

The CAISO received comments on the topics discussed at the February 28th, 2023 stakeholder call from the following:

- A. California Public Utilities Commission – Public Advocates Office
- B. California Western Grid Development, LLC
- C. Center for Energy Efficiency and Renewable Technology
- D. Clean Power Alliance
- E. Fervo Energy
- F. Golden State Clean Energy
- G. GridLiance West
- H. Imperial Irrigation District
- I. LS Power
- J. Southern California Edison
- K. The Bay Area Municipal Transmission Group(BAMx)
- L. Vistra Corp.

Copies of the comments submitted are located on the Transmission Planning Process page at:

<https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/2023-2024-Transmission-planning-process>

The following are the CAISO's responses to the comments

1. [Please provide your organizations comments on the draft Reliability Assessment](#)
2. [Please provide your organizations comments on the draft Policy Assessment](#)
3. [Please provide your organizations comments on the draft Economic Assessment](#)
4. [Please provide your organizations comments on the draft Frequency Response](#)
5. [Please provide your organizations Economic Study Requests](#)
6. [Please provide your organizations Maximum Import Capability \(MIC\) expansion requests. Any confidential details should be referenced in the comments and emailed to \[regionaltransmission@caiso.com\]\(mailto:regionaltransmission@caiso.com\)](#)
7. [Please provide any additional comments on the February 28th, 2023 Stakeholder Meeting](#)

1. Please provide your organizations comments on the draft Reliability Assessment

No	Submitting Organization	Comment Submitted	CAISO Response
1A	California Public Utilities Commission – Public Advocates Office	<p>The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) provides these comments on the California Independent System Operator’s (CAISO) 2023-2024 Transmission Planning Process (TPP) Draft Study Plan. Cal Advocates is an independent consumer advocate with a mandate to obtain the lowest possible rates for utility services, consistent with reliable and safe service levels, and the state’s environmental goals.</p> <p>At this time, Cal Advocates does not have any comments on this issue.</p>	Thanks for the note!
1B	California Western Grid Development, LLC	California Western Grid does not have any comments on the draft reliability assessment	Thanks for the note!
1C	Center for Energy Efficiency and Renewable Technology	<p>CEERT generally supports the proposed study design for the Reliability Assessment and appreciates that the CAISO is proactively planning for future generation and load through 2035. We believe that the 12 year planning horizon is needed to appropriately plan for the very large amount of new generation and storage resources that will be added to the grid through 2035 and beyond. Transmission expansion needs to be front-loaded given the long lead times required for execution. Investors in clean energy and storage projects need visibility as to what transmission will be in place over the next 15 to 20 years in order to maintain the pace of development that is required to decarbonize California’s economy.</p> <p>We encourage the CAISO to adopt even a longer planning horizon of at least 15 years for future cycles of the Transmission Planning Process. A longer time horizon is needed given the long-lead time required for the development of a diverse portfolio that includes geothermal, out-of-state wind and offshore wind technologies.</p> <p>CEERT is encouraged that the base case (30 MMT by 2030) resource portfolio includes a large step-up in solar and battery resources that are planned for development in the PG&E South area (Fresno, Tulare and Kings Counties), The 2023-2024 base</p>	<p>Comment noted.</p> <p>Comment noted. The ISO will consider this comment for future cycles. However, other factors, like availability of the demand forecast, compliance with the TPL-001 requirements and manageable amount of scenarios for the annual reliability assessment will also need to be considered as the ISO decides on the selecting the long-term study year.</p> <p>Comment noted.</p>

