

CAISO 2014/15 Transmission Plan: Stakeholder Comments

Submitted by	Company	Date Submitted
Sandeep Arora (sarora@lspower.com) (925) 201 5252	LS Power Development, LLC	10/09/14

LS Power appreciates the opportunity to submit comments on CAISO's 2014/15 Transmission Planning process.

(1) San Francisco Extreme Contingency Analysis:

As part of 2013/14 Transmission Plan, CAISO identified that there may be a need to build additional transmission in SF Peninsula area to mitigate the extreme contingency risk for the area. Further, CAISO concluded that "...it is difficult to determine the probability of event, extent of damage or the restoration times for the extreme events and the interdependencies of the event or consequences. With this it is difficult to develop detailed and precise quantitative analysis. In light of this, one approach that the ISO is considering is to look at the relative likelihood of different scenarios occurring to determine a relative qualitative assessment of the risks of operating the system as it is, with the adequate restoration plans, or with the addition of a major capital project to reduce the risk of impact or exposure to not being able to supply loads in the area for potentially long duration of time following a seismic event..."

LS Power agrees with CAISO and completely understands the complexity of selecting an option to help mitigate risks posed by extreme events. We agree that further analysis of the reliability risks and the benefits that potential reinforcement options would have in reducing those risks is needed. LS Power understands that currently CAISO and Quanta Technology, LLC are performing "Risk Analysis", the three main components of which will be evaluating Infrastructure Integrity, Seismic event Scenario Analysis and Load Serving Capability impacts. LS Power further understands that if new transmission need is identified, then CAISO is only considering the Moraga – Potrero 230 kV line as the reinforcement option to be further analyzed. This is the only line that is being included in the analysis currently being pursued by CAISO and Quanta. While we agree with the CAISO approach in performing this further analysis, but we respectfully disagree that only Moraga – Potrero 230 kV line should be included in this analysis. While previous reliability analysis may have led CAISO to conclude that Moraga – Potrero is the preferred alternative, we believe that this conclusion should only be drawn only after all possible transmission alternatives are included as part of the ongoing scenario analysis. Since most transmission alternatives more or less help resolve the same reliability concerns, the real test as to which alternative performs better should come from the Risk Analysis. All transmission alternatives should be tested against the all components identified in the Methodology for Risk Analysis developed by CAISO & Quanta. As several parties¹ previously

¹ CPUC stated that "The 2013-2014 Transmission Plan indicates that Moraga-Potrero 230 kV may be the preferred transmission mitigation, but defers a CAISO decision pending further study. The bulk of confidential Appendix D consists of characterization of the risk and analytical process. However, the discussion of alternatives and their analysis provides only summary information. CPUC Staff request that the final study, or supporting document for a CAISO mitigation recommendation, whichever is the applicable terminology, provide more detail regarding the alternatives analysis. We assume that document would describe the further analysis CAISO intends to perform. It should also provide analyses of the expected performance of proposed transmission (mitigation) facility (ies) (e.g.,

commented² to CAISO during the process of finalizing Draft Transmission Plan for 2013/14 Planning cycle, a comprehensive comparison of all options should be performed and all options should be compared against reliability, diversity, and odds of survivability under various seismic scenarios, to see what is expected to provide best benefits. LS Power supports this and recommends that CAISO should not prematurely conclude which alternative is the best before this further analysis is complete.

(2) PG&E Bulk System Reliability issues:

CAISO staff presented several reliability issues for the Bulk system in the PG&E area. These issues are mainly thermal overloads of several 500 kV transmission lines and transformers for several Category B and C contingencies. LS Power understands that CAISO staff will be looking into solutions to address these issues and use of Operating guides will be a solution CAISO may implement in the near term. However in the long term, a new transmission upgrade to address these issues will likely be needed. As CAISO prepares its final recommendations for addressing these issues, it should consider the “South West Intertie Project North”, or SWIP North as a long term transmission solution. SWIP North is comprised of a 500 kV transmission line from Midpoint substation to Robinson Summit substation. This project was previously submitted by LS Power in the 2012/13 Transmission Planning request window. Also, as CAISO is likely aware, LS Power in partnership with NV Energy, recently built another 500 kV transmission project called the ONLINE project (“One Nevada Transmission Line”), which is a new 500 kV line from Robinson Summit substation to Harry Allen substation. This line was brought in service at the beginning of this year. This line complements SWIP North, as the two provide a “major” parallel path to several of CAISO’s major paths such as PDCI, Path 26 & Pacific AC Intertie interfaces. Power flow studies show that SWIP North (in conjunction with the operational ONLINE) significantly offset flows on these interfaces, including reduction of about 700 MW for the Pacific AC Intertie. LS Power studied the effectiveness of SWIP North on addressing the Bulk system issues identified by CAISO staff. The studies utilized 2019 Spring Peak power flow basecase from CAISO Market Participant Portal and contingency files posted there. SWIP North was modelled in the basecase and “Post Transient” analysis was performed on the two cases (with and without SWIP North). The results for CAISO basecase were benchmarked to ensure accuracy of the analysis. These are reported below in Table 1. Further, Table 1 shows the results for the case with SWIP North modelled. As is evident from the Table, SWIP North was able to alleviate and resolve several Category B and C overloads.

