BEFORE THE ARIZONA CORPORATION COMMISSION

WILLIAM A. MUNDELL
COMMISSIONER - CHAIRMAN
JIM IRVIN
COMMISSIONER
MARC SPITZER
COMMISSIONER

IN THE MATTER OF THE GENERIC PROCEEDING CONCERNING ELECTRIC RESTRUCTURING ISSUES.	**DOCKET NO. E-00000A-02-0051**
IN THE MATTER OF ARIZONA PUBLIC SERVICE COMPANY'S REQUEST FOR A VARIANCE OF CERTAIN REQUIREMENTS OF A.A.C. R14-2-1606.	**DOCKET NO. E-01345A-01-0822**
IN THE MATTER OF THE GENERIC PROCEEDING 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**

NOTICE OF FILING REBUTTAL TESTIMONY

Wellton-Mohawk Generating Facility ("WMGF"), by and through its attorneys, hereby files the Rebuttal Testimony of Robert W. Kendall of Navigant Consulting, Inc. in the Commission's Track B Proceeding.

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Respectfully submitted this 18th day of November, 2002.

MARTINEZ & CURTIS, P.C.

By Paul R. Michaud

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Original and Nineteen (19) copies of the foregoing filed this 18th day of November, 2002, with:

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Phoenix, Arizona 85007

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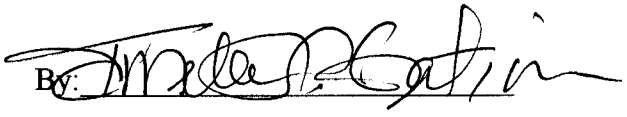
E-00000A-02-0051, et al.
(Track B Proceeding)

By: 

1752/pleadings/notice of filing rebuttal testimony

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REBUTTAL TESTIMONY OF

ROBERT W. KENDALL

ON BEHALF OF

WELLTON-MOHAWK GENERATING FACILITY

NOVEMBER 18, 2002

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Q. PLEASE STATE YOUR FULL NAME AND BUSINESS ADDRESS.

A. My name is Robert W. Kendall. My business address is 225 West Broadway, Suite 400, Glendale, California 91204-1331.

Q. ARE YOU THE SAME ROBERT W. KENDALL WHO SUBMITTED PREFILED DIRECT TESTIMONY IN THIS PROCEEDING ON BEHALF OF THE WELLTON-MOHAWK GENERATING FACILITY ("WMGF")?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. The purpose of this testimony is to rebut and respond to (1) testimony filed by intervenors and Arizona Public Service Company ("APS") on November 12, 2002 and (2) information contained in APS' response to WMGF's First Set of Data Requests to APS propounded on November 8, 2002. Since APS' response to these data requests was not received until November 14, 2002, I did not have the opportunity to include this information in my Prefiled Direct Testimony submitted to the Arizona Corporations Commission ("Commission") on November 12, 2002.

Q. COULD YOU BRIEFLY SUMMARIZE THE RECOMMENDATIONS YOU MADE TO THE COMMISSION IN YOUR PREFILED DIRECT TESTIMONY?

A. Yes. Fundamentally, I recommended that the Commission include the following three items in its order on the Track B Competitive Solicitation process:

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1. Bids proposing long-term contracts with terms of up to 15 to 20 years should be specifically allowed in the Track B Competitive Solicitation Process ("Track B"), that APS be required to evaluate all bids on an equal basis, and that APS be assured of full rate recovery for its prudent actions.
2. The procurement of at least a portion of each utility's renewable resource requirement under Arizona's Environmental Portfolio Standard ("EPS") should be a specific objective of Track B and be included in each utility's unmet needs calculation, and that the bid evaluation method used by each utility should give appropriate credit to bids containing such resources in recognition of the additional value they provide to the utility. I also recommended a specific method to use for calculating this additional value.
3. The procurement of generation resources to help mitigate or resolve the Reliability Must Run ("RMR") issue should be an objective of the Track B and be included in each utility's unmet needs calculation, and that as a matter of public policy all loads in RMR areas should be contestable.

Q. HAVE YOU REVIEWED THE TESTIMONY FILED BY INTERVENORS AND THE UTILITIES INCLUDING APS ON NOVEMBER 12, 2002 IN THIS PROCEEDING?

A. Yes.

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Q. DO YOU WISH TO MAKE ANY COMMENTS ON ANYTHING YOU READ IN THIS TESTIMONY?

