

Arizona Public Service Company (APS), as an adjacent balancing authority to the CAISO and other California balancing authorities, submits the following comments on the Phase 4 CTPG report. The comments are organized into the following two sections; first, comments on the report; and second, comments on our suggested project to alleviate future congestion between the Palo Verde Hub and the Blythe area, the Delany – Colorado River Project. APS brings a long history of transmission development and operating experience in the Southwest. APS is a part owner and the operator of the bulk of the 500kV system in Arizona. Much of the Arizona 500kV transmission system is partly owned by California utilities and utilized to transmit resources within Arizona and New Mexico that California utilities own. APS is a leader in WECC involvement and regional and sub-regional transmission planning.

Comments on the Phase 4 CTPG report:

- The report assumes the renewable energy contribution at the Eldorado station is 50%, Palo Verde is 37.5% and North Gila station is 12.5%.
 - We suggest performing some sensitivity analysis around the percentage of renewable energy contributed by each state that could have a bearing on the Delaney - Colorado River 500 kV project as well.
 - CTPG recognizes in the report that uncertainty of location of renewable resources is a major challenge in the development of a definitive transmission plan and sensitivity analysis could help in identifying optimum transmission solution.

- The AZ and NM queues have a large number of renewable projects in their queues. The MW capacity in queue of the following entities is provided:
 - APS: 11120 MW
 - Salt River Project (in AZ): 3400 MW
 - WAPA, Desert Southwest Region, sells power in AZ, southern CA and wholesale customers in portions of Southwest: 4840 MW
 - PNM: 15,940 MW
 - NV Energy: 3293 MW

The large amount of renewable in queues in Arizona and New Mexico compared to Nevada support the need to study potential congestion between the Palo Verde Hub and the Blythe area and include consideration of a Delany – Colorado River project.

- In Phase 4, CTPG has identified "high potential" transmission corridors as opposed to "high potential" transmission elements as identified in Phase 3.
 - The CTPG does not believe the transmission upgrades associated with significant renewable energy imports from out-of-state should be designated as high potential transmission projects based on lack of commercial interest demonstrated by CA LSE's in the out-of-state renewable energy resources. However, that could be attributed to the fact that the CA LSE's consider transmission as a hurdle to procure out -of-state renewable energy. With the announcement of high potential out of states transmission the interest levels could very well change.
 - Additionally, another point to note is that if the in-state renewable zones do not develop as planned then CA will have to look for resources outside the state to meet their RPS requirements by 2020 which might becoming a daunting task with no out-of-state transmission planned in advance.

- In Phase 4 studies involving the southwest corridor, CTPG identified reliability issues in southern CA if significant renewables resources were procured by CA through the state's interconnections with the desert southwest (NV and AZ). The Delany - Colorado River 500 kV could alleviate some of these reliability concerns.

- CTPG recognizes the Southwest Corridor, amongst others, as a potential option for the state of California to import power to meet the state's RPS goals. This corridor that warrants further study in 2011 has been selected for following reasons:
 - The corridor is associated with out-of-state transmission upgrades currently being considered by other sub-regional planning groups as potential WECC transmission system improvements
 - NV, WY, UT, AZ and NM all support the export of renewable energy to CA. All these states believe that the development and export of renewable energy is important to their respective states economic strategies and have the necessary support of private and government entities.
 - Renewable resources spread across the five states would provide CA a renewable resource portfolio that has geographical and weather diversity.
 - The corridor will provide access to entities that are currently planning for renewable development beyond their own needs for imports into CA and have a successful record of renewable resource development.

- In Phase 3, CTPG identified "high potential" and "medium potential" transmission elements to be considered for inclusion in CTPG's state-wide transmission plan. Results of Phase 3 analysis (stated explicitly in the report) suggest that the initial set of "high potential" transmission elements will provide transmission capacity to prevent reliability criteria violations when sufficient renewable energy is being generated to meet a CA RPS of approx. only 22-24% in year 2020. These "high potential" transmission projects do not provide adequate transfer capability to allow all CA LSEs to meet their 33% RPS goals without potential reliability violations under the assumed renewable injection points and fossil generation redispatch scenario. It is unclear if perhaps the high potential transmission elements in conjunction with the medium potential transmission elements will resolve all the reliability issues or in fact there is a need for some additional transmission elements to maintain system reliability that has still to be identified.

