

The CAISO received comments on the topics discussed at the June 3, 2020 stakeholder call from the following:

1. [American Wind Energy Association of California \(AWEA-California\)](#)
2. [Bay Area Municipal Transmission group \(BAMx\)](#)
3. [California Energy Storage Alliance \(CESA\)](#)
4. [California Public Utilities Commission – Staff \(CPUC-Staff\)](#)
5. [GridLiance West \(GLW\)](#)
6. [LS Power Development \(LS Power\)](#)
7. [Public Advocates Office \(PAO\)](#)
8. [Pacific Gas & Electric \(PG&E\)](#)
9. [Union of Concerned Scientists, Sierra Club and California Environmental Justice Alliance](#)
10. [Western Grid Development](#)
11. [Westlands Solar Park \(WSP\)](#)
12. [Northern California Power Agency \(NCPA\)](#)

Copies of the comments submitted are located on the 2020-2021 Transmission Planning Process page at:
<http://www.caiso.com/planning/Pages/TransmissionPlanning/2020-2021TransmissionPlanningProcess.aspx>

The following are the CAISO's responses to the comments.

1. American Wind Energy Association of California Submitted by: Caitlin Liotiris		
No	Comment Submitted	CAISO Response
1a	<p><u>Support for a Stakeholder Meeting at this Stage of the TPP</u> On June 3rd, CAISO held a stakeholder call on the 2020-21 TPP. The call provided stakeholders with a number of updates on studies being conducted as part of this year's TPP and provided an overview of methodologies and study assumptions for the wildfire risk assessment and energy storage busbar mapping. An update on Interregional Transmission Projects (ITPs) was also provided. A stakeholder meeting at this juncture of the annual TPP is not part of CAISO's "typical" stakeholder engagement. AWEA-California found this meeting to be helpful and well timed and appreciates CAISO's hosting of such a meeting. CAISO should consider making this type of stakeholder update (in early summer) standard for TPPs going forward. It is useful for stakeholders to engage at this point, before draft results are actually available.</p>	<p>The comment has been noted. The CAISO will continue to assess the need for additional stakeholder meetings in future planning cycles based upon the nature of issues at the time to be addressed in each of the planning cycles.</p>
1b	<p><u>CAISO Should Identify "Other" benefits Associated with Upgrades to Mitigate Wildfire Risk</u> During the June 3rd meeting, CAISO reviewed its approach to the wildfire risk assessment that is being conducted as part of the 2020-21 TPP. As CAISO performs this assessment, to the extent that new upgrades are being evaluated, CAISO should review whether upgrades might be able to serve multiple purposes and provide enhanced benefits. For instance, an upgrade that might help address wildfire risk, while also increasing transmission capacity from a renewable energy zone, that upgrade should be prioritized and the incremental capacity identified clearly in the study results CAISO provides. Another example of an incremental benefit that CAISO should evaluate in assessing upgrades that might mitigate fire risk, is reducing local capacity requirements. To the extent upgrades are identified in CAISO's report on wildfire mitigate risk, CAISO's study report should clearly identify any additional benefits of those potential upgrades (including those outlined above).</p>	<p>The CAISO will conduct the wildfire risk studies as a part of the reliability assessment in the 2020-2021 transmission planning process. In addition the CAISO will conduct the policy and economic assessments using the baseline portfolios, where modifications to recommended reliability assessment mitigations could be considered if there are benefits identified in these analyses.</p>
1c	<p><u>Value of a Deliverability Assessment on the 30 MMT Portfolio</u> Finally, though not specifically discussed during the stakeholder meeting, AWEA-California urges CAISO to perform a "sensitivity" deliverability case for the 30 MMT Energy-Only (EO) portfolio, under which the resources in this portfolio are assumed to be Full Capacity Deliverability Status (FCDS) rather than EO. This type of study effort would assist the CAISO and the California</p>	<p>The CAISO will be assessing the 30 MMT case in Policy-Sensitivity 2 portfolio provided by the CPUC. The resources included within the portfolio are based upon the resources as defined by the CPUC and changes such as this could result in different mix of resources identified within the portfolio. The CAISO TPP is intentionally aligned with the</p>



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	<p>Public Utilities Commission (CPUC) in identifying the most cost-effective transmission solution in a deep decarbonization future, in a manner that is consistent with contracting practices. While the 30 MMT portfolio provided by the CPUC for CAISO to analyze as a sensitivity in the 2020-21 TPP heavily relies on EO renewable resources, it is important to note that currently, solicitations generally require resources to have FCDS. Even if FCDS is not an absolute requirement, it's highly unlikely that an EO resource can be successful in a solicitation considering the reality of needing to compete with FCDS resources in all source solicitations.</p> <p>Given the commercial realities that favor FCDS, it would be incredibly valuable for the CAISO, CPUC, LSEs, renewable developers, and other stakeholders to better understand the transmission upgrades (and associated costs) that would be required in order to transition to a deeply decarbonized future where renewable resources provide energy, resource adequacy, and other ancillary services. This could be accomplished by analyzing the 30 MMT portfolio of resources, but not relegating any of the resources in the portfolio to EO and rather studying all resources as FCDS. The results of this type of assessment could be utilized in future IRP processes and would provide additional information to the CPUC IRP process on the cost of transmission upgrades that would be necessary to match contracting practices }. The time is now to perform this type of study, so that these transmission upgrades and renewable resource portfolios can be considered in current and future IRP processes. This information would not need to result in approval of any of these upgrades by CAISO at this time, but would provide valuable information on costs and upgrades required for a deeply decarbonized and fully deliverable resource portfolio.</p>	<p>CPUC IRP, and two sensitivity portfolios have already been provided by the CPUC IRP for study within the CAISO TPP. Unilaterally adding a third sensitivity portfolio would be counter to the goal of maintaining alignment between the two processes. In addition, the analysis within the production cost modeling of the Policy-Sensitivity 2 portfolio will identify potential congestion that is not dependent on the resources being either FCDS or EO. It is also worth noting that the CAISO generation interconnection process already provides transmission upgrades (and associated costs) that would be required in order to transition to a deeply decarbonized future where renewable resources provide energy, resource adequacy, and other ancillary services.</p>

2. Bay Area Municipal Transmission group (BAMx) Submitted by: Paulo Apolinario		
No	Comment Submitted	CAISO Response
2a	<p><u>Wildfire Mitigation Assessment Update</u> The California IOUs are utilizing Public Safety Power Shutoff (PSPS) procedures as a preventive measure in order to keep the powerlines from causing additional wildfires. In its comments on March 13, 2020, BAMx had urged the CAISO to conduct planning studies on transmission-related Public Safety Power Shutoff (PSPS) events in advance of the 2020 fire season. In particular, BAMx requested the CAISO to include PSPS planning studies in its 2020-2021 transmission planning cycle which provides a well-established process for stakeholder engagement, review, and feedback. Although the CAISO does not plan to conduct the studies BAMx has been seeking prior to the upcoming 2020 fire season, BAMx supports the CAISO's proposed plans to conduct a wildfire mitigation assessment as part of the 2020-2021 TPP.</p>	The comment has been noted.
2b	<p><u>BAMx Supports SDG&E Area Sub-transmission Project Re-evaluation</u> The CAISO indicated that it plans to re-evaluate six (6) previously-approved sub-transmission projects on the non-Bulk Electric System (BES) that have been delayed beyond 2025.³ BAMx acknowledges that this approach is consistent with the CAISO's review of previously approved projects in the Pacific Gas and Electric Company (PG&E) area beginning with the 2016-2017 transmission planning process (TPP). CAISO's past efforts resulted in over \$3.25 billion savings in capital costs due to project cancellations and scope reductions. While reviewing all the transmission projects represented a significant commitment of engineering resources, the resultant savings for transmission system users was simply enormous. For instance, BAMx estimates that a reduction in \$3.25 billion of capital expenditure, the majority of which is associated with the low voltage transmission facilities, would reduce the PG&E-specific low voltage transmission access charge (LV TAC) by approximately \$3.25-\$3.75/MWh in 2025.</p> <p>BAMx, therefore, supports the reevaluation of the above-mentioned six projects and the CAISO's decision not to model them in the 2020-2021 TPP power flow cases.</p>	The comment has been noted.