A. Yes. In their Prefiled Direct Testimony filed on November 12, 2002, several intervenors, including the Residential Utility Consumer Office ("RUCO") and Sempra Energy Resources, discuss the benefits of Least Cost Planning and recommend that it be used as the central method of evaluating bids in the Track B process. I wish to comment on the Least Cost Planning proposal since its adoption by the Commission, which I support, is consistent with my recommendations.

Q. ARE YOU FAMILIAR WITH LEAST COST PLANNING?

A. Yes, I am very familiar with Least Cost Planning having used this tool for several years with my former employer, Southern California Edison Company, and in several consulting engagements with my current employer, Navigant Consulting, Inc. For example, while at Southern California Edison Company, I led a major resource procurement activity and used Least Cost Planning as the centerpiece of the utility's bid evaluation process under California's wholesale power competition.

Q. DO YOU AGREE WITH THE RECOMMENDATION THAT LEAST COST PLANNING SHOULD BE EMPLOYED IN THE TRACK B BID EVALUATION PROCESS?

A. Yes. All the parties agree that the overarching objective of Track B is to facilitate the establishment of a competitive wholesale market and to procure from this

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market resources that provide the lowest overall costs to the consumer. As I discussed in my Prefiled Direct Testimony, this argues for allowing bidders to have a great deal of flexibility in their bids so they can be shaped to be the most attractive to the utility. Unfortunately, using three standardized products and rank ordering bids by each product as proposed by APS in its Prefiled Direct Testimony is not likely to achieve the above objective. For this and other reasons, I agree with Dr. Rosen's Direct Testimony on behalf of RUCO where at page 10 he states that the proper use of Least Cost Planning will provide a coherent and workable framework for evaluating bids so that the utility's revenue requirement will be minimized providing the lowest rates to consumers. I also agree with Dr. Rosen when he states on page 26 of his Prefiled Direct Testimony that a minimum 20-year planning horizon is needed for the evaluation process.

Q. IS YOUR RECOMMENDATION THAT LONG-TERM CONTRACTS OF UP TO 15 TO 20 YEARS BE ALLOWED IN TRACK B CONSISTENT WITH THE USE OF LEAST COST PLANNING?

A. Yes, it is consistent. The real advantage of Least Cost Planning is that it allows for the price features of each bid to be evaluated on its merits compared with other bids and alternatives the utility has available to it. With respect to a long-term bid of 20 years for example, this bid would be placed in the production simulation model being used and would be dispatched each year in the most efficient manner based on the pricing and flexibility afforded by the bid. The results of this scenario could then be compared against other scenarios containing, for example, several

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shorter-term purchases evaluated over the same 20-year time frame. In this manner, the utilities would be able to select the scenario providing the consumer the lowest overall cost.

Q. IS YOUR RECOMMENDATION THAT TRACK B SHOULD BE USED AS A MECHANISM FOR THE PROCUREMENT OF RENEWABLE RESOURCE PUCHASES UNDER ARIZONA'S EPS CONSISTENT WITH USING LEAST COST PLANNING?

A. Yes, it is consistent. As an example, let's assume a bid is received from a hybrid project that produces a quantity of energy that qualifies as solar produced renewable energy and a quantity of energy that is generated by gas. The bid would be modeled in the same production simulation program discussed above and would be dispatched by the model over the minimum 20 year evaluation time period in the most efficient manner as allowed by the bid's parameters. The results of this scenario could then be compared against another scenario containing a bid from other gas-fired generation that would produce an equivalent amount of non-renewable energy as in the above scenario and other alternative solar produced renewable energy from bids that again produce an equivalent amount of renewable energy as in the above scenario. Again, the least cost planning method allows for the attributes of each bid to be fairly compared against the attributes of other bids.

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Q. IS YOUR RECOMMENDATION THAT ONE OF THE OBJECTIVES OF TRACK B SHOULD BE TO MITIGATE OR ELIMINATE RMR CONSISTENT WITH THE USE OF LEAST COST PLANNING?