Comments Specifically on the Delany-Colorado River project:

- The proposed Delany-Colorado River project serves to be a critical piece of the Southwest High Potential Transmission Corridor contemplated to be studied in the 2011 CTPG study. Given the potential near term benefits to California it is recommended that the CTPG study this transmission upgrade in studies planned in 2011 and recommend this project for incorporation into the CAISO planning process based on economic and policy drivers with significant residual reliability benefits.
- The project is a low-cost solution (high level estimate at approximately \$220M) relative to the anticipated benefits.
- The relatively low cost of the Delany-Colorado River project coupled with anticipated lower prices for renewable energy in Western Arizona and the lower cost of ancillary services and firming energy from the Arizona market will be attractive to the CAISO which ultimately will be attempting to minimize the production cost to meet its demand requirements.
- In addition to up front reliability and economic benefits, the proposed project would provide additional access to a significant fleet of existing generating units and future planned resources in the Palo Verde Hub area which could be available for various ancillary services including:
 - Generation reserves
 - Load following and regulation
 - Firming of variable generation resources inside California such as wind and solar

- Voltage and inertial support which will increase the reliability of generation interconnections in California on the Colorado River to Devers transmission line.

Regardless of where the renewable resources to enable California to meet the renewable energy requirements are developed, it will be extremely challenging for the CAISO to integrate these resources into the grid. The Delany-Colorado River would allow access to an abundance of resources that could provide these much needed ancillary services to allow for this integration.

- The project has substantial planning support to date, including studies by the CAISO, WECC, WestConnect, U.S. Department of Energy, among others.
- The project has already gone through significant permitting and siting review and much of the routing, etc. may be able to be used to expedite the process and bring near term benefits to California.
- The project is anticipated to bring both near term and long term benefits.
 - Interconnection to the Palo Verde hub will result in immediate market and reliability benefits to California.
 - This project is not dependant on additional non-CAISO transmission projects under open season or other non-CAISO tariff mechanism which would put the need for the project at risk.
 - This project will provide increasing reliability benefits to generation interconnections along the I-10 corridor and in the Blythe area in California
 - This project will provide a low cost platform which will increase options and competition for generation interconnection to California lowering costs to customers.
- The configuration of the proposed project would provide an import path for the southwest out-of-state renewable resources and existing low-carbon resources under evaluation by the CTPG (i.e., Palo Verde, North Gila) as well as interconnect with the High Potential Transmission Upgrades in earlier phases of the study (i.e., Colorado River-Devers #2 line).
- The project is located in the same vicinity as a major renewable resource potential thus requiring fewer additional upgrades to connect and deliver resources, versus more remote areas such as Nevada and other states further north and west. In determining specific projects within the Southwest Corridor, the CTPG should consider the total scale and cost of the facilities needed to access and deliver resources from the different import areas.
- The proposed project would increase access for California customers to the liquid Palo Verde hub and mitigate congestion on the Arizona-California interface. Residually, this would significantly increase the reliability and economic viability of renewable resources located east of the Colorado River where favorable siting for renewable energy exists.
- Two major transmission owners/developers - APS and Electric Transmission America (“ETA”) - have submitted the project to the CAISO for economic study consideration.
 - Arizona Public Service brings a long history of transmission development and operating experience in the Southwest. APS owns and operates over 5,200 miles of transmission circuits and is a part owner and the operator of the bulk of the 500kV system in Arizona. Much of the Arizona 500kV transmission system is partly owned by California utilities and utilized to transmit resources within Arizona and New Mexico that California utilities own. APS is a leader in WECC involvement and regional and sub-regional transmission planning.
 - Electric Transmission America, through its affiliates American Electric Power and MidAmerican Energy Holdings Company, brings the expertise and support of the owners of the first and fifth largest transmission systems (measured in lines miles per the Edison

Electric Institute) in support of this project, and has significant experience with 500 kV and higher voltage system operation and design.