

**COMMENTS OF THE STAFF OF THE CALIFORNIA  
PUBLIC UTILITIES COMMISSION**

**ON THE 2016-2016 TRANSMISSION PLANNING PROCESS DRAFT STUDY PLAN  
FOLLOWING THE FEBRUARY 23, 2015 STAKEHOLDER MEETING**

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**March 9, 2015**

**Introduction**

The Staff of the California Public Utilities Commission (“CPUC Staff”) appreciates this opportunity to provide comments on the 2015-16 Transmission Planning Process (“TPP”) Draft Study Plan (“Draft Study Plan”) posted February 17 and discussed at the February 23 stakeholder meeting.

***1. The CAISO Should Clearly Identify Where and How the New Reliability Standards Result in Significantly Different Identification of Transmission or Local Capacity Needs Versus What Would Result Under Standards Applied in Prior TPP Cycles.***

In the Draft Study Plan and elsewhere the CAISO has indicated that new NERC reliability standards for transmission planning will require changes in reliability studies, with uncertain implications for identification of infrastructure needs. When the new reliability standards are applied in the 2015-16 TPP, the CAISO should clearly point out any transmission or local capacity needs that are identified specifically as a result of moving to the new standards, as well as the mechanism by which the new standards drive this additional need identification.

***2. Reliability Studies Should Clearly Identify the Impacts of Renewable and Preferred Resources in Both Contributing to and Mitigating Reliability Problems.***

Page 28 of the CAISO’s Reliability Assessment presentation at the February 23 stakeholder meeting indicates that in conducting reliability studies the CAISO will consider lower cost alternatives to transmission including demand side management, special protection systems, generation curtailment, interruptible loads, storage facilities, or reactive support. It is essential to consider the full ability of planned, authorized, and in-procurement resources, particularly preferred resources, to avoid reliability transmission investments. This includes identifying the required timing, locational and operational characteristics of the resources,

building on the CAISO's efforts in the previous planning cycle. Furthermore, for planning and procurement purposes it is important to identify where realistic amounts of local resources could avoid transmission upgrades *even if such resources are not specifically planned or in procurement at this time.*

Page 6 of the February 23 Reliability Assessment presentation identifies the intent to study high renewable output sensitivity cases, and at both the February 17 and February 23 TPP stakeholder meetings CAISO staff indicated a need for future LCR studies to consider not only peak hours but also shoulder peak hours (when solar generation is falling). Increasing penetration of variable renewable resources may affect what key operational scenarios should be addressed by reliability studies, and may complicate identification of those scenarios. *Thus, for the 2015-16 TPP we look forward to increased emphasis and clarification regarding how variable generation penetration affects (positively or negatively) projected magnitudes and locations of reliability needs, whether met by transmission or local resources.*

***3. Proactive Assessment of Southern California Transmission Options Under Planning Contingencies Regarding Local Capacity and Imperial Valley Exports Should Continue, Should Emphasize the Latest Resource Planning and Procurement Information, and Should Clearly Express Capacity Value of Potential Transmission Additions in Terms of Specific Amounts, Locations and Types of Local Capacity That Would Substitute for the Transmission.***

The 2014-2015 TPP assessed efficacy of certain transmission options under future planning contingencies such as underperformance of local resource deployment or higher Imperial Valley renewable energy exports. Such proactive studies should continue, and it is important that they be based on updated assumptions and information regarding local capacity planning and procurement. These studies should clearly identify what the local capacity value attributed to any transmission option actually represents in terms of avoided amounts and locations of local capacity, as well as whether that local capacity is already included in resource planning/procurement assumptions. We support the CAISO's intent to study two levels of "existing DR repurposing" as mitigation options.

**4. *The CAISO Should Clarify the Intent to Study Additional Import Capability Into San Diego.***

Page 26 of the Reliability Assessment presentation at the February 23 stakeholder meeting indicates San Diego import “target flows” in the 2400-3500 MW range for study purposes, whereas the current transfer capability is listed as 2850 MW. CAISO staff indicated that this reflects intent to study expanded San Diego import capability. The CAISO should clarify what study scenarios may involve higher San Diego import capability.

