

**California Department of Water Resources State Water Project's Comments
to California Independent System Operator for the
2013-2014 Transmission Planning Process Stakeholder Meeting
September 25-26, 2013**

The California Department of Water Resources-State Water Project (CDWR) appreciates the opportunity to provide these comments to the 2013-2014 Transmission Planning Process (TPP) Stakeholder Meeting held by California Independent System Operator (CAISO) on September 25 and 26, 2013 to discuss the TPP preliminary reliability results posted on August 16, 2013.

Under the Comprehensive Agreement between CDWR and Pacific Gas and Electric Company (PG&E), which currently provides for interconnection and network service for CDWR's generating and pumping plants in PG&E's Service Area, CDWR provides tripping of CDWR's generation and pump loads through PG&E's Remedial Action Scheme ("RAS" or "PG&E's RAS") to CAISO. The participation of CDWR in PG&E's RAS enhances reliability and supports the transfer capability of the Path 66 "the California-Oregon Intertie" or ("COI") and Path 15 (between Midway substation and Los Banos substation), under certain conditions. CDWR's participation in RAS also benefit other transfer paths, through nomograms, by being able to instantaneously drop up to 933 MW of generation and up to 1437 MW of load in response to a major outage between Malin substation and Midway substation.

With the approach of the Comprehensive Agreement termination date of December 31, 2014, it was timely for the CAISO staff to perform studies and present their findings of grid operations with and without CDWR's participation in PG&E's RAS. At the same time, given the nature of the impacts that the TPP study results suggest may occur without CDWR's participation in PG&E's RAS, it is important that CAISO make sufficient information available and clearly understandable to CAISO stakeholders, to assess the impacts of the termination of CDWR's participation in PG&E's RAS and to clearly understand whether the continuation of CDWR's participation in PG&E's RAS could eliminate more expensive upgrades or operational changes. Since many of the TPP contingencies appears to result in impacts to flows on various paths, CDWR is not fully satisfied that enough studies have been completed by the CAISO 2013-2014 Transmission Planning Assessment to adequately address the impacts caused by discontinuation of CDWR's participation in PG&E's RAS. CDWR notes several areas below where more information, or further study if the studies have not been performed, may be necessary to illuminate the issues.

CDWR also appreciates the comprehensive nature of the presentations at the Stakeholder Meeting, and believes that the meeting provided an important opportunity for Stakeholders to share various and common interests. Below are a few suggestions and requests for clarification concerning the TPP preliminary reliability results and some of the issues that were discussed at the Stakeholder Meeting:

1. CDWR requests that CAISO provide a brief description of each contingency and its results, to supplement the summary table, which is not as descriptive. For example, it is not easy to identify which contingency switch file is associated with each identified overloaded facility. CAISO should also post the dynamic files (.dyd) along with their associated basecases that were used for their preliminary TPP studies for validation.

2. On Slide 3 of the “PG&E Bulk Transmission System Preliminary Reliability Assessment Results” presentation, CAISO states COI flow as 4800 MW (N-S) for years 2015, 2018, and 2023 summer peak. CDWR understands that PG&E’s RAS with CDWR’s participation helps establish the COI path ratings. CDWR further understands that some COI path owners believe that CDWR’s participation in PG&E’s RAS remains essential for this reason. The TPP study results suggest that, absent CDWR’s participation in PG&E’s RAS, there appear to be overloads in certain cases that could be resolved by reducing certain path ratings, leading to potential reliability impacts. Please clarify if CAISO would be able to achieve the existing COI path rating of 4800 MW North to South without CDWR’s participation in PG&E’s RAS? In addition, did the CAISO notice any impacts on Midway-Vincent Path 26 and Path 15 ratings, with and without CDWR’s participation in PG&E’s RAS?
3. CAISO’s preliminary study results only show impacts with and without Hyatt/Thermalito generation tripping as part of CDWR’s participation in PG&E’s RAS. Can the CAISO clarify whether there were any impacts analyzed with and without CDWR’s load dropping?
4. Did the CAISO run all the contingencies with and without CDWR’s participation in PG&E’s RAS? For example, were contingencies run for the Los Banos area with and without CDWR’s participation in RAS, since it is highly congested and CDWR’s participation in PG&E’s RAS was originally considered necessary to alleviate congestion issues in that area?
5. While performing this preliminary TPP analysis, did the CAISO identify any transformer overloads without CDWR’s participation in PG&E’s RAS?
6. The nomograms on Slide 15 of the “PG&E Bulk Transmission System Preliminary Reliability Assessment Results” presentation indicate the COI flow limits without CDWR’s participation in PG&E’s RAS for heavy summer cases in years 2015 and 2018 due to a double line outage at the Table Mountain-Tesla and Table Mountain-Vacaville Dixon 500kV Transmission Lines. It shows that in year 2018, without CDWR’s participation in PG&E’s RAS, with Hyatt generation at 710MW, the COI path will be able to tolerably support 4800MW, with up to 70% Northern California Hydro (NCH). However, in the 2018 summer peak case, the ratings persist to drop significantly to as low as 2600MW as NCH increases beyond 80%. Did CAISO further perform their assessment on spring off-peak cases with high NCH? For direct comparison, could CAISO also provide nomograms for similar basecases, with and without CDWR’s participation in PG&E’s RAS?
7. Can CAISO verify if CDWR’s participation in PG&E’s RAS tripping is no longer needed to mitigate for any Diablo-Canyon related generator or transmission line contingencies?
8. On Slides 10 through 14, CAISO presented contingencies including several associated with a double line outage at *Table Mountain-Tesla* and *Table Mountain-Vaca Dixon 500 kV* causing several Category C thermal overloads without CDWR’s participation in PG&E’s RAS:
 - a. On Slide 10, for a Delevan-Cortina 230kV thermal overload, as mitigation, CAISO recommends reducing COI import, upgrading the existing line or modifying RAS to trip Colusa generation.
 - It is apparent that the thermal overloading increases without CDWR’s participation in PG&E’s RAS. How would CAISO enforce reducing the