In addition to benefits outlined above, SWIP North also offers several additional benefits such as it will provide more transmission capacity to allow market participants in CAISO and Pacific Corp

survivability and operability of the proposed mitigation) for each contingency scenario. It should provide quantitative comparison of post-contingency performance between a recommended mitigation and rejected mitigation projects under various scenarios.”

² *City & County of San Francisco commented that “the CAISO should base its decision on a long-term solution on a full range of scenario analyses, and all proposed solutions should be evaluated under the same criteria for feasibility. Although the CAISO intends to undertake additional analyses, in Appendix D, the CAISO appears to conclude that the option of supplying the North Peninsula from Moraga is the best of the 230 kV supply alternatives for addressing San Francisco’s reliability risks. The CAISO appears to further conclude that a new 230 kV supply source should terminate at the Potrero substation. Given that the CAISO concedes additional studies are needed, it is premature for the CAISO to favor particular alternatives. All alternatives under study should remain on the table and be assessed against the same criteria. As PG&E stated in its recent application for its Embarcadero-Potrero 230 kV transmission project, underwater cables, since they basically lie on top of the bottom of the bay, have more flexibility and are less susceptible to earthquake damage. These characteristics should be considered in the analysis.”*

to further enhance the benefits of the Energy Imbalance Markets and will also allow CAISO access to cheaper flexible capacity from out of state resources, which is what CAISO needs for Renewable Integration.

We believe that SWIP North can play a major role in resolving the system issues in Northern California. SWIP North would also provide other significant benefits to CAISO's system that should be analyzed and quantified as part of the 2014/15 Transmission Plan. LS Power stands ready to assist CAISO in this process.

Table 1: 2014-2015 ISO Reliability Assessment - PG&E Bulk Studies with and without SWIP North						
Study Area: PG&E Bulk - Post-Transient Thermal Overloads						
Contingency ID	Overloaded Facility	Contingency	Ca t	Typ e	2019 Spring Peak	2019 Spring Peak with SWIP North
BULK-PK-PTT-4	Rnd Mtn - Table Mtn #1 or #2 500 kv	Rnd Mtn - Table Mtn #2 or #1 500 kv	B	L-1	106.0%	101.8%
BULK-PK-PTT-14	Captain Jack-Olinda 500 kv	Malin-Round Mtn #1 and #2 500 kv	C	L-2	104.1%	94.7%
BULK-PK-PTT-15	Captain Jack-Olinda 500 kv	Round Mtn-Table Mtn #1 and #2 500 kv	C	L-2	105.9%	96.7%
BULK-PK-PTT-16	Olinda-Tracy 500 kv	Round Mtn-Table Mtn #1 and #2 500 kv	C	L-2	105.1%	98.5%
BULK-PK-PTT-17	Olinda-Tracy 500 kv	Table Mtn-Tesla and Table Mtn-Vaca Dix 500 kv	C	L-2	101.9%	99.2%
BULK-PK-PTT-19	Round Mtn 500/230 kV transformer	Malin-Round Mtn #1 and 2 500 kv	C	L-2	101.0%	100.0%
BULK-PK-PTT-20	Delta-Cascade 115 kv	Malin-Round Mtn #1 and #2 500 kv	C	L-2	102.2%	95.2%
BULK-PK-PTT-23	Cottonwd E-Round Mtn 230kv #3	Table Mtn-Tesla and Table Mtn-Vaca Dix 500 kv	C	L-2	117.0%	111.1%
BULK-PK-PTT-24	Cottonwood- Round Mtn #2 230 kv	Table Mtn-Tesla and Table Mtn-Vaca Dix 500 kv	C	L-2	106.1%	100.7%
BULK-PK-PTT-35	Bellota-Weber 230 kv	Table Mtn-Tesla and Table Mtn-Vaca Dix 500 kv	C	L-2	101.9%	100.8%