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	<p>assigned confidence levels based on generator status, interconnection agreement status and LCR area information. BAMx is concerned that the storage candidate capacity selected for the sensitivity portfolios in the LCR areas is restricted based upon their commercial interest status, i.e., Phase II Generator Interconnection Deliverability Allocation Procedures (GIDAP) completed study or the Material Modification Assessment (MMA) addition to an existing generating facility. This means that several storage projects in the generation interconnection queue located in the LCR areas that could be very effective in mitigating reliability needs may not be selected as they have not met this particular criterion. Until recently, there has not been any historical signal for the storage developers to identify high-high-valued storage locations is expected to be available. Therefore, the CAISO needs to retain the flexibility to map storage resources in local areas to address reliability issues even if they have not, at this time, strictly met the generation interconnection queue threshold. We believe that this approach would be consistent with the approach the CPUC staff has asked the CAISO to take for the base portfolio, i.e., to apply the storage where it provides the greatest value that can be clearly identified through the TPP, presumably regardless of its generation interconnection queue status.</p> <p>During the June 3rd stakeholder call, the CAISO laid out an example of storage mapping refinement that would be driven by retirement assumptions and charging limitations in local (LCR) areas. This approach takes into consideration the storage charging limitations of a given LCR area, and whether the added storage resource can effectively facilitate the retirement of the existing local gas-fired generation. BAMx supports this approach, as it retains gas-fired generation if it cannot be replaced with battery storage given the charging limitations.</p> <p>The current CAISO-proposed schedule is to provide the preliminary results based upon refined storage mapping in the November 17, 2020 meeting. BAMx urges the CAISO to provide its preliminary storage mapping for the base portfolio and two sensitivity portfolios during the September 23-24, 2020 meeting. This would allow the CAISO adequate time to incorporate the stakeholder feedback into the results presented in the November 17, 2020 meeting.</p>	<p>does not preclude future use of storage for reliability purposes in future TPP cycles.</p> <p>The comment has been noted.</p> <p>Preliminary storage mapping will be discussed at the September 23-24 stakeholder meeting.</p>



No	Comment Submitted	CAISO Response
2d	<p><u>Questions on Interregional Transmission Project (ITP) Mid-year update</u> BAMx has several questions based upon its review of the Interregional Transmission Project (ITP) mid-year update that was provided during the June 3rd meeting and the final ITP evaluation process plans submitted to the CAISO during the 2020-2021 ITP submission period that were posted on June 12, 2020.10 Below we list those questions:</p> <ol style="list-style-type: none"> Economic/Production Cost Model: ITP Evaluation Process Plans indicate that the Economic/Production Cost Model deployed for evaluating the ITPs will utilize the “PCM Base Case, based on the WECC 2030 Anchor Data Set (ADS)” and will be “modified as needed to accurately model the California network and resources that reflects the ISO’s finalized 2019-2020 transmission plan.” Does this mean that the PCM base case for the ITP evaluation in the 2020-2021 TPP will utilize the California Public Utilities Commission (CPUC)-provided renewable resource portfolios utilized in the 2019-2020 transmission plan? If that is the case, please explain why the latest base renewable resource portfolio, i.e., 2018 Updated PSP11 provided for the 2020-2021 TPP, will not be utilized. 	<p>The development of the WECC 2030 ADS was well underway prior to the CAISO receiving CPUC provided renewable resource portfolios to be used in the 2020-2021 CAISO transmission plan; therefore the 2019-2020 information was used by WECC. Consistent with the CAISO’s commitment to utilize the WECC ADS dataset, the CAISO is using the WECC 2030 ADS PCM as a starting point but is modifying the network and resource models in its PCM dataset to be consistent with the 2020-2021 TPP study plan and the most current base resource portfolio provided to the CAISO by the CPUC.</p> <p>Clearly, there is a time lag between WECC’s development of the WECC ADS and the CAISO’s TPP. This is generally true for all three planning regions and has been well documented in the development of the ADS methodology. While it is unclear to the CAISO how and/or when WECC may update the 2030 ADS dataset with more current CPUC resource portfolio information, the CAISO’s most current information is available to WECC via the CAISO’s Market Participant Portal..</p>
2e	<ol style="list-style-type: none"> Cost Assumptions: BAMx noticed that except for the Southwest Intertie Project (SWIP)-North project, the remaining three ITPs have their planning level cost estimates available. How does the CAISO plan to provide its cost for planning purposes allocated to the CAISO planning region to stakeholders, i.e., [California ISO Benefits/Total Benefits] times Project Cost for the SWIP-North project, in the absence of the estimated project cost? Does the CAISO plan to perform an independent assessment of the reasonableness of the ITP cost as opposed to purely relying on the developer-provided planning cost estimates? BAMx requests the CAISO to provide the ITP cost estimates to the CPUC so that the CPUC staff could 	<p>The developer-provided cost estimate will be used in the ISO’s economic assessment if it is available. The proponent of the SWIP-North project included a cost estimate in its proposal in 2018.</p>



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	update these transmission costs in the RESOLVE model that is used to develop the renewable portfolios.	
2f	3. Benefit-Cost Calculations: For planning purposes, each Relevant Planning Region's cost share of a given ITP will be calculated based on its share of the calculated benefits provided to the Region by that ITP. Would these benefits be solely based on the economic production cost analysis? If so, what role, if any, would the reliability/power flow assessment play in the determination of any relevant planning region funding a portion of the ITP cost?	Each Relevant Planning Region assesses an ITP through its FERC approved regional process. That said, the regional processes utilized by each of the three planning regions are unique as is their methodology for determining benefits of projects within their planning region. The ISO's methodology for determining benefits for transmission solutions in its planning region is documented in its tariff and associated Business Practice Manual for Transmission Planning. The ISO suggests that BAMx refer to the regional process of the other planning regions to determine how they determine benefits ITPs would provide to their planning region.

3. California Energy Storage Alliance (CESA) Submitted by: Jin Noh and Sergio Duenas		
No	Comment Submitted	CAISO Response
3a	<p>1. Wildfire Mitigation Assessment Update</p> <p>CESA is fully supportive of the ISO's efforts to integrate data derived from the State's experience with public safety power shutoff (PSPS) events into the transmission planning process (TPP). This work is essential to ensure the reliability of the electric service as well as guarantee that planned projects do not exacerbate the likelihood of fires in areas identified as particularly risky.</p> <p>CESA is especially supportive of the ISO's intention to develop different evaluation scenarios based on taking out a combination of different voltage facilities and/or facilities within various fire zones. CESA considers this approach to be viable in general, as it would highlight inconsistencies between the TPP and California's efforts regarding wildfire mitigation. Moreover, CESA appreciates the ISO's inclusion of several potential mitigation strategy. As noted during the June 3, 2020 call, the ISO will both identify active CAISO approved projects that could potentially reduce risk of fire impacts, and identify potential upgrades that could help reduce the risks of fire impacts. In this context, CESA believes the ISO should consider integrating the information derived from this effort into the record that has been developed for the now-paused Storage as a Transmission Asset (SATA) Initiative.</p> <p>Energy storage is a resource class that could greatly contribute in the ISO's effort to mitigate wildfire risks and ensure a cost-effective and reliable transmission system. As the ISO considers measures to minimize the potential impacts of fires, CESA believes the evaluation of non-wire alternatives (NWAs) should be more deeply considered. NWAs are well-positioned to ensure the resiliency of local or radial systems, even when transmission infrastructure is unavailable due to the risks of wildfires. Furthermore, NWAs have become increasingly cost-effective due to: (1) the declining cost of battery storage technologies; and (2) the potential provision of other market products and/or services. Thus, CESA urges the ISO to create further synergies between this process and the record that has been developed in the SATA Initiative.</p>	<p>The comment has been noted.</p> <p>Storage as a resource can also be considered by the utilities/LSEs in efforts to minimize impacts of PSPS whether transmission or distribution-related. This is reasonable at this time as the SATA initiative as noted, is not active at this time for other reasons. The CAISO will focus the assessment on transmission alternatives in the assessment of alternatives if required to mitigate the identified constraints as the PG&E is already studying potential resource additions.</p>