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		<p>case scenario increases the amount of solar to be developed in this area by 8,172 megawatts over the amount in the 2022-2023 base case resource scenario. Likewise, battery storage resources increase by 4,449 megawatts.</p> <p>It is our view that even this level of forecasted development likely underestimates the amount of solar and storage that will eventually be developed in the South PG&E area. The 20-Year Transmission Outlook report showed 12,655 MW of solar in the SPGE_Z1_Westlands and 6,154 MW in the SPGE_Z2_Kern transmission zones. Current trends indicate that almost all new solar development will be paired with battery storage and require firm deliverability.</p> <p>The 20-Year Outlook report correctly foresees the need for a new 500/230 kV substation in the South PG&E area to reliably interconnect the amount of solar generation and battery storage expected to come on line by 2035. Likewise, a second Los – Banos to Tracy 500 kV line and a new Manning – Moss Landing 500 kV line should be considered in the Reliability Assessment as they were identified in the 20-Year Outlook report.</p>	<p>Comment noted.</p> <p>The ISO will evaluate need for transmission projects based on the input (load and resource) assumptions consistent with the information provided by the state agencies.</p>
1D	Clean Power Alliance	No comment at this time, however CPA reserves the right to comment later.	Thanks for the note!
1E	Fervo Energy	<p><u>Better alignment between CPUC and CAISO is needed.</u></p> <p>Fervo has experienced challenges over the last year attaining interconnection and deliverability for projects that directly support California’s policy goals. Specifically, ALJ Decision 21-06-035 in the 2021 IRP cycle (Rulemaking 20-05-003), Decision Requiring Procurement to Address Mid-Term Reliability (2023-2026), calls for 1,000MW of new, non-weather-dependent resources with a greater than 80% capacity factor to be procured by 2026 (this deadline was later amended to 2028).</p> <p>Fervo has signed PPAs with multiple California LSEs in support of this procurement order. With commercial agreements satisfying CPUC procurement requirements in place, these</p>	<p>Comment noted.</p> <p>The availability and allocation of RA import capability is done under the FERC approved CAISO Tariff (section 40.4.6.2 Deliverability of Imports http://www.caiso.com/Documents/Section40-ResourceAdequacyDemonstration-for-</p>

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		<p>resources should be duly considered in transmission planning and in allocation of import capacity.</p> <p>Clarification on the relationship between CPUC procurement orders and the allocation of the required MIC expansion to meet those orders is needed. In general, an explanation of the correct process to ensure sufficient MIC for projects procured to meet California's reliability and climate goals is necessary and would be appreciated.</p>	<p>SchedulingCoordinatorsintheCaliforniaSOBalancingAuthorityArea-asof-Feb11-2023.pdf) Future MIC expansion is assured two ways, first by inclusion in the main CPUC portfolio and second through MIC expansion requests supplied directly into the CAISO process. For more details on your MIC expansion request please see response to section 6E below.</p>
1F	Golden State Clean Energy	No comments	
1G	GridLiance West	No comments	
1H	Imperial Irrigation District	No comments	
1I	LS Power	<p>Section 2.7.5 of the Draft Study Plan indicates that, "Diablo Canyon will be modeled online in the near and mid term and off-line in the long-term scenarios based on the extension." Section 2.3 of the Draft Study Plan indicates that, "CAISO will be conducting detailed analysis on years 2025, 2028 and 2035." It seems CAISO is planning to model Diablo Canyon as online in 2025 and 2028. This appears to be inconsistent with Senate Bill No. 846[1] which indicates, "the continued operation of Diablo Canyon Units 1 and 2 beyond their current expiration dates shall not be factored into the analyses used by the commission or by load-serving entities not subject to the commission's jurisdiction when determining future generation and transmission needs to ensure electrical grid reliability and to meet the state's greenhouse-gas-emissions reduction goals." LS Power requests clarification as to why CAISO is planning to model Diablo Canyon as online in 2025 and 2028 which appears to be contradictory to SB 846.</p> <p>[1] https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB846</p>	<p>I assume we'll respond that we are not relying on the capacity, either for system or local purposes, but of course have to ensure they can operate reliably...</p>
1J	Southern California Edison	No comments	
1K	The Bay Area Municipal Transmission Group(BAMx)	<p>The Bay Area Municipal Transmission group (BAMx)[1] appreciates the opportunity to comment on the California Independent System Operator (CAISO) Draft 2023-2024 Transmission Planning Process (TPP) Unified Planning Assumption and Study Plan (Draft Study Plan). The comments and questions below address the Study Plan posted on February</p>	<p>Thanks for the note!</p>

