

**ORIGINAL  
OPEN MEETING**



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MEMORANDUM

RECEIVED

TO: THE COMMISSION

2010 NOV -8 P 4: 20

FROM: Utilities Division

AZ CORP COMMISSION  
DOCKET CONTROL

DATE: November 8, 2010

RE: ARIZONA CORPORATION COMMISSION'S SIXTH BIENNIAL TRANSMISSION ASSESSMENT, PURSUANT TO A.R.S. § 40-360.02.G, OF THE ADEQUACY OF EXISTING AND PLANNED TRANSMISSION FACILITIES TO MEET ARIZONA'S ENERGY NEEDS IN A RELIABLE MANNER (DOCKET NO. E-00000D-09-0020)

Arizona Revised Statute (A.R.S.) § 40-360.02.A states, "Every person contemplating construction of any transmission line within the state during any ten year period shall file a ten year plan with the commission on or before January 31 of each year." § 40-360.02.E states, "The plans shall be reviewed biennially by the commission and the commission shall issue a written decision regarding the adequacy of the existing and planned transmission facilities in this state to meet the present and future energy needs of this state in a reliable manner."

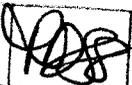
Staff has completed its sixth biennial assessment of Arizona's existing and planned transmission system. Staff filed its report with Docket Control on November 5, 2010, in compliance with the aforementioned statute. Staff's report addresses the adequacy and reliability of Arizona's existing and planned transmission system and offers conclusions and recommendations for the Commission's consideration and action.

This biennial transmission assessment ("BTA") represents the professional opinion of Commission Staff and its Consultant, KEMA, Inc. ("KEMA"). The BTA is not an evaluation of individual transmission provider's facilities or quality of service. This BTA report does not set Commission policy and does not constitute approval of any individual Arizona transmission provider's project. It assesses the adequacy of Arizona's existing and planned transmission system to reliably meet existing and future energy needs of the State. Staff concludes in its report that the utility industry has implemented steps to address the regional transmission planning issues, provide transmission enhancements and additions, develop solutions for transmission import constraints in various load pockets, support the growth of renewable resources in Arizona, and address local transmission system inadequacies.

Arizona Corporation Commission

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NOV - 8 2010

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THE COMMISSION

November 8, 2010

Page 2

Staff recommends that the Commission adopt Staff's Sixth Biennial Transmission Assessment as set forth in Staff's proposed order.

A handwritten signature in black ink, consisting of several overlapping, sweeping strokes that form the name 'Steven M. Olea'.

Steven M. Olea  
Director  
Utilities Division

SMO:PKB:lhm\WVC

ORIGINATOR: Prem K. Bahl

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BEFORE THE ARIZONA CORPORATION COMMISSION

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Chairman  
GARY PIERCE  
Commissioner  
PAUL NEWMAN  
Commissioner  
SANDRA D. KENNEDY  
Commissioner  
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Commissioner

IN THE MATTER OF THE ARIZONA CORPORATION COMMISSION'S SIXTH BIENNIAL TRANSMISSION ASSESSMENT, PURSUANT TO THE ADEQUACY OF EXISTING AND PLANNED TRANSMISSION FACILITIES IN A RELIABLE MANNER

DOCKET NO. E-00000D-09-0020  
DECISION NO. \_\_\_\_\_  
ORDER

Open Meeting  
November 22 and 23, 2010  
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

1. The Utilities Division Staff ("Staff") of the Arizona Corporation Commission ("Commission") and its consultant, KEMA, Inc. ("KEMA"), have completed the sixth biennial transmission assessment of Arizona's existing and planned transmission system. The Sixth Biennial Transmission Assessment, 2010-2019 ("BTA", or "assessment") was filed with the Commission on November 8, 2010. The BTA report was also posted on the Commission website at: <http://www.cc.state.az.us/divisions/utilities/electric/biennial.asp>.

2. The Sixth BTA report represents the professional opinion of Staff and its consultant, KEMA. The BTA is not an evaluation of individual transmission providers' facilities or quality of service. The BTA does not set Commission policy or approve any individual Arizona transmission provider's project(s). It assesses the adequacy of Arizona's existing and planned transmission system to reliably meet existing and future energy needs of the State.