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3b	<p>2. Storage mapping and resource retirement in policy assessment</p> <p>CESA appreciates the ISO's work to refine the assumptions and methods related to the busbar mapping of energy storage resources. CESA is aware of the limitations of the current mapping framework proposed by the California Public Utilities Commission (CPUC). Considering the integrated resource planning (IRP) process at the CPUC expects unprecedented levels of energy storage deployment, CESA agrees that a clear and coordinated mapping framework is necessary to ensure the reliability of the electric system and support the state's environmental targets.</p> <p>As noted by the ISO during the stakeholder call, the CPUC's mapping methodology based on commercial interest, project status, and location is deficient and must take into account the effects storage will have in the retirement of existing natural gas infrastructure and local area load/supply. CESA supports the ISO's decision to include these elements in the refinement of the busbar mapping methodology.</p> <p>While supportive, CESA offers other considerations the ISO might find valuable to further improve this mapping exercise. As done in special studies in previous TPP cycles, the ISO should consider the siting of energy storage within disadvantaged communities (DACs) and within local areas and/or sub-areas with the most significant levels of local emissions (i.e., Version 3.0 of the CalEnviroScreen) to support the identification of specific gas facilities to prioritize for mapping storage replacement. Ideally, this mapping methodology would be provided by the CPUC's IRP process, but for the time being, this may be a prudent interim approach.</p> <p>Similarly, CESA urges the ISO to consider the hybridization of retained natural gas assets with energy storage resources. As noted in the stakeholder call, the ISO will choose to retain a fraction of natural gas capacity if it cannot be fully replaced by energy storage due to charging limits. In conducting this mapping exercise, even if there is insufficient storage to fully replace and retire the local capacity provided by the energy storage resources, mapping in accordance with these needs would still identify how storage could potentially reduce the capacity factor of gas facilities, which contribute to reduced GHG emissions. This outcome also does not preclude the potential future hybridization of natural</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p> <p>The CAISO believes that the storage mapping used in TPP studies should reflect the locations where the LSEs are more likely to procure it, barring specific procurement direction. It should not be based on CAISO's unilateral determination of ideal locations for storage development based on criteria other than what the CPUC has recommended. Therefore, CAISO will look to the CPUC for any direction regarding locating more energy storage beyond what was identified through CPUC's criteria in LCR areas.</p> <p>At present, the CPUC's base portfolio for planning purposes is relying on the gas-fired generation fleet – except for the retirement of OTC generation – in the long term, and the ISO's studies are providing information that may help in those resource planning decisions in the future. In absence of concrete policy guidance from the CPUC regarding gas resource retirements, CAISO will not consider hybridization of retained gas resources with energy storage.</p>



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	<p>gas capacity – a material modification that is easily performed and can substantially improve the operational characteristics of fossil-fueled assets.</p> <p>Overall, CESA supports the ISO’s approach and offers these additional recommendations for the ISO’s consideration. By focusing on the impacts energy storage could have on DACs and areas with high levels of local pollution, the ISO would be better equipped to identify transmission solutions that can incent the development of renewable and storage assets in areas that have been historically underserved and dependent on fossil generation.</p>	<p>The comment has been noted.</p>
3c	<p>3. 2030 Long-Term Local Capacity Technical Study</p> <p>CESA is fully supportive of the ISO’s intention to further evaluate the role energy storage assets will play in the future of California’s electric power system through its 2030 Long-Term Local Capacity Technical Study. CESA believes the ISO’s efforts will enable developers, buyers, and regulators to better understand the long-term storage needs of the State, as well as the particular characteristics that are better positioned to attend them. In particular, CESA is supportive of the ISO’s decision to consider the deployment of conventional transmission assets or preferred resources to enable the retirement of natural gas resources.</p>	<p>The comment has been noted.</p>

4. California Public Utilities Commission – Staff (CPUC-Staff) Submitted by: David Withrow		
No	Comment Submitted	CAISO Response
4a	<p>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.</p>	<p>The comment has been noted. The CAISO will continue to assess additional stakeholder meetings in future planning cycles based upon the nature of issues at the time to be addressed in each of the planning cycles.</p>
4b	<p>1. CAISO should clearly identify criteria by which certain actions would be recommended to mitigate wildfire risk.</p> <p>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:</p> <ul style="list-style-type: none"> • 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. <p>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</p>	<p>The comment has been noted. The ISO is focusing on possible transmission expansion projects with the potential of minimizing the impacts of outages due to wildfire or PSPSP events.</p> <p>The CAISO is expanding the reliability assessment of the 2020-2021 transmission planning process to include the identified wildfire assessment. The CAISO will be presenting results of the assessment at the September stakeholder meeting. In addition the CAISO will propose some potential mitigation for stakeholder review and comment</p>

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	<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 	<p>in addition for stakeholder comment on the risk assessment to support potential mitigation alternatives beyond the existing CAISO Planning Standards as these are extreme events.</p> <p>The CAISO will be assessing potential reliability impacts of the transmission facilities in the identified fire threat zones. The CAISO will coordinate with the participating transmission facility owners with respect to their wildfire mitigation plans and planned hardening of their systems as a part of the assessment and potential mitigation alternatives. The assessment will not be conducting the safety related assessments and risk of ignition that the participating transmission operators take into consideration in the development of their respective PSPS programs.</p>



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	<p>scenarios, considering IOU investment and PSPS mitigation plans from their Wildfire Mitigation Plans.</p> <ul style="list-style-type: none"> • 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? 	



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	<ul style="list-style-type: none"> • 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? <p>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.</p> <p>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.</p>	<p>The CAISO will be coordinating with the participating transmission owners in the development of scenarios related to the risk.</p> <p>The CAISO is conducting the assessment as a part of the 2020-2021 transmission planning process and will evaluate if further study is required in future planning studies based on the results of this study and potential needs in future planning cycles.</p>
4c	<p>2. The CPUC provided recommended battery storage mapping at the busbar level for both policy-driven sensitivity portfolios.</p> <p>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.</p> <p>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</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p>

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	<p>“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.</p>	
4d	<p>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.</p> <p>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.</p> <p>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.</p>	<p>In the 2021 and 2025 local capacity technical studies, the CAISO identified both the capacity (MW) and energy (MWh) of the potential storage that could be accommodated based upon the charging limitations assessment. The CAISO will include further assessment of the storage potential and charging requirements as a part of the 10-year LCR assessment in the 2020-2021 transmission planning process.</p>
	<p>4. CPUC Staff supports the CAISO’s long-term assessment of local capacity regions.</p> <p>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.</p>	<p>The comment has been noted.</p>



No	Comment Submitted	CAISO Response
	<p>5. CPUC Staff encourages CAISO's active involvement in the interregional transmission planning process</p> <p>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.</p>	<p>The comment has been noted.</p>



5. GridLiance West LLC (GLW) Submitted by: Jody Holland		
No	Comment Submitted	CAISO Response
5a	<p>Storage Mapping, Resource Retirement, and Land Availability Tied to Commercial Interest</p> <p>GLW is pleased to continue to work with the CAISO in whatever forums are most effective to ensure the mapping of CPUC resources and storage to GLW buses which allows for more productive TPP studies. GLW encourages the CAISO to continue to support improvements in the CPUC portfolios that better reflect rational resource and storage siting. GLW appreciates CAISO's continued involvement in the bus bar mapping generation siting process with the CPUC which now takes into consideration both land availability and commercial interest.</p>	The comment has been noted
5b	<p>Interregional Transmission Project (ITP) Update</p> <p>GLW appreciates the opportunity to submit a project to the Interregional Transmission Project Process. GLW's Northwest Tie Upgrade submission will allow continued development of CAISO resources in the Southern Nevada area. GLW looks forward to working with CAISO and WestConnect and having input to the Interregional Transmission Project Process as the study is conducted.</p>	The comment has been noted.

