait.

7. Economy interchange purchases are typically made very close to the date of initial delivery. In today's depressed energy market, a plant such as Harquahala may not be operating in a quick response mode unless it has a firm "anchor" contract to plan on. Thus, there is a greater chance plants such as ours will be off-line and cold when the call comes from APS for bids on economy interchange. This makes APS' attempted assignment of the 3 wholesale contracts to Pinnacle West even more valuable. They provide Red Hawk an "anchor tenant," thereby giving that unit an advantage in supplying economy interchange.

For all the above reasons, we conclude it is inadvisable for the Track B procurement to obtain anywhere close to the volume of economy interchange as APS proposes. The ACC can rectify this error by articulating economic criteria in its Track B order.

Q. WHEN APS PROCURES ECONOMY INTERCHANGE, SHOULD IT BE IN A COMPETITIVE MANNER?

A. Yes, for several reasons. First, its important the ACC Staff eliminates the incentive for APS to escape the official March 2003 procurement process and to over-rely on economy purchases. The ACC can help accomplish this by establishing a simple protocol for purchasing economy interchange. It would be a good start if APS filed its preferred draft protocol in this Track B hearing for review and comment by the parties since APS already appears to be using a more sophisticated method for some of its economy purchases. Such a protocol would result in APS publicly posting its needs, APS quickly receiving

competitive offers from all qualified suppliers, APS implementing appropriate conduct vis-à-vis its affiliate and ACC Staff periodically reviewing reports summarizing transactions. I would be eager to review and comment on a draft protocol.

3. ECONOMIC CRITERIA FOR TRACK B

Q. WHAT IS THE ECONOMIC CRITERIA YOU ARE RECOMMENDING TO THE ACC FOR USE IN TRACK B UNMET ENERGY NEEDS?

A. Rather than planning on running all units, including the older ones, at full throttle year after year regardless of the high cost, we are recommending a criteria that will enable APS to properly plan and implement how decisions regarding the relative economics of various power supply options are undertaken.

We propose the "minimize net present value of rate impacts" criteria.

The Colorado competitive procurement Rules (4 Code of Colorado Regulations 723-3, Rules 3610(f) employ this criteria:

> "In selecting the final resource plan, the utility's objective shall be to minimize the net present value of rate impacts, consistent with reliability considerations and development risks."
>
> "Net present value of rate impact means the current worth of the average annual rates associated with a particular resource portfolio, expressed in dollars per kilowatt-hour in the year the plan is filed. The net present value of rate impact for a particular resource portfolio is first calculated by discounting the total annual revenue requirement by the appropriate discount rate. The discounted revenue requirement is then divided by the total utility kilowatt-hour requirement for that year and averaged across the years of the planning period."

Its very important to note that the "portfolio" referred to in Colorado includes the utility's existing generation and purchase power contracts. Hence, the economic comparisons

between existing and new resources in Colorado are direct and transparent and this is exactly what I am proposing be adopted in Arizona.

I propose the ACC adopt this criteria in the Track B proceeding with only slight modification. In Colorado, the "plan" is the final portfolio. However, for Arizona, I recommend the word "plan" be changed to "contracts" and the word "planning" be changed to "contracting."

We believe that if the ACC embraces the criteria of minimizing net present value of revenue requirements, then it will naturally set in motion revisions to Schedule PME-1 that will produce results much closer to what I, in Exhibit TB-2, and ACC Staff have already calculated as being economic. Thus, by imposing economic comparison as described herein, the ACC Staff can cause APS to increase its *initial* procurement to levels commensurate with what APS had planned to purchase from Pinnacle West. And this can be accomplished without the ACC "taking over" the process and dictating specific products and timing. APS, once armed with the proposed economic criteria, will still have significant discretion in the March 2003 procurement. And lastly, and most important, this criteria directly embraces ACC Staff's primary goal of achieving consumer benefits from the Track B process.

In conclusion, we hope the Track B Order will direct APS to comply with the economic criteria stated herein and will submit a plan in January 2003 that seeks an initial procurement for quantities presented in Exhibit TB-2.

4. ACC STAFF TRACK B REPORT OF 10-25-02

Q. IN YOUR OPINION, DOES THE ACC STAFF TRACK B REPORT SET FORTH THE CRITICAL PARAMETERS NECESSARY FOR A SUCCESSFUL SOLICITATION AND ACCURATELY CONVEY THE AREAS OF CONSENSUS ACHIEVED IN THE WORKSHOPS PRECEDING THE REPORTS ISSUANCE?

A. Yes. I am grateful for the Staff's hard work and support of the Track B process leading to the issuance of this Report. It is detailed and provides subsequent opportunities for input into the process by all parties throughout the procurement process. Staff has clearly listened to all the participants, including the merchants, in preparing this report. I have only very few points to offer.

First, as compared to this Report, my testimony herein encourages the Staff to further strengthen the language in the Track B Order to include economic criteria that will better lead to the attainment of Staff's goals stated in the Introduction of the report (e.g., cost savings for ratepayers and economic benefits to consumers).

My testimony also asks that Staff look at 4 purchased power contracts that were entered into by APS' affiliate prior to the September 1, 2002 cut off date recommended in the Report, in part, because I am not sure the ACC approved those contracts and, if they were approved, do the issues presented herein cause reconsideration for the purposes of this solicitation.