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		<p>21, 2023, and discussed during the February 28, 2023, stakeholder meeting. We continue to see CAISO's desire to work with Stakeholders to enhance each year's plan. We look forward to working with the CAISO on this collaborative process.</p> <p><u>Study Plan Should Acknowledge the Latest Memorandum of Understanding and Identify an Updated Approach, if Any</u></p> <p>In December 2022, The California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and the CAISO signed a new Memorandum of Understanding (MOU) that superseded and replaced the 2010 MOU between the CPUC and the CAISO.[2] However, the Draft Study Plan seems to refer to the older MOU.[3] The CAISO needs to explain how the framework established in the December 2022 MOU will be put into effect and how it will affect the 2023-2024 TPP cycle.</p> <p><u>BAMx Supports the CAISO's Plan to Not Model the "On Hold" Projects</u></p> <p>There are some transmission projects "on hold," such as Moraga-Sobrante 115 kV Line Reconductor, North of Mesa Upgrade (formerly Midway-Andrew 230 kV Project), and Wheeler Ridge Junction Substation.[4] The Study Plan states that these projects put on hold will not be modeled in the starting base case. BAMx supports this process.</p> <p><u>Need for a Separate Stakeholder Process in Tandem with 2023-2024 TPP to Develop Criteria to Review Previously-Approved Projects</u></p> <p>While much work has been done to evaluate previously approved projects as a one-time effort, a need exists for developing criteria for not assuming the existence of all previously-approved approved projects in CAISO TPP base</p>	<p>Comment noted. The ISO will be using the inputs from the State Agencies and providing information within the 2023-2024 TPP adhering to the December 2022 MOU.</p> <p>The transmission projects modeling will be consistent with the recommendation within the 2022-2023 Transmission Plan.</p> <p>The ISO will review need for a previously approved project on a case-by-case basis based on the extent of change in the input assumptions is a particular area.</p>

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		<p>cases. BAMx’s participation in tracking progress on approved CAISO projects that is afforded under the transmission review processes, such as PG&E Stakeholder Transmission Asset Review (STAR), has illustrated how different transmission projects are prioritized for funding and many reasons that drive project delays and reprioritization. Therefore, there is a need to develop criteria based on further details concerning development efforts after initial CAISO approval. BAMx urges CAISO to conduct a stakeholder process in tandem with the CAISO 2023-2024 TPP to develop transmission project reevaluation criteria.</p>	
1L	Vistra Corp.	<p><u>Confirm the summer and winter emergency ratings for Moss-Landing – Las Aguilas 230 kV line</u></p> <p>Vistra has observed that the summer and winter emergency ratings limits used in the planning cases are misaligned to those used in operations at least for the Moss Landing – Las Aguilas 230 kV line. Vistra has requested the CAISO align its planning case transmission line ratings to those used in operations in CIDI ticket #00259507. Given the sensitivity of the line rating assumptions, we respectfully request CAISO regional planning team update its line ratings for the Moss Landing – Las Aguilas 230 kV lines to adopt an assumption in GridView model that is better aligned with the line ratings used in operations.</p> <p><u>Sensitivity scenarios should include storage charging in local areas</u></p> <p>On Page 45 and 46 of the CAISO’s 2023-2024 Draft Study Plan, the CAISO proposes to perform sensitivity studies to assess impacts of changes to specific assumptions on the reliability of the transmission system. Sensitivities on storage charging in load pockets for both summer and spring will help inform storage development in California based on the systems’ capabilities in this near-term planning horizon. Specifically, we request consideration of the following sensitivities.</p>	<p>The Moss Landing-Las Aguilas 230 kV line is rerated for high wind-speed rating. The higher rating is included in the Transmission Registry as rating “G” instead of regular “SE” rating. The ISO is working with PG&E to see why the rating is not included as “SE” rating.</p>