**5. *CPUC Staff Appreciate Extension of Last Year’s Over-generation Studies to Consider a Wider Range of Assumptions and Mitigation Options, and This Extension Should Clarify How Frequency Response Issues Being Studied Relate to the Broader Range of System Flexibility Needs and Solutions, Including Issues Being Considered via the LTPP.***

As stated in comments on the CAISO’s Draft 2014-2015 Transmission Plan, CPUC Staff appreciate the CAISO’s introduction of over-generation/frequency response studies into the planning cycle. We look forward to the CAISO’s planned extension and refinement of these studies in the 2015-16 TPP to examine a wider range of stress scenarios regarding outage contingencies, generator operation, and composition of loads. We strongly support the stated intent to evaluate a range of mitigation options such as system operational changes (commitment and dispatch re-optimization), effective use of storage and demand-side resources, frequency responsive capabilities for nonconventional resources including those using inverters, and increased exports under over-generation conditions. The CAISO should identify where (and what) information is needed to realistically model particular nonconventional or emerging sources of frequency response.

Whether through studies or via policy, procurement and market reform processes, we are repeatedly (and sometimes confusingly) reminded that we face a mix of varied but interrelated flexibility challenges. These challenges are characterized by varying degrees of urgency, certainty and granularity, both temporal and geographic (topological). Ultimately we need to address all flexibility related challenges in an integrated manner. This means deploying a suite of solutions that is efficient, integrated, flexible, and sufficiently timely to address the most urgent needs. Thus, we look to the CAISO for assistance in providing additional clarity and context regarding how the frequency response challenges and solutions being studied interact with the *broader range of system flexibility challenges and solutions.*

On the flexibility requirements side, we are ultimately interested in the relative magnitudes (e.g., MW), response times, geographic granularity, urgency, and physical interaction of requirements regarding inertia, governor/primary frequency response, regulation response, dispatch/load following response, hourly and day-ahead commitment and startup flexibility, four-hour (or similar) ramping, and likely other dimensions of “flexibility”. On the flexibility supply side, we are interested in sources of different kinds of flexibility including new resources or programs, retrofits, and market/operational changes, as well as where particular measures or investments can simultaneously address multiple kinds of flexibility needs. (E.g., inverter-based technology might be designed or retrofitted to simultaneously provide multiple kinds of flexibility including some dispatchability.)

Thus, while it is unrealistic to expect the CAISO to address the broad range of flexibility needs within the over-generation study or the TPP, it would be helpful to clarify (1) how other kinds of system flexibility complement primary frequency response in addressing over-generation, (2) how investing in and deploying primary frequency response capability would reduce needs for other kinds of flexibility, and (3) how procedures, designs and investments to provide primary frequency response may also inherently support *other* kinds of flexibility (more bang for the buck).

***6. CPUC Staff Understand that Economic Studies Will Include “EIM” Features Including Flexible Reserves Sharing and Reduced Hurdle Rates, and It is Important to Clearly Describe These EIM Modeling Methods and to Test Sensitivity Cases With Versus Without Them.***

The EIM is a new development that over time could experience greater participation and could have impacts beyond real-time operations. The CAISO should clearly describe how flexible reserve sharing, low/zero hurdle rates and any other EIM-specific modeling features are to be implemented, as well as whether EIM-specific features will be included in any other kinds of studies besides the economic studies. The CAISO should present the basis and actual numeric amounts (and what kinds of resources qualify as providers) for flexible reserves commitment requirements, both with and without modeling “EIM.” The CAISO should also clearly explain the basis for any modeled hurdle rate changes, especially since EIM directly deals with real time markets only. Finally, it is important to test, and for stakeholders to understand, the impact of the

EIM modeling on key results such as dispatch, power flows and prices, by running sensitivities with EIM modeling features being applied versus not applied.

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