

COMMENTS OF THE STAFF OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION REGARDING THE 2019-2020 TRANSMISSION PLANNING PROCESS POLICY AND ECONOMIC ASSESSMENT AND STUDY UPDATES FOLLOWING THE NOVEMBER 18, 2019 STAKEHOLDER MEETING

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December 2, 2019

The Staff of the California Public Utilities Commission (“CPUC Staff”) appreciates this opportunity to provide comments on the 2019-2020 Transmission Planning Process Policy and Economic Assessment and Study Updates discussed at the California Independent System Operator Corporation’s (CAISO) November 18, 2019 stakeholder meeting.

Overview

The CAISO’s preliminary assessment of a base portfolio of renewable resources, which corresponds to a greenhouse gas (GHG) reduction target of 42 million metric tons (MMT) by 2030¹, as well as two sensitivities that correspond to a more aggressive 32 MMT target, is an important marker for the CPUC’s IRP process and the CAISO’s development of its 2019-2020 Transmission Plan. The CAISO’s analysis tests the transmission capability estimates used in the IRP and provides useful information on the transmission impacts of the base and sensitivity portfolios. The CAISO’s expertise helps ensure the IRP portfolios provide realistic, actionable paths toward the GHG reduction targets set forth in SB 350 in a way that ensures requirements for grid reliability. This is a critical part of the IRP process and CPUC Staff appreciates the considerable amount of work performed by CAISO planners to complete this assessment.

The CAISO’s preliminary results indicate that all but 90 MW of renewable resources identified as full capacity deliverability status (FCDS) would be deliverable under the 42 MMT base case scenario, assuming implementation of certain remedial action schemes (RAS) and local upgrades identified in the CAISO’s interconnection process. For the two 32 MMT sensitivity portfolios – one that allows only existing transmission to interconnect out-of-state resources and the other portfolio allowing new infrastructure that could enable 4,250 MW of New Mexico and Wyoming wind – the CAISO also determined that all FCDS resources are expected to be deliverable with RAS and local upgrades identified through the interconnection process.

CPUC Staff recognizes the CAISO’s analysis did not include assessment of the need for specific out-of-state transmission lines, nor did it reassess previously submitted interregional transmission projects. CPUC Staff looks forward to continued collaboration with the CAISO to enhance the analysis of the transmission infrastructure required to accommodate future out-of-state resource procurement.

Similarly, CPUC Staff acknowledges that the portfolios transmitted to the CAISO for the 2019-2020 TPP did not have generic storage resources mapped to specific busbars. CPUC Staff looks forward to continued collaboration with the CAISO to develop clear, transparent busbar mapping methodologies for generic storage as well as hybrid resources.

¹ In the IRP 2017-18, emissions from behind the meter CHP facilities were not included as part of the electric sector emissions. To align with CARB’s GHG accounting methodology, emissions from behind-the meter CHP, which were estimated as 4 MMT in the last cycle, are now included as electric sector emissions. Thus, the 42 MMT target translates to approximately a 46 MMT GHG target. For further explanation, see slide 11 in the “2019-20 IRP: Preliminary Results” [here](#).

Specific Suggestions

1. Explain the Options to Ensure Deliverability for the Base Case Portfolio:

The CAISO's deliverability analysis indicates that all but 90 MW of FCDS resources are expected to be deliverable under the base scenario (with RAS and GIDAP upgrades). CPUC Staff suggests the CAISO elaborate on the options, if any, that could be utilized to realize this base case portfolio without additional transmission costs. CPUC Staff also suggests the CAISO explain how these results might change if the new deliverability methodology is implemented.

2. Elaborate on the Constraint Impacting Sensitivity #1:

For the "observations" related to the analysis on Sensitivity #1 (overall slide #46), CPUC Staff suggests that the CAISO explain the nature of the constraint that could affect deliverability on the 230kV system. Would relief of this constraint necessarily involve RAS mitigation, or might other strategies be employed to manage this constraint?

3. Elaborate on the Import Assumptions for the IID Area:

Regarding import assumptions (overall slide #22), CPUC Staff seeks to better understand the implication of using MAX MIC and, for the IID area, going beyond the MIC in order to satisfy the portfolio. CPUC staff suggests it may be useful to explain in the draft Transmission Plan why this assumption was made for the IID area.

