

**COMMENTS OF THE STAFF OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION REGARDING THE 2020-2021 TRANSMISSION PLANNING PROCESS STAKEHOLDER CALL HELD ON JUNE 3, 2020**

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**June 17, 2020**

The Staff of the California Public Utilities Commission (CPUC Staff) appreciates this opportunity to provide comments on issues raised during the June 3, 2020 stakeholder meeting hosted by the California Independent System Operator (CAISO). CPUC Staff welcomes this additional engagement at this stage of the annual process, especially since the CAISO is taking on new assessments during this 2020-2021 Transmission Planning Process (TPP) related to wildfire mitigation, storage mapping and resource retirements as well as the biennial assessments on long-term local capacity needs and potential inter-regional projects. CPUC Staff encourages the CAISO to establish this stakeholder meeting as an enduring part of “Phase 2” of future TPPs that is identified within annual TPP Study Plans.

CPUC Staff focuses these comments on the wildfire risk assessment, the mapping of battery storage to busbars, the long-term local capacity study and the interregional transmission planning process.

**1. CAISO should clearly identify criteria by which certain actions would be recommended to mitigate wildfire risk.**

CPUC Staff welcomes the CAISO’s commitment to assess wildfire risks through the study of scenarios impacting facilities in high risk areas and identifying local areas being impacted by Public Safety Power Shutoff (PSPS) events. The CAISO explained its intent to develop potential long-term solutions within the planning process (as opposed to operational aspects) to mitigate wildfire risk, including:

- Identifying critical facilities in each local area for potential to reduce risk of fire impact.
- Coordinating with Transmission Owners on existing infrastructure hardening plans and identifying where maintenance or planned projects can be expedited to further reduce risks.
- Identifying CAISO-approved projects or new upgrades that could reduce risk of fire impact.
- Seeking opportunities for minor scope change of active projects that could alleviate identified issues.

While CPUC Staff appreciates this first-time effort to incorporate wildfire risk into transmission planning activities, we encourage the CAISO to provide clearer criteria by which new upgrades are identified or changes to existing projects already approved by CAISO would be applied within this assessment. CPUC Staff would welcome further discussion on this foundational step so that potential findings and implications from this new planning study can be well-understood. Given the urgency of wildfire risk in California, CPUC Staff strongly suggests this criterion be explained to stakeholders before the next TPP stakeholder meeting in September.

CPUC Staff observes that CAISO is using historic PSPS implementation (specifically October 2019 events) as a filter to calibrate its assessment of utility wildfire risk. The assessment framework must recognize transmission owner incentives to put capital infrastructure projects into rate base, and potential unintended consequences of basing the framework solely on PSPS events which they

control. We suggest a better baseline would incorporate metrics about the condition of infrastructure assets, their ability to perform their intended function, and the windspeeds at which they have a high probability of failure. This forward-looking approach may provide more accurate information about where capital improvement projects on the transmission grid would mitigate wildfire risk.

CPUC Staff seeks additional understanding into:

- Does the CAISO plan on using some type of cost/benefit risk analysis to evaluate the marginal increase in “further hardening to protect against wildfire or PSPS reliability events” vs. the “additional costs of hardening?” Will there be an available menu of marginal increased costs?
- Will this wildfire risk assessment be linked in any way to the PTO submittals during the TPP request window for this TPP cycle, or any previous cycle? Did the PTOs themselves propose any wildfire-mitigation driven transmission solutions?
- More details regarding the CAISO’s modelling of impact to grid performance during PSPS, including:
  - CAISO’s modelling of grid performance under various wind event scenarios, such as Low Probability High Consequence events where the fire prediction index and the outage producing wind index forecast that an ignition caused by IOU assets could result in significant consequences to life and property.
  - CAISO or other entity’s modelling of fire threats based on October 2019 after-event damage assessment such that potential impacts in the absence of using PSPS can be evaluated.
  - CAISO or other entity’s modelling of extended use of PSPS by de-energizing transmission lines in response to severe wind event scenarios, considering IOU investment and PSPS mitigation plans from their Wildfire Mitigation Plans.
  - What threshold criteria will be used for integrating the consequences of fire ignition and the likelihood of fire spread, for determining where to prioritize hardening investments?
  - Will the CAISO obtain available data or studies such as fire threat modelling based on October 2019 after-event damage assessment? (30-year historical weather, 30 years of outage damage due to weather).
  - What is the CAISO’s tolerance (acceptance criteria) for a) fire ignition risk; and b) consequences of fire ignition such as expected wildfire risk consequences to life and property? For instance, PG&E sets its "risk appetite" to 10 properties in proximity to where a fire could ignite. They set the threshold for fall in trees to Tier 3 lines as zero. What should these risk tolerances be set to as threshold criteria?
  - What threshold criteria should be used in this wildfire risk reduction planning, to assess the ability of the IOU physical assets to withstand the wind events?
  - How will each IOU’s Wildfire Mitigation Plan programs be incorporated into the CAISO’s analysis (transmission line modelling, transmission line exclusion, transmission system hardening, sectionalizing/segmentation)?
  - Based on modelling the IOU’s proposed investments for the above, what other priorities should be set or what other PSPS mitigations might be needed as interim solutions until the IOU wildfire mitigation programs can be implemented?