1           3.       Staff held two workshops to gather stakeholders' input. The first workshop was  
2 held on June 3-4, 2010 and the second workshop on August 4, 2010. The comments and  
3 presentations submitted at the workshops, materials filed in the docket and subsequent  
4 correspondence have been incorporated into the BTA.

5           4.       The ten-year transmission plans and study reports filed by the participants with the  
6 Commission are necessary to evaluate the adequacy and reliability of the existing and planned  
7 transmission system. Staff was assisted by KEMA in analyzing the technical reports and  
8 documents filed by various organizations and individuals. The broad spectrum of information and  
9 technical reports assembled and reviewed address transmission assessments from a national,  
10 western interconnection, regional, state and local utility perspective.

11          5.       The Sixth BTA report addresses the adequacy and reliability of Arizona's existing  
12 and planned transmission system and offers conclusions and recommendations for the  
13 Commission's consideration and action. Staff concludes in its report that the Arizona utility  
14 industry has implemented steps to address the regional transmission planning issues, provide  
15 transmission enhancements and additions, develop solutions for transmission import constraints in  
16 various load pockets, support the growth of renewable resources in Arizona, and address local  
17 transmission system inadequacies.

18          6.       These conclusions are based upon the following findings:

- 19           a. As a result of current economic conditions, the statewide demand forecast for  
20 the 2010-2019 ten year planning period has shifted by about four years since the  
21 5<sup>th</sup> BTA (i.e., it will take four years longer to reach the 2008 demand forecast  
22 levels).
- 23           b. A total of 33 transmission projects have been delayed since the 5<sup>th</sup> BTA, with  
24 an average delay of roughly 4 years. In addition, 18 other transmission projects  
25 were cancelled. The combination of cancelled and delayed projects represents  
26 slightly more than one third of the projects filed in the 5<sup>th</sup> BTA in 2008. These  
27 delays and cancellations are consistent with the reduction in statewide demand  
28 forecast since the 5<sup>th</sup> BTA and do not appear to threaten the adequacy of the  
system or its ability to reliably serve load.
- c. Information on transmission reconductor projects, bulk power transformer  
replacements planned for the purpose of capacity upgrade, and reactive power  
compensation additions at 115 kV and above, if included in future ten-year plan  
filings, would assist the Commission in meeting its obligation "to biennially

1 make a determination of the adequacy and reliability of existing and planned  
2 transmission facilities in the state of Arizona”.

3 d. All Commission required studies related to adequacy and reliability have been  
4 filed. The following findings apply to the efficacy of the filed documents  
5 relative to the intent of the Commission ordered actions:

- 6 1) The Phoenix, Tucson and Yuma area Reliability Must-Run (“RMR”) studies  
7 for 2013 and 2019 were thorough and well documented. These RMR  
8 studies indicate that local RMR generation will not be dispatched out of  
9 merit order<sup>1</sup> for a significant number of hours or yield RMR costs sufficient  
10 to warrant advancing transmission improvements. The Mohave County  
11 2013 and 2018, and Santa Cruz County 2013 and 2019, RMR studies were  
12 also well documented. The Mohave County study showed no RMR  
13 requirement. However, Santa Cruz County RMR analysis for 2010 showed  
14 an RMR requirement of 24 MW. No Santa Cruz RMR requirement was  
15 found in 2013 or 2019.
- 16 2) The Commission’s concern in the 5th BTA regarding the need for broader  
17 stakeholder involvement in the Yuma Area and Mohave County RMR  
18 studies has been satisfactorily addressed through the RMR studies for 2013  
19 and 2019 filed in the Sixth BTA. Affected utilities and stakeholders  
20 participated in the Yuma Area and Mohave County RMR study.
- 21 3) The “Ten Year Snapshot Study” (previously referred to as the “N-1-1  
22 Study”) was performed by the Central Arizona Transmission System – Extra  
23 High Voltage (“CATS-EHV”) study group and represents a composite  
24 assessment of the statewide Arizona transmission system and the  
25 performance of the ten-year expansion plan under normal, single-  
26 contingency and certain overlapping contingencies. The Extreme  
27 Contingency Study was performed by Arizona Public Service Company  
28 (“APS”) and examines more severe contingency scenarios such as corridor  
outages. These studies demonstrate the ten-year plan is robust and should  
provide adequate and reliable service to Arizona.
- 4) The proposed definition of “continuity of service” described in the Cochise  
County Study Group’s (“CCSG”) 2009 technical study report, as filed by  
Southwest Transmission Cooperative, Inc. (“SWTC”) in January 2010, is  
appropriate for planning of the Cochise County system. The transmission  
plan identified in the CCSG 2009 report represents a reasonable set of  
transmission expansion projects to achieve the “continuity of service”  
objective in Cochise County. However, based on feedback received from  
CCSG participants during the Sixth BTA, possible changes in the Cochise  
County load forecast may allow delaying certain components of the plan of