A. Yes, again it is consistent. The key here would be for the evaluation process to specifically look at each of the state's RMR areas on an individual basis. For each area, a series of scenarios would be developed from bids addressing that RMR area and, as discussed above, the results of each scenario would be compared against the results from the others to arrive at the least cost solution. As Dr. Rosen of RUCO explains in his Prefiled Direct Testimony at page 22, this would allow new transmission investment options, generation options, and DSM to be evaluated to determine the most cost effective way to address the RMR issue. This analysis could also be set up to clearly show if it were in the best interest of the utility ratepayers to replace some of the existing RMR generation with generation options received in the bids.

Q. DO YOU HAVE OTHER COMMENTS TO MAKE ON ANY OF THE OTHER INTERVENORS TESTIMONY?

A. No. I have no further comments on intervenor testimony at this time. My testimony will now focus on the Prefiled Direct Testimony submitted by APS and APS' recent response to WMGF's First Set of Data Requests.

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Q. DID YOU REVIEW APS' RESPONSE TO QUESTION RK 1.1 IN WMGF'S FIRST SET OF DATA REQUESTS?

A. Yes. This question and response, which I have attached as Attachment RK-1, provides information on the Yuma load pocket. I also included in this attachment a table prepared by APS and handed out at the November 6, 2002 workshop, which addresses the Phoenix load pocket and a copy of information submitted by APS relative to the Yuma load pocket at the Commission's July 30-31, 2002 workshop on its Second Biennial Transmission Assessment ("SBTA").

Q. COULD YOU PLEASE EXPLAIN WHY YOU ASKED THE QUESTION IN ATTACHMENT RK-1?

Yes. The treatment of RMR generation has been an issue in these Track B proceedings since it impacts the amount of capacity and energy that constitutes each utility's unmet needs. APS has taken the position that non-APS owned RMR generation should be deducted from its unmet capacity and energy needs (Peter Ewen, Direct Testimony, Schedule PME-1). WMGF asked the question in Attachment RK-1 because the previous discussion on the RMR issue has been limited to the Phoenix Transmission Import Constraint Area only and because this position appears to be inconsistent with the calculation of existing load carrying capability for the Yuma load pocket contained on page 4 of the information presented by APS at the SBTA workshop. In fact, as determined in the Commission's Second Biennial Transmission Assessment Proceeding headed-up by Utilities Division, Staff Engineer Jerry Smith, APS' service area subject to the

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Track B Competitive Solicitation Process consists of at least two major Transmission Import Constraint Areas; namely, the Phoenix load pocket and the Yuma load pocket. A third Transmission Import Constraint Area has also been identified in Tucson Electric Power Company's ("TEP") service are; namely the Tucson Load Pocket.

Q. COULD YOU PLEASE EXPLAN WHAT IS SHOWN IN APS' RESPONSE TO WMGF DATA REQUEST RK-1?

A. Yes. The table titled "APS Yuma Area Reliability Must Run Estimates 2003-2012" first shows the loads and transmission import limit for each of the years 2003 through 2012. By subtracting the transmission import limit from the load, one determines the RMR generation needed in the area to keep the lights on. This is identified in the table as "RMR Need." It should be noted that the loads shown in the response to Data Request RK-1 are approximately 20 MW lower than those presented on page 6 of the information presented by APS at the SBTA workshop. Next, the table provides separate lines for the APS resources in the Yuma load area, existing non-APS resources in the area, and APS reserves. To arrive at the line titled "Unmet Need," the "APS Resources" are added to the "Non-APS Resources", the "APS Reserves" are subtracted from this amount, and the total is subtracted from the "RMR Need."

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Q. DO YOU AGREE WITH THE UNMET NEED SHOWN IN APS' RESPONSE?

A. No. As discussed above, the unmet needs calculation shown in APS' response includes a deduction for the existing non-APS resources in the Yuma area. By including this deduction, APS is implicitly stating that these non-APS resources are available to serve local Yuma loads. However, this deduction should not be in the calculation of **APS' unmet needs** unless such resources are being provided under a firm contract entered into prior to September 1, 2002. We have seen no listing of any such contracts by APS either in its Prefiled Direct Testimony, its accompanying work papers, or in its responses to specific data requests presented by Staff and possibly other parties in this proceeding. In fact, the two resources comprising the largest portion of the non-APS resources in the Yuma area (i.e., Yucca Steam 75 MW and Yuma Cogeneration Project 51 MW) are listed by the Western Electricity Coordinating Council ("WECC") as firm resources of San Diego Gas & Electric and the Imperial Irrigation District respectively. Thus, they clearly are not contractually available to serve APS' customer loads.