6. LS Power Development (LS Power) Submitted by: Sandeep Arora		
No	Comment Submitted	CAISO Response
6a	<p>LS Power's comments are limited to wildfire risk assessment portion of the presentation. At the stakeholder call CAISO proposed conducting an assessment to analyze risk of wildfires in high risk areas and identifying local areas being impacted by Public Safety Power Shutoff (PSPS) events in various parts of CAISO system. Preliminary findings from this analysis will be discussed with stakeholders in September 2020. This analysis is an attempt to help provide insights on measures that should be taken to prevent or reduce power shutdowns due to wildfires. LS Power supports this analysis. We believe this is a step in the right direction. Over last several years forced outages due to wildfires or planned outages such as PSPS events have become more routine in California. Not only are these events huge inconvenience & pose safety concerns to the society, these events also have huge economic impacts. According to some estimates PSPS events from Oct 2019 in Northern California had an economic impact of over \$2bn.</p> <p>While CAISO has proposed a high level overview of how it intends to conduct this analysis, key details are missing. We recommend CAISO develop a study plan for this analysis and allow stakeholders an opportunity to provide inputs before it proceeds with the study. Since this is such a key study, we recommend CAISO seeking this additional input from stakeholders rather than proceeding as proposed where stakeholders only get an opportunity to see draft results in September 2020. We recommend CAISO add detailed information on the following topics in this study plan: 1) Which study areas will be prioritized for this study? 2) Which study scenarios will CAISO use for the study, including details on which multiple contingencies will the study consider? 3) Which study years will this study be conducted for? 4) How will Extreme Contingencies be handled & will CAISO propose transmission solutions to address such contingencies? 5) How will existing infrastructure hardening plans from PTOs be incorporated?</p> <p>In addition to this, CAISO should provide more information on how the transmission projects that get proposed from this new analysis be considered for approval. Will these projects be classified as Reliability, Public Policy or Economic? Competitive solicitation framework should be utilized to the extent possible such that ratepayers can benefit from cost savings that competition</p>	<p>The comment has been noted</p> <p>The CAISO will be performing studies to be able to provide preliminary findings at the September stakeholder meeting. As such, an additional stakeholder session prior to the study phase is not feasible. The CAISO will be performing studies, to the most part, following the approach outlined during the June 3rd stakeholder session and also incorporating suggestions provided through comments as applicable.</p> <p>The comment has been noted and will be considered in developing presentation material for the September stakeholder session.</p>



No	Comment Submitted	CAISO Response
	<p>offers for new transmission projects. PTO existing infrastructure hardening projects should be carefully reviewed as these get incorporated into the analysis. Any existing infrastructure hardening projects that lead to a “net increase” in transmission capacity should be carefully studied by CAISO in TPP process rather than being rolled up in the transmission plan as a baseline assumption. Such projects should be compared with other new transmission solutions that may be more efficient and/or cost effective.</p>	

7. Public Advocate Office Submitted by: Lina Khoury		
No	Comment Submitted	CAISO Response
7a	<p>1. Wildfire Risk Assessment and PSPS Mitigation Plans</p> <p>The CAISO indicates it is collecting and will utilize wildfire-related information in its transmission planning process, developing potential wildfire scenarios for transmission planning assessment, and examining the impact of PSPS on the transmission system and how to mitigate PSPS events. The CAISO also indicates that it will discuss its preliminary findings on this topic during the September 2020 stakeholders meeting.</p> <p>The Public Advocates Office recommends that the CAISO integrate and incorporate the eight electrical corporations' 2020 wildfire mitigation plans that were ratified by the California Public Utilities Commission into the TPP to avoid duplication of projects and unnecessary costs to ratepayers. Specifically, the CAISO should account for wildfire mitigation projects that the electrical corporations' plan to undertake, either to reduce the risk of wildfire ignition from transmission infrastructure or to reduce the frequency and scope of PSPS events.</p> <p>In addition, if the CAISO develops a methodology for assessing wildfire impacts that is different from the electrical corporations' wildfire mitigation plans, the CAISO should provide stakeholders with the CAISO's methodologies, risk assessment studies, and analyses that will be used in its 2020-2021 TPP prior to the September 2020 TPP meeting. This should provide stakeholders with sufficient time to review how the CAISO's wildfire risk assessment and PSPS mitigation plans are incorporated in its TPP and its impacts on ratepayers.</p>	<p>The CAISO will be coordinating with the participating transmission owners in accounting for planned wildfire mitigation projects.</p> <p>The CAISO will be performing studies, to the most part, following the approach outlined during the June 3rd stakeholder session and also incorporating suggestions provided through comments as applicable. The CAISO will be performing studies through the summer to be able to provide preliminary findings at the September stakeholder meeting. As such, an additional stakeholder session prior to the study phase is not feasible.</p>
7b	<p>2. SDG&E Area Sub-transmission Project Re-evaluation</p> <p>The CAISO indicated that it plans to re-evaluate six previously-approved sub-transmission projects on the non-Bulk Electric System (BES) that have been delayed beyond 2025. The Public Advocates Office notes that this approach is consistent with the CAISO's review and cancellation of previously approved projects in PG&E's service area during the 2016-2017 TPP.</p>	<p>The comment has been noted.</p>



No	Comment Submitted	CAISO Response
	<p>The Public Advocates Office, therefore, supports the re-evaluation of SDG&E's six projects and the CAISO's decision not to model them in the 2020-2021 TPP power flow cases.</p>	
7c	<p>3. Storage Mapping and Resource Retirement</p> <p>The CAISO indicates it plans to map generic storage to specific locations driven by the increasing role of storage in meeting greenhouse gas portfolio objectives. The CAISO also indicated that it will utilize the California Public Utilities Commission's recommended storage mapping to model generic storage in the TPP base cases.</p> <p>The Public Advocates Office supports the CAISO's proposed approach to map generic storage to busbar and recommends that the CAISO incorporate its preliminary findings on the generic storage mapping in its September 2020 TPP stakeholders' meeting. This should provide stakeholders with an opportunity to comment on these preliminary findings.</p>	<p>The comment has been noted.</p> <p>CAISO will discuss the finding of storage mapping at the November 2020 stakeholder meeting.</p>

8. Pacific Gas and Electric (PG&E) Submitted by: Mike Pezone		
No	Comment Submitted	CAISO Response
8a	<p><u>Wildfire Risk Assessment</u> PG&E appreciates and supports the CAISO's efforts to evaluate 2019 wildfire information to assess potential mitigations in the PG&E service territory within 2020-21 TPP cycle.</p> <p>Overall, PG&E is supportive of CAISO's inclusion of a wildfire risk assessment in the Transmission Planning Process. PG&E looks forward to coordinating with the CAISO on transmission system hardening and welcomes the opportunity to support CAISO's identification of approved and potentially new projects that mitigate wildfire risk.</p> <p>For additional context, PG&E refers the CAISO to its 2020 Wildfire Mitigation Plan (WMP) submitted on February 7, 2020, in compliance with California SB 901, AB 1054 by direction from the California Public Utilities Commission's (CPUC) Wildfire Safety Division. The WMP provides details on PG&E's comprehensive Community Wildfire Safety Program and, incorporating lessons learned from the 2019 wildfire season, outlines the additional programs planned from 2020 to 2022 to prevent catastrophic wildfires. Below is a partial list of strategies and programs outlined in the WMP.</p> <ol style="list-style-type: none"> 1. Asset Inspection and Repair. Identifying lines that can potentially be excluded from PSPS by repairing all tags to improve the wildfire risk score of the line below the de-energization threshold from PSPS decision making. 2. Transmission Line System Hardening. PG&E's Transmission Line System Hardening Program includes a number of elements intended to mitigate wildfire risk by reducing the risk of potential ignitions associated with PG&E's facilities and equipment. As a part of this program, PG&E is performing full line assessments for overhead electric transmission lines in high fire threat areas to effectively evaluate the need of equipment replacement based on circuit risk. 3. Sectionalizing Through SCADA Devices. Separating the grid into small sections for operational flexibility and upgrading automation that will allow PG&E to remotely control and operate field equipment. 4. Temporary Microgrids. Safely energizing customers during a PSPS event. 	<p>The comment has been noted. The CAISO will review PG&E's Wildfire Mitigation Plan and will incorporate information in the CAISO's assessment as it fits.</p>



No	Comment Submitted	CAISO Response
	<p>5. Situational Awareness and Forecasting. Understanding of weather and fire conditions through improved situational awareness and sophisticated meteorology operations in order to identify the highest-risk fire locations.</p> <p>6. Enhanced Vegetation Management. Inspecting, pruning and removing vegetation in order to reduce the risk of trees, limbs and branches coming into contact with power lines and equipment.</p> <p>As discussed in the June 3rd stakeholder meeting, system performance of Extreme Events such as PSPS does not require mitigation. That said, PG&E welcomes continued discussion on planning standards performance requirements and looks forward more engagement on this important topic with the CAISO</p>	
8b	<p>Round Mountain PG&E appreciates the CAISO providing an update to the Round Mountain 500 kV Area Dynamic Reactive Support Project.</p> <p>In the project update, the CAISO recognized that the existing series capacitors at Round Mountain and Table Mountain 500 kV Substations would need to be adjusted to meet PG&E’s protection design criteria and to maintain the overall line compensation between Round Mountain and Table Mountain. PG&E wants to add that in addition to the series capacitors adjustments, the Remedial Action Scheme (RAS) which currently monitors the 500 kV system in the Round Mountain and Table Mountain area will also need to be modified to be able to incorporate the Round Mountain 500 kV Area Dynamic Reactive Support Project. PG&E will conduct detailed studies, design and implementation of the series capacitor adjustments and modification to the RAS.</p> <p>In addition, as the Round Mountain 500 kV Area Dynamic Reactive Support Project could involve several potential affected systems, PG&E urges the CAISO to notify WECC of the project and connect LS Power with potential affected systems to initiate affected system impact studies as needed as soon as possible. PG&E requests to be part of those notifications and outreach.</p>	The comment has been noted.
8c	<p>Storage Mapping and Resource Retirement PG&E supports the CAISO’s proposed framework and seeks clarification on several assumptions.</p> <p>Overall, PG&E supports the proposed framework re: “Storage mapping and resource retirement in policy assessment.” PG&E finds the CAISO proposal a thoughtful approach to refine the CPUC IRP portfolios, and an appropriate way</p>	The comment has been noted.