<sup>1</sup> In a merit order dispatch the most economic mix of dispatchable generating units is selected to run each hour. However, RMR units may be run out of merit order in order to satisfy reliability needs on the grid.

- 1 service in the 2013-2018 time frame, discussed in the CCSG report, without  
2 jeopardizing Cochise County's continuity of service.
- 3 5) The Southeast Arizona Transmission System ("SATS") report and the  
4 Southwest Transmission Cooperative ("SWTC") ten-year plan have both  
5 identified overload issues on the Apache-Butterfield 230 kV line beginning  
6 in 2012. An upgrade of the line is being deferred to 2016. Therefore,  
7 interim mitigation measures will be needed in 2012-2015 in order to  
8 maintain system reliability. Furthermore, the study has identified numerous  
9 230 kV and 115 kV bus voltage deviations that may be unacceptable, and  
10 states that further analysis is needed to address these issues. This analysis  
11 will be completed in 2011.
- 12 6) Santa Cruz County remains exposed to extended customer outages during a  
13 contingency of the radial transmission line serving the county. Additional  
14 transmission line improvements outlined in the UniSource Energy Services  
15 ("UNSE") ten-year plan for Santa Cruz County will mitigate this exposure,  
16 but are contingent upon resolution of a long-standing federal permitting  
17 matter.
- 18 7) The Central Arizona Transmission System - High Voltage ("CATS-HV")  
19 study of the planned 2019 Pinal County system assumed Southwest Public  
20 Power Resource's ("SPPR") "Three-Terminal" transmission plan (i.e., Pinal  
21 Central to ED5, ED5 to Test Track and ED5 to Marana 230 kV lines).  
22 However, at Sixth BTA Workshop 1 it was announced that SPPR has  
23 deferred plans for two of these line additions indefinitely. The impact of  
24 these deferrals on the results of the CATS-HV study of 2019 is unknown  
25 and cannot be determined from the filed studies.
- 26 8) The 2009 utility filings, in response to the 5th BTA order for the utilities to  
27 identify their top three Renewable Transmission Projects ("RTPs"), are  
28 responsive to the Commission's order. An inclusive stakeholder process  
was developed and executed to identify the projects. In addition, the  
utilities are considering the impact of proposed utility-scale renewable  
projects as part of their normal planning processes.
- e. Arizona utilities have been extensively engaged in, and providing leadership to,  
Southwest Area Transmission Study Group ("SWAT") and WestConnect  
subregional planning processes. These utilities and other stakeholders have also  
participated and contributed valuable input during the Sixth BTA process.
- f. The Federal Energy Regulatory Commission ("FERC") has implemented  
mandatory reliability standards and audits over the past two to three years,  
including transmission planning standards, as discussed in the body of the BTA  
report. It is still unclear to Staff how this should be recognized and integrated  
into the BTA process. Staff and KEMA have attempted to explore this question  
through data requests and stakeholder workshop discussion. Developing  
consensus on how to address these standards in the BTA process will take  
additional time and effort.