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		<ul style="list-style-type: none"> - In Table 3.1-1 CAISO describes a sensitivity that would include storage charging for spring shoulder-peak sensitivity for the 2025 case in PG&E Bulk transmission area, PG&E local areas, Southern California Bulk transmission area, SCE local areas, and SDG&E areas. In the more detailed table 3.1-2 on the sensitivity scenario definitions, Vistra did not see a definition for the PG&E transmission area that includes storage charging. We respectfully request the CAISO perform the “Spring shoulder-peak with heavy renewable output or different import level or storage charging” sensitivity in the PG&E area as well. - In Table 3.1-1, CAISO describes its proposed sensitivity on Summer Peak with high CEC forecasted load sensitivity study for the 2028 horizon for the PG&E Bulk, PG&E local area, Southern California bulk, SCE local areas, and SDG&E areas. Vistra recommends that storage charging sensitivity be added to this sensitivity scenario as well. <p><u>Correction action plans for reliability needs</u></p> <p>On slide 37 of the presentation discussed at the stakeholder meeting, CAISO identified a set of corrective actions that it can recommend as lower cost alternatives to transmission additions or upgrades. Vistra provides the following recommendation that the CAISO should:</p> <p>Prioritize acceleration or expansion of existing projects over other corrective actions, Limit its use of recommending additional demand-side management or storage facilities in lieu of transmission upgrades as it does not have the authority to direct load modifying resources or supply resources to be procured through the TPP and this defers needed upgrades to the system, Limit reliance on generation curtailment or interruptible loads, largely relying on congestion management or remedial action</p>	<p>Comment noted. The ISO will consider this along with need for other sensitivity driver while deciding for the spring shoulder-peak sensitivity scenario for the PG&E area.</p> <p>Storage charging is not realistic during the peak load conditions.</p> <p>The ISO is obligated to explore both wire and non-wire alternatives in developing corrective action plans for identified reliability issues. If the non-wire alternatives turnout to be infeasible, other alternatives will be explored at that time.</p>

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		<p>schemes to resolve congestion through curtailing or interrupting load as this relies on short-term measures and defers needed upgrades to the transmission system, and If the CAISO does recommend load modifying or storage resources in lieu of upgrades that it be clear that there needs to be generation procurement mechanism to procure this capability outside of the CAISO process. CAISO should consider re-evaluating East Bay Area Long-Term Need without Local Generation</p> <p>CAISO should affirmatively clarify that in the 2017-2018 TPP when it approved the Oakland Clean Energy Initiative to address a reliability assessment for the East Bay Area Long-Term Need without Local Generation that it expected the full project, including the storage facility, to be completed. Or alternatively, begin re-evaluating transmission solutions to address the Oakland area local reliability need without the Oakland Power Plant.</p> <p>The CAISO approved OCEI project including transmission substation upgrades and the installation of the battery storage at the Oakland C and Oakland L 115 kV substations with an in-service date of 2022.[1] The OCEI was proposed by PG&E and selected and approved by the CAISO Board in the CAISO 2017-2018 Transmission Planning Process. PG&E is targeting completing its portion of the OCEI project by end of 2023 and Vistra is actively seeking mechanisms to complete its portion of the project by repowering at Oakland C substation the retired Unit 2. There appears to be a lack of awareness that this storage facility is “directed” by the CAISO and a lack of a local RA solicitation directing storage to be procured to meet the OCEI at this time.</p> <p>If the CAISO cannot clarify that the storage facility was required under the OCEI in this cycle but that it requires an external regulatory process to direct the development of the storage facility within OCEI, then it is prudent that CAISO begin exploring in this cycle alternatives to the OCEI to address the contingency</p>	<p>The ISO will evaluate other alternatives if the currently approved scope of the OCEI projects turns out to be infeasible.</p> <p>Please see above response.</p> <p>Comment noted.</p> <p>It has been clearly identified in the ISO Transmission Plans that the scope of the OCEI project includes combination of transmission upgrades and storage at Oakland C.</p>

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		overloads in the Oakland area without the jet-fuel fired Oakland Power Plant.	