COI path ratings if CDWR's participation in PG&E's RAS is not available? Also, is a modification or upgrade to this line already being considered in PG&E's transmission reliability plan mitigations? What would be the estimated capital costs for modifications or upgrades to this line?

- b. For a Cottonwood E-Round Mountain 230kV Line #3 overload, without CDWR's participation in PG&E's RAS, CAISO's recommended mitigations include modifying the existing Cottonwood E- Round Mountain #3 line or reducing COI import capability or modifying RAS to trip other generation and do switching.
- It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. Can CAISO clarify if they go with the first option to upgrade the line, what is the length of this line and is it a feasible solution? What would be the estimated capital cost to re-conductor this line? Secondly, how would CAISO enforce reducing the COI path ratings if CDWR's participation in PG&E's RAS is not available? And for the third alternative, can CAISO specify which other RAS would be modified and which generating facilities would be switched?
- c. Similarly for overloads at *Pease-East Marysville 115 kV*, *Pease-East Marysville 115 kV*, *Rio Oso -E. Nicols 115 kV*, *Rio Oso – Green leaf Tp 115 kV*, *E. Marysville – Olive Hurst 115 kV*; CAISO recommended mitigations including to modify RAS to trip other generation and perform switching, or reducing COI import, until South of Palermo project is complete.
- It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. What is the estimated online date of the South of Palermo project and how is CAISO planning to mitigate the overloads without CDWR's participation in PG&E's RAS in the mean time? Could CAISO provide more details on what other generation and at what locations might be tripped by PG&E's RAS signals and where would CAISO perform switching? Regarding the potential reduction of COI path ratings, how would CAISO enforce reducing the COI path ratings if CDWR's participation in PG&E's RAS is not available?
- d. For a *Table Mtn-Rio Oso 230 kV* overload, CAISO's recommended mitigations include upgrading terminal equipment or modifying RAS to trip 100MW load in Table Mountain area.
- It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. Does CAISO have cost estimates for the upgrade terminal equipment? Can CAISO clarify whether the 100MW load they are considering to drop is either firm or non-firm load?

- e. For an *Eight Mile-Lodi 230 kV* overload, CAISO's recommended mitigations include modification of RAS to trip other generation, or installation of series reactors on this line, or upgrades to the line.
 - It is apparent that the thermal overloading increases without CDWR's participation in PG&E's RAS. Can CAISO provide more details on which RAS are they considering to modify and where it is located? Does CAISO have preliminary cost estimates for the installation of series reactors or an upgrade to the line?
9. Currently PG&E meets its southern island load tripping obligation for a complete three 500kV line loss or full COI intertie separation by including CDWR's participation in PG&E's RAS as well as tripping some of PG&E's own load groups. Has the CAISO reviewed whether the system can withstand a COI intertie separation without CDWR's participation in PG&E's RAS? What would be substituted in place without CDWR's participation in PG&E's RAS including a non-instantaneous (5 minute) trip of part of CDWR's largest pumping plant, Edmonston, in Southern California Edison ("SCE") territory?
10. CDWR is also concerned about comments provided by the CAISO staff to the effect that if a derate to the Path 66 or Path 15 is needed, then economic studies would need to evaluate what would be needed to bring the rating back to the existing levels. Congestion management would not appear to be a complete substitute for CDWR's participation in PG&E's RAS. CDWR is not aware that congestion management can trip units in 13-18 cycles like the CDWR's load and generation drop is capable.
11. On Slide 16 of the "Fresno & Kern Areas Preliminary Reliability Assessment Results" presentation presented by the CAISO on September 25, how does CAISO propose to mitigate the 25% post-transient voltage deviation at Buena Vista Pumping Plant without a curtailment of CDWR's firm pump load? Based on discussions at the TPP stakeholder meeting, PG&E has a reactive support project planned to be in service in the area in the 2016-2017 that has already been approved and is supposed to mitigate the low voltage problem, but until then, can the CAISO provide more detail of what they propose?

CDWR believes the planning process; including inputs, studies, and results; needs to be consistent with the guiding principles of transparency, stakeholder participation, and clarity; and appreciates CAISO's attempt to apply these principles in the current planning process and looks forward to CAISO's responses to these comments/questions.

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