No	Comment Submitted	CAISO Response
	<p>to address the distinct needs of the more certain base case scenario, and the more dynamic sensitivities scenarios.</p> <p>PG&E is particularly supportive of the proposed mapping refinements based on retirement assumptions and charging limitations in LCR areas. PG&E finds this approach, by prioritizing resource replacement in LCR areas (i.e., area of the higher reliability and subsequently economic value) while recognizing battery's LCR charging limitations, a reasonable and effective enhancement upon the more generic IRP scenarios. PG&E believes this type of approach, of creating planning portfolios that are more integrated with the CAISO's transmission planning process and insights, will likely yield portfolios that align better with future realities, both in terms of system reliability and market economics. For this reason, PG&E strongly encourages the CPUC to work more closely with the CAISO to incorporate elements of CAISO's proposed mapping method here upstream into the CPUC's IRP process, which PG&E believes will yield a more robust set of portfolios from the IRP.</p> <p>Lastly, PG&E provides the following comments, and asks the CAISO to provide additional clarity or considerations on specific input and modeling assumptions as it undertakes this mapping process.</p> <ul style="list-style-type: none"> • Additional details on load and resource assumptions – to the extent practical, PG&E encourages the CAISO to share additional details on the load and resource assumptions for the local areas for the 10 years studies (e.g., level of EV and electrification load growth assumptions, and generic renewable generation build-out assumed in the local areas). • Consistency in CAISO import assumption – PG&E would like to understand TPP's assumptions regarding CAISO import, and compare it against the assumptions used in the CPUC's IRP process. PG&E believes there is desire for consistency across these planning processes, such that the resulting portfolios – generation and transmission – are meaningfully aligned. • Plan to assess stressed system conditions – PG&E would like the CAISO to provide a narrative on how the system level portfolios will be assessed under stressed system conditions. For example, will the CAISO test the portfolios using production cost modeling tools such as PLEXOS? And if so, will the CAISO consider a stress scenario such as one where 100% of 	<p>The CAISO will be using the load and resource base assumptions of the transmission planning process in the 10 year studies.</p> <p>The CAISO will be using the import assumptions used in the transmission planning process and the local capacity technical studies.</p> <p>The CAISO will test the three portfolios using ABB GridView. The CAISO will not consider a stressed scenario where 100% of the load is being met by inverter-based technologies because CPUC's base portfolio and sensitivity #1 portfolio have retained most of the existing gas-fired generation fleet for resource planning purposes.</p>



No	Comment Submitted	CAISO Response
	<p>the load is being met by inverter-based technologies to assess a potential bookend future state?</p> <ul style="list-style-type: none"> Consider capacity factors below typical historical values – PG&E recommends that the CAISO consider the historical dispatch of the resource technologies as an approach to layering into its analysis the retention of the resources with the most valuable reliability characteristics. Resources that have dispatch values above average capacity factors are likely to be economically effective at mitigating multiple constraints rather than the single constraint identified within the local area capacity studies. Using the historical capacity factors for each resource technology is a previous method that the CAISO utilized when evaluating resources for economic retirement. 	
8d	<p><u>10-Year LCR Study and Approach</u> PG&E requests that the Local Capacity Technical (LCT) analysis identify the mitigations needed to significantly reduce or eliminate resource requirements based on the mandatory standards. PG&E supports the Local Capacity Technical (LCT) studies that will be evaluated over a longer planning horizon to identify the need for longer lead time economically driven transmission elements that would reduce LCR needs. Due to the alignment of the LCT criteria with the bulk electric system (BES) and non-BES with mandatory NERC planning standards, it is reasonable to assume that results from this year’s analysis will deviate from previous studies. The studies from 2018-2019 and 2019-2020 planning cycles utilized the previous LCT standards prior to the tariff changes that aligned the standards between the two processes. The previous planning cycles identified second and third order constraints that would either reduce or eliminate resource requirements for areas and sub-areas. This may be a significant undertaking to complete in a single cycle and PG&E recommends that the CAISO follow the same ordering process that evaluated 50% of the total areas and sub-areas. This will allow the submission of robust solutions that can consider a combination of transmission and storage options.</p>	<p>The study will explore and assess alternatives – conventional transmission and preferred resources including storage - to reduce or eliminate need for gas-fired generation in all existing areas and sub-areas; however until the overall resource plan that rely on the bulk of the gas fired fleet (except for retiring OTC resources) for system needs, on top of any other procurement authorized to date or expected to be authorized in the near future to address diablo canyon retirement becomes clearer, it is unlikely that advancement of any major capital upgrades can occur immediately.</p>



No	Comment Submitted	CAISO Response
	<p>PG&E requests that LCT analysis account for the required battery characteristics for the transmission capability under the most limiting contingency.</p> <p>The charging limitations provided are based upon a specific transmission constraint and this process will evaluate alternatives assuming that the constraint is mitigated until the next constraint is identified. The charging characteristics from one constraint to the next could result in a different set of profiles and it is important to understand these profiles to ensure that solution combinations submitted are enough to address the identified reliability need. In addition to this, it would be useful to understand how the CAISO will evaluate the economics of whether it should ensure sufficient in-area resources to recharge the batteries versus expanding transmission capacity that would entirely eliminate that particular need.</p>	<p>The battery characteristics from charging restriction perspective included in the LCT analysis is calculated based on the most limiting constraint. It is true that the required battery characteristics will be different for the subsequent constraints. However, it is not feasible to calculate battery characteristics for each of the subsequent constraints.</p>

9. Union of Concerned Scientists, Sierra Club and California Environmental Justice Alliance
Submitted by: Adenike Adeyeye, Katherine Ramsey, Deborah Behles and Shana Lazerow

No	Comment Submitted	CAISO Response
9a	<p>The Storage Mapping and Resource Retirement Assessment, along with the 2030 Long-Term Capacity Technical Study, can and should directly inform procurement and planning in the Integrated Resource Plan (IRP) Proceeding currently underway at the California Public Utilities Commission (CPUC). The Union of Concerned Scientists (UCS), Sierra Club, and California Environmental Justice Alliance (CEJA) recommend that these studies continue with the specific directive of reducing gas generation and enabling the future retirement of gas plants in local capacity areas. Through the IRP proceeding, the CPUC directed load-serving entities to procure over 3,000 megawatts of new resources to address shortfalls in system capacity, but this authorization did not evaluate potential local capacity area needs, how to facilitate the phase-out of natural gas facilities, or how targeted procurement could mitigate market power in local areas. The CPUC provided load-serving entities with no guidance on where to site these new resources, but the CAISO currently has the opportunity to fill that gap.</p> <p>By connecting the local capacity requirements (LCR) studies and the storage mapping exercise to the IRP proceeding, CAISO can signal to Load Serving Entities (LSE) where new storage and renewable resources would be most effective at meeting multiple goals, including provision of local resource adequacy capacity, reducing or displacing gas generation, and decreasing greenhouse gas and criteria pollutant emissions. The ability to site those resources in locations where they can decrease or even fully displace gas generation would offer significant public health and climate benefits. To this end, the storage mapping exercise and the 2030 Long-Term Capacity Technical Study can illustrate the locations where energy storage can best produce these benefits. We encourage this work to continue with the specific goal of displacing gas generation in mind.</p>	<p>The comment has been noted.</p> <p>The study will explore and assess alternatives – conventional transmission and preferred resources including storage - to reduce or eliminate need for gas-fired generation in all existing areas and sub-areas; however until the overall resource plan that rely on the bulk of the gas fired fleet (except for retiring OTC resources) for system needs, on top of any other procurement authorized to date or expected to be authorized in the near future to address diablo canyon retirement becomes clearer, it is unlikely that advancement of any major capital upgrades can occur immediately.</p>
9b	<p>I. Storage Mapping and Resource Retirement Assessment We support CAISO's plan for the storage mapping and resource retirement assessment. This information aids parties in understanding where new resources can be sited in order to address local needs while enabling the reduction or retirement of gas generation. When targeted to local capacity areas in disadvantaged communities, storage can produce local investment</p>	<p>The comment has been noted</p>