Q. HAVE YOU PREPARED A CALCULATION OF APS' UNMET NEEDS IN THE YUMA POCKET, WHICH EXCLUDES THE LINE FOR EXISTING NON-APS RESOURCES?

A. Yes.

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Q. PLEASE DESCRIBE THE RESULTS OF THIS CALCULATION.

A. I have prepared a table using APS's numbers contained in its response to Question RK-1 corrected to eliminate the deduction for existing non-APS resources and have included it as Appendix RK-2. This table shows that APS' unmet needs in the Yuma area start out at 68 MW in 2003 and rise to be 157 MW in 2012. These unmet needs would be even larger if the loads presented on page 6 of the information presented by APS at the SBTA workshop were used in the calculations.

Q. HOW LARGE ARE THESE DIFFERENCES?

A. The differences in loads for the Yuma area shown by APS vary by year, but range from a low of 13 MW to a high of 21 MW. These are significant differences since they are on a base of about 300 MW.

Q. DO YOU KNOW WHY THE LOADS IN THE YUMA AREA PRESENTED BY APS AT THE SBTA WORKSHOP ARE DIFFERENT THAN THOSE SHOWN IN THE RESPONSE TO QUESTION RK-1?

A. No, I don't why there are differences.

Q. WHAT IS THE SIGNIFICANCE OF APS HAVING AN UNMET NEED IN THE YUMA AREA FOR THIS TRACK B PROCEEDING?

A. APS' testimony states that it plans on conducting a separate, simultaneous RFP to solicit bids for the non-APS RMR amounts in the Phoenix load pocket (Thomas Carlson, Direct Testimony, Page 10). Assuming that APS treats non-APS RMR

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amounts in the Yuma load pocket the same as those in the Phoenix area, I would expect APS to conduct separate, simultaneous RMR solicitations for both the Yuma and Phoenix load pockets.

Q. IS THERE LIKELY TO BE SUFFICIENT COMPETITION TO MAKE A SEPARATE SOLICITATION FOR THE YUMA AREA WORTHWHILE?

A. Of course, no one ever knows the answer to this question until the solicitation actually occurs. However, I believe there are likely to be several competitive options set forth in such a solicitation. APS has set forth several transmission options in its response to RK-1.3, which I have included in Appendix RK-3 attached hereto. There are also likely to be several generation options proposed including perhaps some of the generation listed by APS as non-APS owned resources, the WMGF, and generation by other developers. It should be noted here that there have been other generation projects proposed in the area besides WMGF, which could provide service into the load pocket. Finally, there are DSM options that could be proposed.

Q. YOU MENTION THAT APS HAS TREATED THE PHOENIX LOAD POCKET DIFFERENTLY THAN THE YUMA LOAD POCKET. COULD YOU SUMMARIZE THE DIFFERENT TREATMENT?

A. Yes. There are three key differences in APS treatment of its two load pockets:

1. In its prefiled direct testimony, APS provided no discussion of the Yuma load pocket whereas it did discuss the Phoenix load pocket.

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2. APS deducted non-APS resources from its unmet needs for the Yuma load pocket in its response to Question RK 1.1 whereas no deduction for non-APS resources was made in a similar unmet needs calculation for the Phoenix load pocket.
3. APS has proposed conducting a separate RFP solicitation to procure the unmet needs for the Phoenix load pocket but has made no recommendation for procuring the unmet needs in the Yuma load pocket.

Q. DO YOU KNOW OF ANY REASON WHY THE YUMA AND PHOENIX LOAD POCKET ISSUES SHOULD BE AFFORDED ANY DIFFERENT TREATMENT?

A. No. There has been no justification presented in APS' Prefiled Direct Testimony or its response to WMGF's data requests as to why the two load pockets should be afforded different treatment.

Q. DOES YOUR RECOMMENDATION HERE IN ANY WAY CHANGE YOUR RECOMMENDATION STATED IN YOUR TESTIMONY ABOVE ABOUT USING LEAST COST PLANNING IN THE BID EVALUATION PROCESS?

A. No, in fact the two recommendations are quite consistent. As I stated in my testimony above on Least Cost Planning, this analysis for RMR areas needs to be done separately for each RMR area. Having a separate RFP process to solicit bids

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on each RMR area makes this process easier to handle since all of the information (bids) for each area are readily identifiable. In addition, as I stated in detail in my prefiled direct testimony, all RMR load should be contestable in the solicitation so that APS and the Commission can determine whether it is in the ratepayers' interest to replace existing RMR resources with alternatives proposed by the market.

