

**COMMENTS OF THE
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
ON THE CAISO'S 2014-2015 TRANSMISSION PLANNING PROCESS RELIABILITY STUDY
RESULTS**

The Transmission Agency of Northern California (TANC) appreciates the opportunity to provide comments on the results of the California Independent System Operator's (CAISO) 2014-2015 Transmission Planning Process (TPP) studies as originally posted on the CAISO website on August 15, 2014, and as discussed at the TPP Stakeholder meetings held on September 24 and 25, 2014. TANC's comments focus on the reliability assessment results for the Pacific Gas and Electric Company's (PG&E's) bulk transmission system and on how issues associated with the PG&E bulk system can impact the California Oregon Intertie (COI) and the California-Oregon Transmission Project (COTP) for which TANC is the Project Manager and largest Participant.

TANC's primary concerns regarding these studies are the negative impacts which the loss of the remedial actions contracted for by PG&E with the California Department of Water Resources (CDWR), and which are currently included in the PG&E remedial action scheme (RAS), would have on the ability to import power over the COI of which the COTP is a major component. The CDWR RAS participation provides for dropping generation and pump loads of the CDWR associated with various double-line outages on PG&E's 500-kV transmission network between the Malin and Midway substations. Studies by the CAISO as part of the 2014-2015 TPP have indicated that removal of CDWR's participation in the PG&E RAS could reduce the amounts of power that could be delivered over the COI; however, the amounts of such reductions have not yet been fully studied or identified by the CAISO.

Specifically, the TPP studies have noted a number of issues due to Category B and Category C outages of Pacific AC Intertie (PACI) 500-kV lines if the CDWR generation at Hyatt and Thermalito and the CDWR pump loads are not tripped via RAS. Table 1 presents information derived from the CAISO reliability study results on the critical outages, the facilities impacted by each outage, and the potential mitigation solutions identified by the CAISO.

As shown in Table 1:

- A total of six facility overloads were noted in the CAISO studies for which the only "potential" solution was to reduce COI transfers.
- Five other facility overloads were noted in the CAISO studies for which one of the potential solutions was to reduce COI transfers.

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TABLE 1	
SUMMARY OF CAISO 2014-2015 TPP RELIABILITY STUDY RESULTS	
80% HYDRO/NO CDWR RAS	
Critical Outages and Impacted Facilities	Potential Mitigation Solutions
Outage of One Round Mt-Table Mt Line	
Other Round Mt-Table Mt 500-kV Line	Bypass series capacitors in the line or reduce COI transfers
Malin-Round Mountain DLO	
Captain Jack-Olinda 500-kV Line	Reduce COI transfers
Round Mountain 500/230-kV Transformer	Reduce COI transfers
Round Mountain-Table Mountain DLO	
Captain Jack-Olinda 500-kV Line	Reduce COI transfers
Olinda-Tracy 500-kV Line	Reduce COI transfers
Delevan-Cortina 230-kV Line	Reduce COI transfers and determine if additional mitigation is required
Table Mountain-South DLO	
Olinda-Tracy 500-kV Line	Reduce COI transfers
Delevan-Cortina 230-kV Line	Reduce COI transfers and determine if additional mitigation is required
Round Mt-Cottonwood #3 230-kV Line	Upgrade the line or reduce COI transfers
Round Mt-Cottonwood #2 230-kV Line	Upgrade the line or reduce COI transfers
Tesla-Vaca Dixon/Table Mountain-Tesla DLO	
Vaca Dixon-Parkway 230-kV line	Reduce COI transfers

In Appendix B of its final 2013-2014 Transmission Plan the CAISO presented information on estimated COI flow limits for various combinations of Northern California hydro generation, CDWR generation, Colusa generation, and Hatchet Ridge generation for the Table Mountain-South DLO and no DWR RAS. This information indicated that the COI flows would be limited to 4,500 MW due to overloads of about 6.5% on the Eight Mile-Lodi line when:

- The northern California hydro was at 80%,
- CDWR generation was at 710 MW,
- Colusa generation was at 690 MW, and
- Hatchet Ridge generation was at 103 MW.

Table 2 summarizes and compares the overloads noted on various facilities in the 2013-2014 TPP studies (for 2018 summer peak conditions) to those noted in the 2014-2015 TPP studies (for 2019 summer and spring peak conditions).

TABLE 2 COMPARISON OF POST-CONTINGENCY LOADINGS 80% HYDRO/NO CDWR RAS (%)			
Critical Outages and Impacted Facilities	2013-2014 TPP 2018 Summer Peak	2014-2015 TPP	
		2019 Summer Peak	2019 Spring Peak
Outage of One Round Mt-Table Mt Line			
Other Round Mt-Table Mt 500-kV Line	101.8	102.3	106.0
Malin-Round Mountain DLO			
Captain Jack-Olinda 500-kV Line	95	105.3	104.1
Round Mountain 500/230-kV Transformer	<95	<95	101.0
Round Mountain-Table Mountain DLO			
Captain Jack-Olinda 500-kV Line	<95	104.9	105.9
Olinda-Tracy 500-kV Line	<95	<95	105.1
Delevan-Cortina 230-kV Line	101.3	104.1	97.0
Table Mountain-South DLO			
Eight Mile-Lodi 230-kV Line	106.5	97.5	136.0
Olinda-Tracy 500-kV Line	<95	<95	101.9
Delevan-Cortina 230-kV Line	104.3	106.5	104.8
Round Mt-Cottonwood #3 230-kV Line	103.8	106.1	117.0
Round Mt-Cottonwood #2 230-kV Line	<95	<95	106.1

As shown in Table 2:

- The post-contingency overloads noted for the 2019 summer peak case used in the 2014-2015 studies are generally higher than those in the 2018 summer peak case used in the 2013-2014 studies
- A number of new or increased overloads are noted in the 2019 spring peak case (relative to the 2019 summer peak case).

In that the results for the 2014-2015 studies are more severe than those noted in the 2013-2014 studies TANC is concerned that the degree to which COI transfers would have to be reduced to mitigate the noted overloads will likely be significantly higher than those noted in the CAISO's 2013-2014 TPP studies.

The potential mitigation solutions identified by the CAISO do not appear to reflect any in-depth investigation of potential alternatives to the COI path flow limitation or the economic or policy effects of such a remedy. Solutions that do not require reducing COI transfers (such as reconductoring the Round Mountain-Cottonwood #2 and #3 lines and curtailing or tripping generation at Colusa or Hatchet Ridge) could be developed for all of the overloads noted in

Table 1; TANC encourages the CAISO and the other pertinent parties to actively assess the viability of such alternatives. TANC urges the CAISO to investigate actions other than limiting the COI transfers to mitigate the system overloads following outages on PG&E's transmission system.

Finally, TANC believes that limiting the COI transfers is not an acceptable mitigation since it impacts other transmission systems besides that of the CAISO. Limiting the operational transfer capability of the COI affects not just the CAISO but the Bonneville Power Authority (BPA), who operates the path north of the California border, and those owners of the COTP who are not located within the CAISO BA but are within the Balancing Authority of Northern California (BANC).