No	Comment Submitted	CAISO Response
	<p>alongside air quality improvements in communities that face disproportionate environmental burdens.</p> <p>The storage mapping and resource retirement assessment should include additional information to help ensure more effective storage deployment and reduced need for gas-fired generation. This information would be immediately useful to California LSEs that still need to conduct near-term procurement as directed by the most recent IRP decision. The assessment should include information about how the storage will be charged and what types of storage will be modeled. For example, storage duration characteristics would be helpful, as it would provide LSEs with actionable signals about the type of storage that would be needed. Also, understanding how the mapped storage will be charged can clarify how the storage will impact greenhouse gas emissions and criteria air pollutant emissions.</p> <p>The storage mapping and resource retirement assessment should prioritize the study of the LA Basin and the Greater Fresno areas as renewable zones of interest for storage investment. During the presentation at the June 3 meeting, CAISO staff asked how to identify specific renewable zones of interest. Ideally, the CAISO would study all local capacity areas and subareas in order to inform stakeholders where storage will specifically displace gas generation. However, given the time and effort required to conduct these studies, we suggest that the CAISO prioritize studies of areas and/or subareas that meet the following criteria:</p> <ol style="list-style-type: none"> 1) Local Capacity Areas or subareas that suffer the worst air quality; 2) Local Capacity Areas or subareas that have a high percentage of disadvantaged communities (DACs); and 3) Local Capacity Areas or subareas where gas plant retirements and siting of preferred resources and storage is consistent with community priorities. <p>The assessment can utilize CalEnviroScreen data to identify disadvantaged communities and focus on disadvantaged communities within local capacity areas. The assessment can also use maps of areas that are not in attainment of federal Clean Air Act standards to identify which areas would benefit most from reductions in localized air pollution (see Table 1 below). Outreach to communities as well as public comments could serve as an opportunity to</p>	<p>The 2021 and 2025 local capacity technical studies posted on the CAISO website have already provided information regarding the capacity, duration and energy requirements necessary to replace the amount of gas-fired generation that could be replaced while still providing charging capabilities from the grid and other local generation. The storage mapping and the 10-year local capacity study will build off of the analysis that was provided in the 2021 and 2025 local capacity technical studies considering the forecast load profiles, battery storage capabilities (MW, MWh and durations) and the capabilities of the local capacity area to charge the storage resources. The assessment does not specifically identify how the storage will be charged but that there is adequate charging window so that the storage resource is available to meet the local capacity requirements. The 10-year LCR analysis will also look at what transmission alternatives could also reduce the reliance on the gas-fired generation and further increase the storage capability in the area.</p> <p>The CAISO will take the comment into consideration if prioritization of areas is required for which areas are assessed in this year's planning cycle.</p>



No	Comment Submitted	CAISO Response
	<p>understand where storage deployment alongside gas plant retirements reflect community priorities.</p> <p>UCS, Sierra Club, and CEJA support the CPUC’s recommended process for modeling resource retirement, but CAISO should provide additional data about the findings from each step so that bottlenecks for storage deployment can be identified and addressed in future planning processes. There may be some areas where local area requirements are not met even after battery storage is added up to known battery storage charging limits. The assessment should identify those areas so that future IRPs and Transmission Planning Processes (TPP) can consider ways to reduce reliance on fossil fuel generation in those areas, whether that requires new transmission alternatives, additional storage deployment, or deployment of other resources. Otherwise, the limitations on storage could prevent additional gas retirements and hinder progress toward California’s climate goals.</p>	
9c	<p>II. 2030 Long-Term Local Capacity Technical Study</p> <p>UCS, Sierra Club, and CEJA also support the plan for the 2030 Long-Term Local Capacity Technical study (2030 LLCT Study) as a means to direct near-term procurement towards long-term results—namely the reduction of greenhouse gas and criteria pollutant emissions. The 2030 LLCT Study can advance the IRP procurement efforts by signaling to LSEs where storage procurement would displace gas generation over the long-term. The results from the study could additionally inform siting for renewable energy deployment.</p> <p>As mentioned above, the CPUC has directed LSEs to undertake near-term procurement in order to fulfill a system capacity shortfall. However, many stakeholders and LSEs want to see those investments directed to locations that will provide benefits beyond just system capacity. Parties want to plan for the orderly retirement of gas plants—particularly those near population centers—without reliability impacts or the need for backstop procurement.</p> <p>Like the storage mapping study, we would like to see the 2030 LLCT study identify potential alternatives to gas-fired generation for every Local Capacity Area and Subarea. However, given the time and effort required to conduct</p>	<p>The CAISO will take the comment into consideration if prioritization of areas is required for which areas are assessed in this year’s planning cycle.</p>



No	Comment Submitted	CAISO Response																																			
	<p>these studies, we suggest that the CAISO prioritize studies of areas and/or subareas that:</p> <ol style="list-style-type: none"> 1) Suffer the worst air quality; 2) Have a high percentage of disadvantaged communities (DACs); and 3) Have community priorities for enabling the retirement of gas plants alongside the deployment of preferred resources and storage. <p>Considering the criteria outlined above, we suggest that the CAISO prioritize study of the LA Basin and Greater Fresno area. These Local Capacity Areas cover many disadvantaged communities, many of which host gas or biomass plants. Additionally, the counties covered by these LCAs suffer from serious, severe, and extreme nonattainment for both fine particulate matter and ground-level ozone.⁴ The table below summarizes the nonattainment designations for counties in the Greater Fresno and LA Basin local capacity areas, as well as gas power plants within each county.</p> <p style="text-align: center;">Table 1: California Counties with 2020 Serious, Severe, and/or Extreme Nonattainment Designations for Both PM2.5 and Ozone⁵</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">County / City</th> <th style="width: 15%;">PM2.5 Designation</th> <th style="width: 15%;">Ozone Designations</th> <th style="width: 10%;">LCR Area⁶</th> <th style="width: 45%;">Natural Gas Power Plants located in DACs⁷</th> </tr> </thead> <tbody> <tr> <td>Fresno County, San Joaquin Valley, CA</td> <td>Serious (1997 and 2006 stds), Moderate (2012 std)</td> <td>Extreme (2008 and 2015 stds)</td> <td>Greater Fresno</td> <td>5 peaker plants and 1 combined cycle</td> </tr> <tr> <td>Kern County, San Joaquin Valley, CA</td> <td>Serious (1997 and 2006 stds), Moderate (2012 std)</td> <td>Extreme (2008 and 2015 stds)</td> <td>Greater Fresno</td> <td>17 cogen and 3 combined cycle</td> </tr> <tr> <td>Kings County, San Joaquin Valley, CA</td> <td>Serious (1997 and 2006 stds), Moderate (2012 std)</td> <td>Extreme (2008 and 2015 stds)</td> <td>Greater Fresno</td> <td>1 peaker</td> </tr> <tr> <td>Los Angeles County, CA</td> <td>Moderate (1997 std), Serious (2006 std), Moderate (2012 std)</td> <td>Extreme (2008 and 2015 stds)⁸</td> <td>LA Basin</td> <td>4 OTC (some in process of retirement), 10 cogen, 5 peaker, 5 combined cycle</td> </tr> <tr> <td>Madera County, San Joaquin Valley, CA</td> <td>Serious (1997 and 2006 stds), Moderate (2012 std)</td> <td>Extreme (2008 and 2015 stds)</td> <td>Greater Fresno</td> <td>(1 peaker in census tract at the 71 percentile)</td> </tr> <tr> <td>Merced County, San Joaquin Valley, CA</td> <td>Serious (1997 and 2006 stds), Moderate (2012 std)</td> <td>Extreme (2008 and 2015 stds)</td> <td>Greater Fresno</td> <td>(biomass located in DACs)</td> </tr> </tbody> </table>	County / City	PM2.5 Designation	Ozone Designations	LCR Area ⁶	Natural Gas Power Plants located in DACs ⁷	Fresno County, San Joaquin Valley, CA	Serious (1997 and 2006 stds), Moderate (2012 std)	Extreme (2008 and 2015 stds)	Greater Fresno	5 peaker plants and 1 combined cycle	Kern County, San Joaquin Valley, CA	Serious (1997 and 2006 stds), Moderate (2012 std)	Extreme (2008 and 2015 stds)	Greater Fresno	17 cogen and 3 combined cycle	Kings County, San Joaquin Valley, CA	Serious (1997 and 2006 stds), Moderate (2012 std)	Extreme (2008 and 2015 stds)	Greater Fresno	1 peaker	Los Angeles County, CA	Moderate (1997 std), Serious (2006 std), Moderate (2012 std)	Extreme (2008 and 2015 stds) ⁸	LA Basin	4 OTC (some in process of retirement), 10 cogen, 5 peaker, 5 combined cycle	Madera County, San Joaquin Valley, CA	Serious (1997 and 2006 stds), Moderate (2012 std)	Extreme (2008 and 2015 stds)	Greater Fresno	(1 peaker in census tract at the 71 percentile)	Merced County, San Joaquin Valley, CA	Serious (1997 and 2006 stds), Moderate (2012 std)	Extreme (2008 and 2015 stds)	Greater Fresno	(biomass located in DACs)	
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No	Comment Submitted					CAISO Response
	County / City	PM2.5 Designation	Ozone Designations	LCR Area⁶	Natural Gas Power Plants located in DACs⁷	
	Orange County, Los Angeles-South Coast Air Basin, CA	Moderate (1997 std), Serious (2006 std), Moderate (2012 std)	Extreme (2008 and 2015 stds)	LA Basin	4 peakers	
	Riverside County, Los Angeles-South Coast Air Basin, CA	Moderate (1997 std), Serious (2006 std), Moderate (2012 std)	Extreme (2008 and 2015 stds)	LA Basin	1 combined cycle, 2 peaker, 2 cogen	
	San Bernardino County, Los Angeles-South Coast Air Basin, CA	Moderate (1997 std), Serious (2006 std), Moderate (2012 std)	Extreme (2008 and 2015 stds)	LA Basin	5 peaker, 2 cogen	
	San Joaquin County, San Joaquin Valley, CA	Serious (1997 and 2006 stds), Moderate (2012 std)	Extreme (2008 and 2015 stds)	Greater Fresno	(biomass located in DACs)	
	Tulare County, San Joaquin Valley, CA	Serious (1997 and 2006 stds), Moderate (2012 std)	Extreme (2008 and 2015 stds)	Greater Fresno	1 peaker	
	<p>Ideally, the findings of the 2030 LLCT study will inform LSE procurement over the near-term by providing signals for where new procurement would be most effective in reducing the need for gas-fired power. LSEs are currently planning to procure new resources in order to comply with the Commission's order, but they lack the information necessary to identify where those resources could reduce gas generation or enable the eventual retirement of existing gas plants. We recommend that the 2030 LLCT study prioritize the study of the LA Basin and Greater Fresno areas, while keeping in mind the distinct need to signal where storage deployment would be most effective.</p>					