Q. DID YOU REVIEW AND HAVE ANY COMMENTS ON APS' RESPONSE TO WMGF'S DATA REQUEST RK 1.3?

A. Yes. I have included both the question and response in Appendix RK-3. The basic comment I have to APS' response is that it leaves the reader with what I believe is a false impression that all is well in the Yuma load pocket and there are plenty of options to provide adequate and reliable service to customers through the next 8 to 10 years. Further, it seems to imply that there is little advantage to adding new local generation in Yuma because "it would just increase the local generation pool from which to purchase the power needs above what the EHV system could deliver." (APS Response to WMGF Data Request RK 1.3). I have a couple of comments on these statements.

First, as I discuss earlier in this testimony, there are three ways of addressing RMR issues: (1) increasing transmission import capability; (2) adding additional local generation; and (3) implementing DSM programs. These three methods are not mutually exclusive. Each method has its advantages and disadvantages and each method has its limitations. In fact, in order to minimize

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ratepayer costs and provide a sufficient level of local reliability there may very well be an element of all three methods that should be employed in Arizona's RMR areas including Yuma. Use of Least Cost Planning is designed to identify the proper mix of transmission, generation, and DSM that will achieve this result. In addition, Least Cost Planning will help decision makers to determine whether some of the temporary fixes identified in APS' response are cost effective compared with other and longer-term available options.

Second, I believe it is important for APS and the Commission to fairly and thoroughly consider options from APS, as well as the market, before making capital resource commitments. This is why WMGF recommended that mitigation or elimination of RMR should be one of the objectives of the Track B process.

Q. DID YOU REVIEW AND HAVE ANY COMMENTS ON APS' RESPONSE TO WMGF DATA REQUEST RK 1.7?

A. Yes. APS' response to Data Request RK 1.7 provides a year-by-year breakdown of APS' unmet EPS renewable resource requirement for the period 2003 though 2012. I have attached the question and response in Appendix RK-4 of this testimony for the Commission's convenience. As the table clearly shows, whereas APS does not have an unmet need (shortfall) for "other" (non-solar) renewable energy and resources, it has a considerable unmet need for solar electric renewable energy. It is worth noting that the A.A.C. R14-2-1618 ("EPS Rule") sets minimum solar-only energy requirements of from 50 to 60 percent of the utilities' total EPS requirement. This is a considerable amount of solar energy for APS. I

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understand that at least one of the key reasons for APS' expected solar energy shortfall is that photovoltaic technologies ("PVs") were expected to provide a significant portion of this unmet need; however, since the costs of this technology have not been decreasing as rapidly as had been anticipated (actually increasing due to higher demands verses supplies), APS, as well as TEP, may simply not be able to meet the solar requirements under the EPS Rule based on the amount of EPS they are authorized to collect through the EPS surcharge and the reallocation of the Public Benefits Charge. Fortunately, however, there are other solar technologies, such as solar troughs, which are less expensive than PVs and that can be employed in innovative ways to provide solar renewable energy to help utilities, such as APS, meet their EPS solar energy requirements. The best manner to determine the range of market solutions that might be available to fulfill this requirement would be to adopt WMGF's recommendation and specifically include in the Track B process a mechanism to solicit and fairly evaluate bids containing renewable resources to meet the EPS requirement.

Q. DOES THIS CONCLUDE YOUR PREFILED REBUTTAL TESTIMONY?

A. Yes.

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APPENDIX RK-1

WELLTON-MOHAWK GENERATING FACILITY'S FIRST SET OF DATA REQUESTS TO ARIZONA PUBLIC SERVICE COMPANY
DOCKET NO. E-00000A-02-0051, E-01345A-01-0822, E-00000A-01-0630, E-01933A-02-0069
TRACK B
November, 6, 2002

RK 1.1 Please provide a table in the same format as page 18 in the package titled "Projected Unmet Capacity and Energy Needs" presented by APS's Pete Ewen to the ACC workshop on Track B Issues on November 6, 2002 for Reliability Must Run Estimates for the Yuma load pocket.