- 1 g. Technical studies filed in the Sixth BTA indicate a generally robust study  
2 process for assessing transmission system performance (steady-state and  
3 transient) for the 2010-2019 planning period.
- 4 h. Regional and subregional planning studies have effectively addressed the  
5 interconnected Extra High Voltage ("EHV") transmission that is critical to a  
6 functional interstate wholesale market. Studies indicate the existing and  
7 planned Arizona EHV system is adequate to support a robust wholesale market.
- 8 i. Developing Arizona's vast renewable resource potential requires a coordinated  
9 and multi-faceted strategy involving stakeholders representing utility,  
10 government, economic, developer, environmental, and other interests.  
11 Decisions by the Commission and the actions taken by the Arizona utilities and  
12 regional stakeholders are important steps towards the state's goal of becoming a  
13 national and world leader in renewable energy development.
- 14 j. Most of the transmission corridors identified in the utilities' initial RTP  
15 proposals to serve potential renewable generation are compatible with projects  
16 in the utilities' previously filed transmission plans. Furthermore, most of the  
17 RTPs identified by the utilities are actually advancements of projects already  
18 included in previous transmission plans.
- 19 k. Because the selected RTP projects are ones that have been identified in earlier  
20 transmission plans they should contribute to reinforcing the transmission system  
21 beyond the specific needs of renewable generation projects. We would expect  
22 them to be effective in enabling delivery of renewable resources developed  
23 close to either the Phoenix-Tucson regions or the Palo Verde hub. As projects  
24 are developed farther from these areas, completely new transmission plans will  
25 likely need to be identified and developed.
- 26 7. Staff recommends that the Commission:
- 27 a. Continue to support the use of the:
- 28 1) "Guiding Principles for ACC Staff Determination of Electric System  
Adequacy and Reliability",
- 2) North American Electric Reliability Corporation ("NERC") reliability  
standards, Western Electricity Coordinating Council ("WECC") system  
performance criteria and FERC enforcement policies regarding transmission  
system planning reliability standards, and
- 3) Collaborative planning processes in Arizona and throughout the western  
region that facilitate competitive wholesale markets, and are consistent with  
FERC Order 890.
- b. Continue to support the policy that generation interconnections should be  
granted a Certificate of Environmental Compatibility by the Commission only  
when they meet regional and national reliability standards and the requirements  
of Commission decisions.

1 c. Accept the results of the following Commission ordered studies provided as part  
2 of the Sixth BTA filings:

3 1) Extreme contingency outage study for Arizona's major transmission  
4 corridors and substations, and the associated risks and consequences of  
such overlapping contingencies.

5 2) "N-1-1" (Ten-Year Snapshot) study results documenting the  
6 performance of Arizona's statewide transmission system in 2019 for a  
7 comprehensive set of N-1 contingencies, each tested with the absence  
of nine different major planned transmission projects (N-1-1).

8 3) RMR studies for Phoenix, Tucson, Yuma, Mohave County and Santa  
Cruz County.

9 d. Accept the definition of "continuity of service" following a transmission line  
10 outage as proposed in the Cochise County Study Group's 2009 technical study  
11 report filed by SWTC in January 2010, and accept the recommended  
12 transmission plan of service as shown in Section 4.2.1 of the Sixth BTA report  
in order to achieve this "continuity of service" objective in Cochise County.

13 e. Enter the following orders:

14 1) SWTC, APS, Tucson Electric Power Company ("TEP") and Sulphur  
15 Springs Valley Electric Cooperative ("SSVEC") shall jointly complete  
16 additional actions and file specified information related to the Cochise  
County Study Group plan of service with the Commission as follows:

17 i) By June 30, 2011, identify the components of the plan in a  
18 facilities report that provide the most benefit to customer  
19 reliability and can be implemented in the shortest timeframe, and  
20 file a progress report with the Commission that includes planned  
in-service dates for all relevant elements of the plan reflecting  
these priorities.

21 ii) By September 30, 2011, submit a progress report including in-  
22 service dates for the components of the plan of service identified  
in the June 30, 2011, facility study. This schedule shall reflect the  
most recent load forecast.

23 iii) By December 31, 2011, substantially complete contractual  
24 negotiations with affected parties over cost responsibility,  
25 wheeling arrangements, Engineering, Procurement and  
26 Construction ("EPC"), operations and maintenance, etc.  
(described as pending items in the CCSG 2009 report), and file a  
27 draft memorandum of understanding among affected parties  
addressing these items with the Commission.