- Will CAISO have access to the outage producing wind data and fire prediction index data from each IOU along with fire spread tools like REAX?
- How will these data and forecasting tools be used in CAISO analysis?
- Which wind events should be planned for, would the criteria be 1-in-50-year wind events or a higher standard?
- Should modelling consider transmission lines ability to withstand the design-basis wind to which the transmission facilities were designed based on generally accepted industry standards?
- Should the CAISO or other entity analyze IOU transmission asset fragility curves or fitness-for-service analysis that incorporates present asset condition or existing asset health for this analysis?
- How will the analysis consider the performance of assets today based on results of a transmission line operability assessment which provides the fitness-for-service or remaining strength data or other data?

CPUC Staff further suggests the CAISO should ensure that it is using the most up-to-date climate modeling to evaluate transmission planning projects. Current and forecasted climate conditions (i.e. winds) often exceed current regulatory standards for infrastructure. Planning should account for continuing climate change trends.

Finally, CPUC Staff also questions why the CAISO sees this wildfire assessment as a one-time feature for this TPP cycle, rather than a regular feature of every future TPP. To reiterate, CPUC Staff welcomes further discussion with the CAISO to better understand the methodology and potential findings of this important wildfire risk assessment.

**2. The CPUC provided recommended battery storage mapping at the busbar level for both policy-driven sensitivity portfolios.**

CPUC Staff appreciates the CAISO’s collaboration in the mapping of specific MW amounts of storage to specific injection/withdrawal nodes within the CAISO grid. This first-time planning analysis using two sensitivity portfolios will help capture specific insights about the potential implications of the storage for the transmission system and will provide valuable information for the CPUC’s Integrated Resource Planning (IRP). In particular, the interaction between storage amounts and locations with curtailment reduction options will feed directly into the IRP process and the mapping of future IRP portfolios for 2021-22 TPP and beyond. CPUC Staff welcomes further collaboration with the CAISO in the reporting of TPP results so that the implications for IRP are clearly understood by all stakeholders.

Slide 33 of the presentation states “CPUC provided the recommended storage mapping at busbar level for SENS-02 portfolio.” CPUC Staff would like to clarify the mapping was conducted for both sensitivity portfolios, as explained in the [“CPUC Staff Report: Modeling Assumptions for the 2020-2021 TPP Release 2 \(TPP Sensitivity Portfolios\)”](#). A substantial amount of the battery storage mapped to busbars will overlap between the two portfolios. For this reason, the CPUC provided one set of mapping for 12,657 MW, the maximum amount of storage reflected across the two portfolios. The CPUC Staff report provides additional guidance on how to apply the storage mapping to the first sensitivity.

**3. CPUC Staff recommends that CAISO consider system needs when applying generic battery storage as a mitigation to reliability issues identified when studying the reliability base case.**

Slide 36 of the CAISO's presentation provides an example how the mapping of battery storage can be compared with amount of MWs needed to replace a gas unit in LCR areas. A key feature of this comparison is the duration of the storage resources that would provide local capacity.

It would be helpful for the CAISO to clearly identify the duration of the storage resources that are needed to fulfill this need within the LCRs. The general conclusion of system level modeling in the IRP is that battery durations longer than four hours are not typically economical at the system level. CAISO should seek a consistent approach so that this refinement of the mapping analysis provides useful information about minimizing system costs as well as satisfying local needs. CPUC Staff looks forward to continued collaboration on this issue so that the resource portfolios and accompanying guidance provided to the CAISO for future TPP cycles better address the question of battery storage duration assumptions.

**4. CPUC Staff supports the CAISO's long-term assessment of local capacity regions.**

CPUC Staff believes that the results produced as part of this study will prove useful to future IRP planning. In particular, the identified transmission and battery combinations that could eliminate or materially reduce gas-fired generation in targeted areas or sub-areas, can inform future busbar mapping of battery storage in the portfolios that we transmit to the CAISO. Furthermore, the recent work conducted by CAISO on the limitations of charging batteries within LCR areas significantly improves the rigor of the study as compared to the work performed under the last two TPP cycles.

**5. CPUC Staff encourages CAISO's active involvement in the interregional transmission planning process**

CPUC Staff strongly supports the CAISO's continued leadership and active participation in the interregional transmission planning process. We encourage the CAISO's coordination in ensuring that interregional projects participate in the inputs process of the IRP.