RESPONSE:

See Attachment. [ATTACHMENT WM DR 1 Q. RK 1.1]

ATTACHMENT WM DR 1 Q. RK 1.1

APS Yuma Area Reliability Must Run Estimates
2003 - 2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Capacity Need (MW)										
Yuma Area Peak Demand	303	322	330	339	344	355	363	372	382	392
Transmission Import Limit	148	148	148	148	148	148	148	148	148	148
RMR Need	155	174	182	191	195	207	215	224	234	244
APS Resources	139	139	139	139	139	139	139	139	139	139
Existing Non-APS Resources	132	132	132	132	132	132	132	132	132	132
APS Reserves	52	52	52	52	52	52	52	52	52	52
Unmet Need	(64)	(45)	(37)	(28)	(23)	(12)	(4)	5	15	25

APS Metro Phoenix Reliability Must Run Estimates
2003 - 2012

Capacity Need (MW)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Metro Phoenix Peak Demand	4,114	4,269	4,423	4,578	4,732	4,887	5,041	5,196	5,350	5,511
Transmission Import Limit	3,535	3,535	3,535	3,535	3,535	3,535	3,535	3,535	3,535	3,535
RMR Need	579	734	888	1,043	1,197	1,352	1,506	1,661	1,815	1,976
APS Resources - Inside Phoenix	660	660	660	660	660	660	660	660	660	660
APS Reserves	110	110	110	110	110	110	110	110	110	110
Unmet Need	29	184	338	493	647	802	956	1,111	1,265	1,426
Energy Need (GWH)										
Total Energy	37	92	172	291	445	633	862	1,124	1,366	1,628
APS Supplied	37	90	165	263	373	492	614	727	826	923
Unmet Need	0	2	8	27	72	141	248	398	540	705
RMR Hours										
Total	210	455	640	862	1,099	1,293	1,511	1,723	1,909	2,103
APS Supplied	210	455	640	862	1,099	1,293	1,511	1,723	1,909	2,103
Unmet Need	6	19	57	159	313	510	737	944	1,114	1,282
RMR Capacity Factor										
APS Supplied	0.8%	1.9%	3.4%	5.5%	7.7%	10.2%	12.7%	15.1%	17.1%	19.2%
Unmet Need	0.1%	0.1%	0.3%	0.6%	1.3%	2.0%	3.0%	4.1%	4.9%	5.6%
Total	0.7%	1.4%	2.2%	3.2%	4.2%	5.3%	6.5%	7.7%	8.6%	9.4%

Arizona Corporation Commission
Second Biennial Transmission Assessment

Workshop
July 30-31, 2002

Presentation of
Arizona Public Service Company

Cary Deise

APS Overview

- APS Transmission Planning Policy
- Assessment of APS' Transmission System
- Comparison of Biennial Transmission Assessment 1 and 2 for APS
- Transmission Planning Challenges
- Palo Verde Hub Risk Assessment
- Northern Arizona Transmission Update
- Yuma Import Analysis

ACC Second Biennial Transmission Assessment Workshop

Yuma Transmission Import Analysis

I. General Overview of Transmission Constraint Analysis:

- Transmission constraints are part of virtually all transmission systems
  - Generally uneconomic to attempt to relieve all transmission constraints
  - Goal of effective transmission planning is to develop a robust system
- Must balance local generation with transmission import capability and, if appropriate, demand response alternatives
- Cost-benefit analysis should consider non-economic costs
- Need to ensure cost-recovery for transmission projects

Yuma Transmission Import Analysis

Existing Load Serving Capability:

Transmission			
• Palo Verde-North Gila 500 kV continuous rating results an allocation for APS			140 MW
• WAPA contractual limit			38
Generation			
• Yucca CT	1	19 MW	
	2	19 MW	
	3	55 MW	
	4	54 MW	
Total			147
Delivery Flexibility			
• Purchases from West to North Gila			50
Total			375

ACC Second Biennial Transmission Assessment Workshop

Yuma Transmission Import Analysis

Future Alternatives:

• Gila Bend-Yuma 230 kV (APS Planned Additions)	150MW
• Palo Verde-North Gila 500 kV upgrades	40MW
• Joint development Palo Verde-North Gila 500 kV #2 or equivalent	150MW
• Merchant Power Plants interconnected at North Gila	150MW
• Potential alternatives with WAPA	150MW

APPENDIX RK-2

APS Yuma Area Reliability Must Run Estimates
2003-2012
Revisions Made by Robert Kendall
November 18, 2002