10. Western Grid Development Submitted by: Marty Walicki		
No	Comment Submitted	CAISO Response
10a	<p>LA Basin should be a target area for LCR Study The LA Basin should be one of the targeted LCR Areas where the CAISO will identify transmission options that combined with batteries could eliminate or materially reduce reliance on gas-fired generation.</p> <p>Western Grid agrees with the CAISO that the Criteria the CAISO uses to select the targeted LCR areas for the 2020-21 TPP Long Term LC Technical Study should include: Technical parameters of the gas resources, including the age of the gas resource; and proximity to, or impact on, disadvantaged communities (DAC). (June 3 Stakeholder Meeting Slide 7).</p> <p>However, Western Grid also asks the CAISO to use Local Basin Air quality as a criterion. The LA Basin LCRA has among the worst air quality in the State, and accordingly should be a high priority target study area for the CAISO to study transmission and battery options for elimination or material reduction of the gas fired generation. Improving air quality is at the heart of the SB 100 2045 zero-carbon portfolio requirement.</p> <p>Western Grid, along with other parties agree that LA Basin should be a high priority target study area for gas plant retirements. In recent joint comments to the CPUC OIR the California Environmental Justice Alliance, Sierra Club, NRDC, and Union of Concerned Scientist stated:</p> <p style="padding-left: 40px;">.... two LCR areas with the worst air quality in California are the LA Basin LCR and the Greater Fresno LCR Area. These are also home to many disadvantaged communities we recommend that be LA Basin LCR and the Greater Fresno LCR area be prioritized in this procurement Cycle (CPUC OIR on IRP and Procurement, June 15, 202 Joint Comments of CEJA, Sierra Club, NRDC and UCS, page 11).</p>	<p>The study will explore and assess alternatives – conventional transmission and preferred resources including storage - to reduce or eliminate need for gas-fired generation in all existing areas and sub-areas; however until the overall resource plan that rely on the bulk of the gas fired fleet (except for retiring OTC resources) for system needs, on top of any other procurement authorized to date or expected to be authorized in the near future to address diablo canyon retirement becomes clearer, it is unlikely that advancement of any major capital upgrades can occur immediately. In addition, the LA Basin LCR area has one of the largest local capacity requirements and the sum of the local capacity requirements in each of the local capacity areas in the CAISO represents the vast majority of the gas fired resources which are still needed for overall system reliability. Major reductions in these amounts will need to be in close coordination with the CPUC IRP.</p>
10b	<p>Long lead time new transmission to access out of basin resources must be studied at appropriate scale The CAISO should take this opportunity to study the role of new long lead-time transmission to access out-of-basin resources. Western Grid supports the CAISO stated goal for the Long-Term LC Technical Study of "Identify</p>	<p>See response to 10a.</p>



No	Comment Submitted	CAISO Response
	<p>transmission options that combined with batteries could eliminate or materially reduce gas fired generation". (CAISO June 3,2020 - 2021-22 TPP Stakeholder Meeting Slide 6).</p> <p>Western Grid believes that, for the LA Basin, this Long-Term Local Capacity Technical Study should seek the combination of battery and new transmission that allows for at least 3,000 MW of Gas retirements in the LA Basin by 2030. In addition, Western Grid recommends the CAISO study a " bounding case" scenario where 100% of the Gas plants are retired in the LA Basin by 2030 or 2035. By including a bounding case scenario in the CAISO 2020-21 TPP Long Term LC Technical Study, policy and decision makers can better understand the infrastructure that will ultimately be needed to serve the LA Basin reliably with a zero-carbon portfolio.</p> <p>Further, only by studying a significant amount of gas plant retirements will the benefits of new transmission be evaluated at sufficient scale for the benefits to be recognized. If the CAISO sets its goal on small incremental gas retirements of a few hundred MWs, the solution will always be high cost incremental in-basin solutions such as in-basin solar and batteries combined with small band-aid transmission solutions to shore-up the existing transmission system. To the extent a study is based on a partial solution it may be too late to gain the benefits of new transmission access to needed resources.</p> <p>As the CAISO indicated in its December 15, 2020 OIR comments at page 4:</p> <p style="padding-left: 40px;">As a result, the transmission planning process requires an actionable plan immediately if the Commission wishes to consider transmission-dependent resource buildouts such as out-of-state resources, offshore wind, or efforts to reduce local capacity needs. (emphasis added)</p> <p>California needs to start planning for full implementation of SB100, the CAISO results for a closure of at least 3,000 MW of gas plants plus the bounding scenario of 100% gas plant retirement in the LA Basin LCRA can play a critical role in providing information needed to support development of rational resource and transmission decisions.</p>	



