ORIGINAL

TEP UniSource SERVICES

August 7, 2014

Steven M. Olea
Director, Utilities Division
Arizona Corporation Commission
1200 W. Washington St.
Phoenix, AZ 85007

RE: In the matter of the Commission's Eighth Biennial Transmission Assessment, pursuant to A.R.S. §40-360.02G, of the adequacy of existing and planned transmission facilities to meet Arizona's energy needs in a reliable manner (Docket No. E-00000D-13-0002)

Dear Mr. Olea:

Pursuant to our previous comments in this docket, Tucson Electric Power Company ("TEP") and UNS Electric, Inc. ("UNSE")(jointly, the "Companies") hereby submit this Coal Generation Reduction Assessment on behalf of the Southwest Area Transmission ("SWAT") group.

The SWAT Coal Reduction Assessment Task Force ("CRATF") was formed to review potential reliability problems that could result from the retirement of coal-fired power plants within the next five years. Participants in a February 19, 2014 meeting of the SWAT Oversight Committee discussed several potential issues, including: loss of inertia; change in generating patterns impacting path ratings; exacerbation by the retirement of the San Onofre Nuclear Generating Station and once-through cooling gas units in California; and the limited timeframe to respond to such complications. The Swat Oversight Committee formed the CRATF at that meeting to help define the problem, develop the study scope and to guide the study process. The first phase of study work, which is ongoing, seeks to determine the potential impact of actual and proposed coal plant retirements on the stability of the bulk electric system. Objectives of a second phase are to be determined upon completion of the initial phase and could include addressing implications of the resulting generation resource mix on path ratings.

The study assumes heavy summer conditions and examines a 2019 baseline case that includes only those coal plant retirements that have been announced and are certain to occur. Then various scenarios and sensitivity cases were studied, including a scenario wherein coal retirements were stressed to about 5 GW of retired capacity within the SWAT footprint. In the stressed scenario – which assumes that retired coal-fired power plants are replaced with only renewable resources, existing uncommitted capacity and decreased flow to California – the study indicates that transient instability occurs under a severe contingency condition. However, this instability does not appear if approximately 25 percent of retired coal-fired generating capacity is replaced by new natural gas-fired generation and the balance is replaced by renewable resources and existing uncommitted capacity. This improvement is likely due to the gas generation's contribution to lost inertia and dynamic reactive capability associated with the reduction in coal plant capacity.

At this point, the study's conclusions include:

- There is a limit to the number of coal-fired power plants that can be shut down without compromising system reliability.
- This limit is influenced by the availability of gas-fired replacement capacity.

- The amount of renewable resources that may be integrated is dependent upon the addition of gas-fired generation or other resources that compensate for loss of inertia and dynamic reactive capability.

The study has not determined the amount of natural gas-fired capacity needed to maintain stability or a necessary ratio of gas to renewable resources. Additional research is recommended to determine optimal combinations of inertia and voltage support, the appropriate sources for the inertia and voltage support, and the best locations for these sources. Further study work examining the 2020 planning horizon should be coordinated with entities within the SWAT footprint as well as the California ISO and transmission owners throughout the west. Arizona entities are participating in important similar efforts.

The SWAT study was discussed at the WestConnect Planning Management Committee. A proposal to use a coal reduction scenario to establish regional transmission needs that may be evaluated through the WestConnect FERC Order 1000 regional planning process is under consideration.

Presentations of the SWAT coal reduction study were given to the WECC Transmission Expansion Planning Policy Committee in April 2014 and August 2014. In addition, Arizona transmission owners have initiated a similar analysis, assuming 2020 system conditions, on a broader western footprint through the WECC Planning Coordinating Committee. Coordination of these efforts will help ensure consistency in the studies while examining the coal reduction impacts from the local, sub-regional, regional, interregional and Western Interconnection perspectives. Timeframes for the studies range from 2020 – in accordance with the Environmental Protection Agency ("EPA") Clean Power Plan – to the 10-year planning horizon. The intention is to obtain information from the 2020 studies to inform comments to the EPA by October of this year. The longer term studies will take longer to complete.

Future studies will be necessary to determine more specific inertial and dynamic reactive capability requirements after final decisions related to state and regional resource mix goals have been made.

This concludes our supplementary comments regarding the Coal Generation Reduction Assessment. The Companies appreciate the opportunity to comment and look forward to further discussion of these issues in this docket.

Sincerely,

Ron Belval

Ron Belval
Supervisor, Transmission Planning and Administration

CC: Docket Control