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Capacity Need (MW)										
Yuma Area Peak Demand	303	322	330	339	344	355	363	372	382	392
Transmission Import Limit	148	148	148	148	148	148	148	148	148	148
RMR Need	155	174	182	191	196	207	215	224	234	244
APS Resources	139	139	139	139	139	139	139	139	139	139
APS Reserves	52	52	52	52	52	52	52	52	52	52
Unmet Need	**68**	**87**	**95**	**104**	**109**	**120**	**128**	**137**	**147**	**157**

APPENDIX RK-3

WELLTON-MOHAWK GENERATING FACILITY'S FIRST SET OF DATA REQUESTS TO ARIZONA PUBLIC SERVICE COMPANY
DOCKET NO. E-00000A-02-0051, E-01345A-01-0822, E-00000A-01-0630, E-01933A-02-0069
TRACK B
November, 6, 2002

RK 1.3 Please provide a list of all transmission and generation options including proposed operating dates for each option that is available to APS to mitigate or eliminate the RMR situation in the Yuma load pocket.

RESPONSE:

See attachment from APS' presentation at second BTA workshop on various options to be considered. [ATTACHMENT WM DR 1 Q. RK 1.3] However, new generation won't get rid of RMR. It would just increase the local generation pool from which to purchase the power needs above what the EHV system could deliver. The load serving capability has always been a combination of transmission & local generation. Reconductoring of the local 69kv lines is in progress to eliminate local line loading problems. In addition, options of importing power from the West of N. Gila are being evaluated and pursued to increase the import capability to Yuma from the EHV system. This could be accomplished before next summer. We can only increase that value by a maximum of 100 MW which will load the N. Gila transformer to it nameplate rating. This 100 MW of increased capacity could probably meet the local needs for 8-10 years. The current plans of APS call for a new 230kv line into the Yuma area around 2008. The specific amount of import capability this would bring is unknown, but 100 MW is a reasonable assumption. If we were successful in procuring a West of N. Gila resource, the 230kv line project would be delayed.

ATTACHMENT UM 1Q RK 1.3

Agenda Item 5c

ACC Second Biennial Transmission Assessment Workshop

Yuma Transmission Import Analysis

Future Alternatives:

• **Gila Bend-Yuma 230 kV** (APS Planned Additions)	**150MW**
• Palo Verde-North Gila 500 kV upgrades	40MW
• Joint development Palo Verde-North Gila 500 kV #2 or equivalent	150MW
• Merchant Power Plants interconnected at North Gila	150MW
• Potential alternatives with WAPA	150MW

APPENDIX RK-4

WELLTON-MOHAWK GENERATING FACILITY'S FIRST SET OF DATA REQUESTS TO ARIZONA PUBLIC SERVICE COMPANY
DOCKET NO. E-00000A-02-0051, E-01345A-01-0822, E-00000A-01-0630, E-01933A-02-0069
TRACK B
November, 6, 2002

RK 1.7 Please provide a year-by-year listing of APS's unmet EPS renewable resource requirement under the EPS.

RESPONSE:

See Attachment [ATTACHMENT WM DR 1 Q. RK 1.7]

ATTACHMENT WM DR 1 Q. RK 1.7

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Solar electric (or equivalent EPS credits) required (MWh)	75,194	124,982	161,573	174,789	188,440	193,803	199,130	204,697	210,288	215,909
Solar electric (or equivalent EPS credits) planned (MWH) *	15,745	23,428	32,535	38,466	48,698	55,479	62,261	76,050	82,832	83,832
Shortfall (MWh)	59,449	101,554	129,038	136,323	139,742	138,324	136,869	128,647	127,456	132,077
" Other" (or equivalent EPS credits) required (MWh)	75,194	83,322	107,715	116,526	125,627	129,202	132,753	136,465	140,192	143,940
"Other" (or equivalent EPS credits) planned (MWh) *	35,301	75,419	100,385	125,351	133,235	172,874	193,898	233,537	254,561	254,561
Shortfall (MWh)	39,893	7,903	7,330	(8,825)	(7,608)	(43,672)	(61,145)	(97,072)	(114,369)	(110,621)

* Includes off-grid applications and multipliers not appropriate for determining APS unmet needs.
* Please note this assumes current funding levels. To the extent the funding levels are increased, APS' shortfall would be reduced accordingly.