- 1 iv) By June 30, 2012, file a progress report with the Commission  
2 including an executed memorandum of understanding between the  
3 parties that includes planned in-service dates for all remaining  
4 elements of the plan in the 2013-2018 timeframe. If applicable, in-  
5 service dates beyond 2013-2018 may be proposed for later stages  
6 of the plan if justified by documented changes in the load  
7 forecast<sup>2</sup>.
- 8 v) By December 31, 2012, seek to obtain all required approvals and  
9 permits needed to complete remaining components of the plan,  
10 and file a progress report on plan implementation with the  
11 Commission. If any related approvals or permits from appropriate  
12 regulatory agencies are still pending at that time, the progress  
13 report shall identify a clear action plan and proposed schedule to  
14 obtain such approvals.
- 15 2) The jurisdictional utilities shall report relevant findings in future BTAs  
16 regarding compliance with transmission planning standards (e.g., TPL-  
17 001 through TPL-004) from NERC/WECC reliability audits that have  
18 been finalized and filed with FERC.
- 19 3) SWTC shall determine if an engineering "re-rating" of the Apache-  
20 Butterfield 230 kV line as proposed in the Sixth BTA filings would be  
21 an acceptable measure until the line is upgraded in 2016, and to file  
22 the results of this assessment by January 31, 2011.
- 23 4) APS, SWTC and TEP shall conduct additional analysis of potential  
24 230 kV and 138 kV voltage deviations in Southeastern Arizona as  
25 noted in the 2009 SATS report and file an update based on the 2010  
26 SATS by February 28, 2011, and shall finalize mitigation plans if  
27 needed for this voltage concern in ten-year plan filing(s) for the 7th  
28 BTA by January 31, 2012.
- 5) UNSE shall update its assessment of long term alternatives for Santa  
Cruz County continuity of service, as part of UNSE's 2012-2021 ten-  
year planning studies, and file a report on the updated assessment in  
the 7th BTA in 2012. Furthermore, if any approvals or permits from  
federal agencies related to the Gateway Transmission Project are still  
pending at that time, Staff recommends that the Commission require  
the 7<sup>th</sup> BTA filings to include a clear action plan and proposed  
schedule to obtain such approvals.
- 6) Jurisdictional utilities shall continue to perform RMR studies in  
accordance with the methodology set forth in Appendix C to this Sixth  
BTA, and shall file such studies with ten-year plans for inclusion in  
future BTA reports.

<sup>2</sup> Load forecast updates may include the impacts of energy efficiency improvements, demand side management, demand response, distributed generation and other applicable factors.

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7) Jurisdictional utilities shall include planned transmission reconductor projects, transformer capacity upgrade projects and reactive power compensation facility additions at 115 kV and above in future BTA ten-year plan filings.

CONCLUSIONS OF LAW

1. According to A.R.S. § 40-360.02.A, “Every person contemplating construction of any transmission line within the state during any ten year period shall file a ten year plan with the Commission on or before January 31 of each year.”

2. According to A.R.S. § 40-360.02.G, “The plans shall be reviewed biennially by the Commission and the Commission shall issue a written decision regarding the adequacy of the existing and planned transmission facilities in this state to meet the present and future energy needs of this state in a reliable manner.”

3. The Commission, having reviewed the Sixth Biennial Transmission Assessment 2010-2019, concludes that the assessment complies with A.R.S. § 40-360.02.

ORDER

IT IS THEREFORE ORDERED that the Sixth Biennial Transmission Assessment 2010-2019 is hereby issued as the Commission’s biennial assessment in accordance with A.R.S. § 40-360.02, G.

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IT IS FURTHER ORDERED that Staff recommendations contained in Finding of Fact No. 7 are hereby adopted by the Commission.

IT IS FURTHER ORDERED that this Decision become effective immediately.

**BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION**

CHAIRMAN

COMMISSIONER

COMMISSIONER

COMMISSIONER

COMMISSIONER

IN WITNESS WHEREOF, I, ERNEST G. JOHNSON, Executive Director of the Arizona Corporation Commission, have hereunto, set my hand and caused the official seal of this Commission to be affixed at the Capitol, in the City of Phoenix, this \_\_\_\_\_ day of \_\_\_\_\_, 2010.

\_\_\_\_\_  
ERNEST G. JOHNSON  
EXECUTIVE DIRECTOR

DISSENT: \_\_\_\_\_

DISSENT: \_\_\_\_\_

SMO:PKB:lh\WVC

1 SERVICE LIST FOR: SIXTH BIENNIAL TRANSMISSION ASSESSMENT  
 2 DOCKET NO. E-00000D-09-0020

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