4. Review How Energy Storage is Valued in the TPP Economic Assessment:

Regarding its economic assessment, the CAISO stated its considerations for storage costs for this TPP cycle are largely consistent with the considerations it used for 2018-2019 TPP cycle. The CAISO further mentioned that potential market revenues may be considered such that they offset the cost of storage. CPUC Staff encourages further review and public discussion regarding how the CAISO should value energy storage as a transmission solution within future TPPs.

CPUC Staff suggests careful review of the full value of energy storage systems. If a reliability solution is needed to address peak hour ramps or summer peak loads, the potential market revenues likely to accrue to energy storage during non-peak hours or the months outside the summer period should be evaluated as part of a TPP economic assessment.

CPUC Staff suggests the Presidio NAS Battery Project,² a 4-hour sodium sulfur energy storage system in Presidio, Texas, as an example for the range of value that storage can offer. This storage project has been in place since 2010 and provides backup power, up to eight hours during an outage or other emergency or maintenance events, as well as voltage support. This storage system is compensated through the transmission access charge for the reliability services it provides and participates in the market to offset its costs when not needed for reliability purposes. This project has provided reliability support and islanding capability as an alternative to more costly infrastructure.

² <http://www.ettexas.com/Projects/Presidio>

5. Multi-period Power Flow Modeling Can Address Storage Charging and Discharging:

The ISO's report on flexible capacity deliverability contained initial results on the possible deliverability of energy to the greater CAISO footprint from certain areas. As part of the presentation, the ISO stated that a next step for this work would be to model the potential charging of the storage resources in the same areas to evaluate full feasibility of storage resources. CPUC Staff commends the ISO for this forward-looking approach.

Energy storage charges energy in one time period and allows it to be discharged at a future time period. Transmission lines allow power from one place to be moved to another place. In either case, storage or transmission lines, the usefulness of the asset depends on the availability of energy generation on the other side. For storage resources this means that energy must be deliverable *to* the location at the earlier time and *from* the location at a later time. The CAISO is uniquely positioned to be able to carry out this modeling. CPUC Staff looks forward to working with the CAISO on this kind of modeling in the future to ensure that energy storage resources are able to provide the maximum value.

6. Consider Most Recent Energy Storage Cost Data for Evaluation of Storage Alternatives:

For the 2019-2020 TPP "Less than \$50 Million Project Recommendations" for the PG&E Area, CPUC Staff requests consideration of more recent energy storage costs to determine if energy storage could be a cost competitive alternative for the proposed Borden 230/70kV TB #1 Capacity Increase project in Greater Fresno Area.³

7. Explore the Range of Options to Reduce LCR Needs:

Regarding the CAISO's review of LCR requirements, the CAISO's analysis identifies several storage options to reduce or replace LCR capacity. For the El Nido / West LA sub-areas located in the SCE transmission area, CPUC Staff requests clarification on the energy requirements for storage in these sub-areas, specifically what duration of storage capacity would be required.

CPUC Staff also requests clarification on whether CAISO considered synchronous condenser and/or static var compensator capacity in lieu of storage capacity to satisfy at least a portion of the requirement to reduce LCR.

8. Clarify the SCE Upgrades Included in TPP Base Plan:

SCE's Transmission Owner Tariff Transmission Rate Filing (TO2019A) indicates that 20 significant transmission projects (greater than \$5 million in ISO-related charges⁴) were under development in 2019. CPUC Staff requests clarification that these upgrades are included with the 2019-2020 TPP base plan. For future TPPs, CPUC Staff suggests the CAISO work with Transmission Owners to clarify what projects being put in TO rate cases for specific years are specifically in or out of the TPP assumptions.

³ CAISO 2019-2020 Transmission Planning Process Less than \$50 Million Project Recommendations-PG&E Area, 2019-2020 Transmission Planning Process Stakeholder Meeting, November 18, 2019, slide 6.

⁴ SCE TO2019A, Exhibit SCE-29, WP-Schedule 10 & 16 – Identification of ISO Projects above \$5M, p.1.