Next, on page 21, line 19, APS is allowed to wait until 14 days before bids are due to indicate whether or not bidders have pre-qualified. My employer would prefer advance

notice of at least 30 days if possible. It appears this is easily doable given that the pre-qualification process starts when the prospective list of bidders is prepared.

I am appreciative that Staff has encouraged APS to consider differing means of providing risk mitigation.

Also, Staff's recommended use of a single fuel forecast to evaluate each fuel type is very helpful and can reduce the likelihood of manipulation to favor an affiliate.

As regards price to beat, my employer is content with that information **not** being specifically disclosed as to its amount. We are comfortable merely learning as to compliance with the price to beat. However, if the price to beat is disclosed to APS, then I recommend it be disclosed to all at the same time.

Q. HAVE YOU REVIEWED THE STAFF'S CALCULATION OF APS CONTESTABLE CAPACITY AND ENERGY PRESENTED IN THE REPORT?

A. Yes. Staff's calculations and my calculations presented in Exhibit TB-1 are about the same with mine being a little higher in total. In Exhibit TB-2, I separated my total unmet need into that to be sought in the March 2003 procurement and that to be sought by APS as economy interchange on an on-going basis.

My calculations demonstrate that my total unmet needs calculation relies upon economic comparisons of merchant bids and APS gas and oil units' dispatch cost. Thus, I support revising criteria that require a solicitation in 2003 for energy and capacity that "cannot be **economically** supplied from generation assets already included in the utility's rate base."

5. OTHER

Q. ON PAGE 7, STARTING ON LINE 10, APS WITNESS MR CARLSON BEGINS TO DESCRIBE THE PRODUCTS APS WOULD SEEK IN ITS RFP. ARE THEY SEEKING ONLY STANDARD WHOLESALE PRODUCTS?

A. No. Mr. Carlson describes purchasing 7-days a week. For the 16 hours he lists, the standard product is 6-days a week. While we would ideally like to sell power every day of the week, the selection of a non-standard product will have several consequences. First, it will make it more difficult for ACC Staff to accurately establish a "price to beat" since forecast data on standard products is more readily available. Second, it will reduce the competition to only those willing to offer a non-standard product.

Its possible that Mr. Carlson meant 6 days and not 7 days in his testimony because on page 8, line 1 of his testimony, he discusses "6 x 16" power, where the 6 means the number of days in a week. On line 7 of that same page, he says, "...the market is thinner than for the more standard 6 x 16 product."

So, it would be helpful if APS could clarify their position on this matter.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Exhibit TB-1

THOMAS BRODERICK
STATEMENT OF QUALIFICATIONS

2001-present PG&E National Energy Group

Thomas Broderick is Director External Relations, West Region for PG&E National Energy Group. He is responsible for regulatory, legislative and community relations. His current efforts are concentrated in Arizona, Colorado, and Louisiana where the Company has power plant projects and competitive bidding is planned or underway.

1999 - 2001 U.S. State Department /USAID, Kiev, Ukraine and Washington, D.C.

- Senior Energy Advisor

1997 - 1998 PG&E Energy Services Corporation, Scottsdale, Arizona

- Energy Consultant

1984 - 1996 Arizona Public Service Company

- Planning Manager
- Supervisor, Load Forecasts
- Supervisor, Regulatory Affairs
- Economist, Regulatory Affairs

1982 - 1984 Miller Brewing Company, Milwaukee

- Analyst, Marketing Research

1981 Illinois Health Finance Regulatory Authority, State of Illinois, Chicago

- Economist

1981 Masters, Economics, University of Wisconsin - Madison
1979 Bachelors, Economics, Arizona State University - Tempe

Exhibit TB-2

RESTATEMENT OF APS SCHEDULE PME-1

MW	2003	2004	2005	2006
Total APS customer load[2]				6,036
				6,336
				6,582
				6,835
+ 15% reserve margin	598	602	602	606
- Capability of coal and nuclear	2,798	2,798	2,798	2,798
- Capability of purchase contracts	830[3]	837	844	852
- Planned renewable under EPS	9	17	23	29
= Net unmet needs	**2,997**	**3,286**	**3,519**	**3,762**

Energy (GWh)	2003	2004	2005	2006
Total APS customer energy[2]				28,115
				29,462
				30,620
				31,799
- Capability of coal and nuclear	21,011	21,011	21,011	21,011
- Capability of purchase contracts	1,424[3]	1,672	1,986	2,044

[2] Includes 313 MW and 1,621 GWh in addition to APS Schedule PME-1.
[3] Includes a reduction of 125 MW and 374 GWh as compared to APS Schedule PME-1.

- Planned renewable under EPS	41	85	114	142
= Net unmet needs	**5,639**	**6,694**	**7,509**	**8,602**

Note: From 1998-2001, APS purchased, on average, 1,946 GWh of economy interchange. Thus, in addition to the net unmet energy needs above, APS should, at its discretion, continue to make similar economy interchange purchases when economic to do so to augment or displace their coal and nuclear units, their SRP purchase power contract and the shortfall, if any, in EPS supply.