No	Comment Submitted	CAISO Response
	<p>Western Grid believes the CAISO will find that new long lead time transmission will be needed to allow retirement of large amounts of LCR gas generation. This long-term LCR Technical study can go a long way to identify “no regrets” transmission solutions to allow retirement of gas plants in the LA LCRA. That in turn will support and inform resource planning decisions at the CPUC that can lead to actionable guidance from the CPUC in time for the CAISO to identify and approve “no regrets” transmission additions in the 2021-22 TPP.</p> <p>Western Grid strongly agrees with the CAISO that actionable guidance from the CPUC is needed ASAP. Western Grid’s also believes there will be a need for new large transmission to allow high potential renewable resources inside California to supply the energy and capacity needed to allow retirement of gas plants in LCRAs. Western Grid’s proposed PTEP HVDC subsea transmission cable from the Diablo Canyon switchyard to the switchyards of up to three retiring gas plants in the LA Basin, capable of delivering 2,000 MW of NP-15 energy to the LA Basin, is an example of such a project. A new transmission line such as PTEP could successfully deliver power from the Central Valley or other less costly renewable rich areas in NP-15. And the CAISO has already determined it can reduce LCRs in the LA Basin by 1993 MWs on a net basis. This is the magnitude needed for meaningful solutions to reducing reliance on gas plants.</p> <p>As described in more detail below, our studies show the PTEP is cost effective and has a positive B/C Ratio by delivering NP15 power to displace LA Basin gas plants. However, as an added bonus the Western Grid PTEP can enable the development and delivery of OSW in high quality wind zones off the California Central Coast.</p> <p>There is little doubt that batteries will be part of the solution to gas plant retirements. But, if the CAISO does not plan needed transmission now and assumes that batteries are a complete solution, and later finds that the battery solution is not feasible or sufficient to replace the gas plants, it will be too late to reverse course.</p>	

No	Comment Submitted	CAISO Response
10c	<p>CAISO's conservative valuation of the Local Capacity Requirements ("LCRs") reduction benefits should be modified</p> <p>In recent TPP cycles, the CAISO has consistently used a conservative value for LCR when calculating the benefit cost ratios for transmission and resource additions that can reduce LCRA requirements. In this 2020-21 Long Term LC Study the CAISO should use publicly available data to determine the most recent prices the LSEs have actually paid to procure LCR contracts.</p> <p>For the LA Basin Western Grid found from publicly available information that recent actual LCR gas plant procurement prices paid averaged \$ 8.90 kw/month. When the CAISO evaluated the PTEP in the 2019-20 TPP, CAISO found the PTEP could eliminate the need for 1,993 MW of LCR in the LA basin, but the B/C ratio was 0.21 using a "conservative" LCR value of \$ 1.89 kw/month. However, if the actual prices paid for LCR procurement were used, combined with congestion relief and other benefits of the PTEP the CAISO would likely have found a positive B/C ratio for the PTEP.</p> <p>CAISO may have access to other sources of actual LCR procurement prices paid and may not reach the exact same dollar per Kw/month cost, but Western Grid urges that the full actual prices paid for LCR procurement not be discounted by a value attributable to system RA. The CAISO should assume the CPUC will have authorized sufficient system resource procurement by 2030, and the CAISO should base its studies on the assumption that the CPUC will have authorized sufficient system procurement and sufficient system RA resources are available to replace the LCRA gas plants that are retired in 2030.</p> <p>Western Grid's proposed use of actual LCR procurement prices paid for calculation of LCR value and resulting B/C ratios will allow easier interpretation of the project benefits in solving the problem at hand, specifically the value of a project in allowing retirement of gas plants in LCR areas.</p> <p>With Western Grid's proposed improvements, the resulting cost benefit ratios will also facilitate comparison of costs for: (1) continuing to retain LCR resources, (2) in-basin and out-of-basin alternatives for meeting LCR, (3) the CPUC and others to facilitate the formulation of policy and planning guidance, and (4) properly implementing the goals of FERC Order 1000 by allowing</p>	<p>See response to 10a.</p>



No	Comment Submitted	CAISO Response
	<p>independent transmission project developers to more accurately communicate with their audiences and funders on the merits of a project.</p>	
10d	<p>Qualitative scores should be developed to facilitate comparison of alternative solutions for LCR gas replacement Western Grid applauds the CAISO for proposing an in-depth study of targeted LCRAs to identify transmission options that combined with batteries could eliminate or materially reduce gas fired generation.</p> <p>The CAISO should develop a set of qualitative values and score alternative replacements of retiring gas plants in LCRAs, whether the replacements are in-basin battery or new transmission solutions. The qualitative scoring should be based on at least the following criterion.</p> <ul style="list-style-type: none"> • Life cycle costs, including the cost of removal and disposal • Recharging requirements • Feasibility of siting and permitting • Available land • Ability to repurpose existing transmission and related infrastructure that remains when gas plants retire • Ability to support LCRA reliability with inertia, voltage and frequency support. • Contribution to a diverse California resource mix • Wild fire exposure • Impact on air quality • Impact on DACs. <p>The CAISO may determine that the CPUC would need to contribute to a qualitative scoring exercise. If so, Western Grid urges appropriate collaboration with the CPUC staff.</p> <p>Western Grid believes qualitative scoring can use a simple plus, minus, neutral score, or a more ambitious scoring system, but whatever scoring system the CAISO uses, qualitative assessment will supply important information to support timely policy and planning decisions that can allow gas plant retirement and lead to a diverse new resource mix supported by the needed new transmission. Good planning decisions regarding an optimal balance of in basin batteries and diverse out of basin resources Those decisions should not be</p>	<p>The CAISO will work with the CPUC on considering Western Grid's recommendations. It is worth noting that the CPUC's base portfolio and sensitivity #1 portfolio have retained most of the existing gas-fired resources. Only the sensitivity #2 portfolio (high EO) identified generation retirement at this point.</p>



No	Comment Submitted	CAISO Response
	driven by studying battery recharging characteristics and capabilities alone. And the best battery and transmission solutions should be compared to allow decisions to be made based on more attributes than just the initial cost to build.	

11. Westlands Solar Park Submitted by: Daniel Kim		
No	Comment Submitted	CAISO Response
11a	<p>The Westlands Solar Park (WSP) appreciates the opportunity to provide these comments on the California Independent System Operator’s 2020-21 Transmission Planning Process. This TPP cycle promises to be one of the most influential yet, as storage begins to enter a more dominant position in the generation fleet and transmission planning. WSP believes more transmission and storage solutions are needed to address increasing levels of curtailment, and we were encouraged that CAISO is giving careful consideration to solutions to mitigate excessive curtailment.</p> <p>During CAISO’s June 3rd presentation of storage mapping and resource retirement in the policy assessment, CAISO noted that “specific renewable zones of interest” will be studied for storage and transmission solutions to high levels of curtailment. It is unclear to WSP how CAISO will determine the interest in these zones and ultimately select areas for these curtailment studies, but WSP requests that CAISO consider studying the Westlands area for storage and transmission solutions to high renewable curtailment.</p> <p>While the Westlands area has a demonstrated potential for significant solar plus storage development, CAISO’s TPP has shown curtailment to be an issue in the Westlands area. In the 2019-20 Transmission Plan, the PG&E Westland-Fresno-Kern area was one of the most curtailed areas in the Sensitivity 1 and 2 results. This was true with or without the net export limit, unlike some areas of heavy renewable curtailment. The curtailment noted in the 2019-20 TP is likely to persist or increase in the 2020-21 TPP because the CPUC’s sensitivity modeling assumptions include significant solar in the Westlands area while apparently still underrepresenting the commercial interest in the area.</p> <p>Again, WSP requests that CAISO consider studying the Westlands area for storage and transmission solutions to high levels of renewable curtailment as part of its policy-driven studies discussed on the June 3rd TPP call.</p>	<p>The determination of specific renewable zones of interest for evaluation of curtailment mitigation will depend primarily on the extent of renewable curtailment observed in renewable zones in the production cost modeling simulations. Without seeing the curtailment results, the CAISO cannot commit to evaluating the Westlands area.</p>

12. Northern California Power Agency (NCPA) Submitted by: Anish Nand		
No	Comment Submitted	CAISO Response
12a	<p>NCPA supports the CAISO in its willingness to perform a Wildfire Mitigation Assessment during this planning cycle.</p> <p>Further we support developing scenarios based on 2019 actual events and assessing both direct and indirect impacts along with identifying mitigations for future events.</p> <p>We encourages the CAISO to consider performing a wildfire assessment for all future planning cycles as well.</p> <p>NCPA Members, the Cities of Healdsburg and Ukiah were de-energized on October 26, 2019. NCPA would like to understand the root cause of this de-energization from a transmission planning perspective. Were there system constraints at PG&E's Fulton Substation? Was the Fulton Sub-system approaching voltage collapse upon the loss of the Fulton-Ignacio 230kV line? NCPA would appreciate if the CAISO can explain the October 26th events as some of the circuits feeding the Cities of Ukiah and Healdsburg are not in High Fire Threat Zones (ex. Windsor – Fitch Mountain 60kV line).</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p> <p>The CAISO will consider as appropriate inclusion of extreme event analysis in future transmission planning cycles.</p> <p>Specific details related to the October 2019 PSPS events should be directed to PG&E.</p>