

**Comments of Pacific Gas & Electric Company
Draft Central California Study Plan Addendum**

Submitted by	Company	Date Submitted
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Pacific Gas & Electric Company (PG&E) appreciates the opportunity to participate in the stakeholder process to develop the Central California Study Plan Addendum to the California Independent System Operator’s (CAISO) 2012-2013 Transmission Planning Process (TPP) Study Plan.

PG&E supports the Study Plan Addendum, its objectives, and its scope. The CAISO’s draft study approach considers multiple needs and benefits, which will help to ensure the lowest cost, best fit solution is identified for Central California. In an effort to improve the study, PG&E offers the following comments:

1. Continue to consider a broad range of alternatives that reflect the uncertainty of long-term planning
2. Incorporate reasonable limits that are reflective of historical ramps and flows on the amount of power that can be exported from California
3. Look beyond 2022 for the evaluation of relatively large capital projects that last substantially beyond that date
4. Assure that your planning approach and evaluation methodology capture the increasing need and value for flexible resources like the Helms Pumped Storage Plant as the penetration of intermittent renewables grows

Continue to consider a broad range of alternatives that reflect the uncertainty of long-term planning

As the CAISO has identified, a comprehensive evaluation must study multiple load scenarios, hydro conditions, and renewable energy profiles.

- Load forecast should account for diverse weather and demand side management scenarios. The CAISO should use the 1 in 10 load forecast for the Fresno area as developed by the California Energy Commission (CEC).
- Generation in the greater Fresno Area is closely tied to the amount of hydro generation that is available, which makes studying both wet and dry hydro years critical. For the Fresno Area reliability assessment, it will be very important to model local dry hydro conditions at peak as



well as partial-peak periods. The CAISO should study a 1 in 5 hydro dry year as its base case and consider what may happen under more severe hydro conditions. PG&E also suggests that the CAISO utilize the Transmission Expansion Planning Policy Committee (TEPPC) dry and wet hydro sensitivities that will give insights into the range of transmission flows through the Central California corridor.

- High penetration rates of renewable generation in southern California may require power transfer from south to north across Path 15. Therefore evaluating multiple renewable generation profiles along with load forecast scenarios is critical.

Incorporate reasonable limits that are reflective of historical ramps and flows on the amount of power that can be exported from California

PG&E encourages the CAISO to analyze the impacts on Central California transmission due to the increased penetration of intermittent renewables. Such an analysis should account for restrictions on exporting power to neighboring states during over-generation scenarios. For example, during off peak or partial-peak load scenarios combined with high renewables penetration it may not be possible to export power because of restrictions on the ability of out-of-state coal and must run gas generation units to back down. Indeed, even at today's relatively low penetration of intermittent renewable resources, negative Locational Marginal Prices (LMPs) in California have not resulted in out-of-state units backing down due to must take requirements on out-of-state coal and gas units. Realistic restrictions on generators in the Southwest and the Pacific Northwest should be incorporated into the Central California Study plan and into the long term valuation of Helms.

Consistent with the prior comment, the value of flexible capacity should be evaluated under a range of scenarios that consider diverse load profiles and renewable energy generation profiles.

Look beyond 2022 for the evaluation of relatively large capital projects that last substantially beyond that date

Any significant new transmission project in Central California will take at least 10 years to develop and would provide reliability and other benefits for multiple decades. Therefore, CAISO should be evaluating transmission needs and potential benefits beyond 2022.

We understand the limitations of running full production simulations for cases beyond 2022, but believe that the reliability and integration analysis should extend beyond 2022. The lack of a longer term analysis could easily lead to suboptimal band aid solutions. We are running out of available band aid solutions such as re-conductoring and special protection schemes (SPS). If we wait until the last minute to approve a transmission upgrade it may be too late to implement, forcing the use of solutions that are less optimal for the long-term, such as combustion turbines.

Assure that your planning approach and evaluation methodology capture the increasing need and value for flexible resources like the Helms Pumped Storage Plant as the penetration of intermittent renewables grows

The CAISO has conducted some preliminary studies identifying the need for flexible resources in its renewable integration analysis. Further, the CAISO has made extraordinary efforts to keep fossil plants such as Sutter available as a flexible resource. It does not make any sense for Helms Pumped Storage Plant operations to be limited in the future due to transmission limitations.

Helms has 2,100 MWs of flexibility spanning from 1,200 MW in the generation mode to 900 MW of pumping demand¹. This flexibility provides renewable integration benefits such as regulation up and down, load following, operating reserves (backup), shaping, and management of system over-generation conditions that result from excess renewables generation during off-peak and partial-peak periods. The Central California Transmission Study should recognize how critical the Helms Pumped Storage Plant is and assume that no degradation of Helms will be allowed.

Conclusion

In closing, PG&E supports both the CAISO's decision to study the transmission needs of Central California through the Study Plan Addendum and the broad scope of the analysis defined by the plan. PG&E looks forward to working with the CAISO on the Study Plan Addendum as well as the broader 2012/2013 TPP.

¹ Three independent pumps that draw a fixed 300 MWs each