2. Please provide your organizations comments on the draft Policy Assessment

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2A	California Public Utilities Commission – Public Advocates Office	<p>1. Revise the Current Resource Requirements to Avoid Overbuilding</p> <p>Cal Advocates is supportive of a stakeholder initiative to review and update CAISO’s generator deliverability assessment methodology and assumptions. Cal Advocates agrees with the Bay Area Municipal Transmission Group (BAMx) that the current generator deliverability assessment methodology and assumptions could lead to upgrades that are not necessary and limit the resources available to meet the state’s clean energy goals in the timeframe mandated.[1],[2] Cal Advocates looks forward to reviewing CAISO’s updated Generator Deliverability Challenges Issue Paper and to participating in the subsequent stakeholder meetings.</p> <p>2. Revise the Diablo Canyon Retirement Date to 2030.</p> <p>Cal Advocates supports the inclusion of the study assumption that the Diablo Canyon Nuclear plan will be on-line until 2029 (Unit 1) and 2030 (Unit 2). This is consistent with the California Energy Commission’s recent recommendation to extend the operation of the Diablo Canyon Power Plant through 2030 to ensure electricity grid reliability.[3]</p> <p>3. Reduce transmission asset stranding risk by identifying any transmission upgrades that were not previously included in RESOLVE as Category 2 projects, not Category 1.[4]</p> <p><u>Background and Summary Recommendation</u></p> <p>In 2021, CAISO posted a White Paper entitled Transmission Capability Estimates for use in the CPUC’s [California Public Utilities Commission] resource planning process for stakeholder</p>	<p>The comment is noted.</p> <p>Thank you for the comment.</p>

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		<p>review (2021 White Paper).[5] This 2021 White Paper identified several dozen Area Delivery Network Upgrades (ADNUs) for utilization as potential mitigations for any identified transmission constraints on the CAISO grid in the CPUC’s integrated resource planning (IRP) process. CPUC incorporated these ADNUs into the capacity expansion model for the IRP process, RESOLVE. Incorporating these 2021 White Paper ADNUs into RESOLVE improved the IRP’s ability to co-optimize generation and transmission selections.</p> <p>As detailed below, the IRP’s inclusion of new resources in the TPP portfolios has outpaced the ability of the ADNUs identified by the 2021 White Paper to integrate those resources. This has created a situation in which CAISO could, in this TPP process, develop and approve new upgrades to integrate what the current set of ADNUs cannot. These new, CAISO-identified upgrades would not have had their costs optimized in the IRP process. Therefore, Cal Advocates advises against classify these upgrades as Category 1 projects, as doing so would pose a high risk of creating new stranded assets.[6] To avoid this risk, transmission upgrades not considered in the IRP process should be identified as Category 2 projects.</p> <p>Defer Adoption of Any ADNU Not Previously Included in RESOLVE.</p> <p>CAISO has not provided major updates to the 2021 White Paper ADNUs, even as the IRP has adopted ever larger resource builds that are needed to support the higher load and peak load forecasts of further study years. The original set of White Paper ADNUs was appropriate when developed, but the corresponding study horizon and mapped resource buildout were more modest at the time. The 2021 White Paper ADNU set is no longer sufficient to deliver the entirety of the mapped resources. Consequently, the busbar mapping results include resources whose deliverability needs exceed the incremental capacities of</p>	<p>The ISO does not agree with Cal Advocates blanket proposal not to approve transmission upgrades that are not previously included in RESOLVE. The proposal is not consistent with the intent of the CPUC’s decision that adopted the portfolios for use in the 2023-2024 TPP.</p> <p>Further, the ISO considers the risk associated with the transmission upgrades it recommends for approval taking into account input received from stakeholders and the CPUC on the preliminary results as well as the draft transmission plan. The ISO does not believe that approving transmission upgrades that were not previously included in RESOLVE poses a high risk of creating new stranded assets because: 1) the incremental capacity resulting from approved transmission projects will be taken into account in subsequent IRP cycles and 2) consistency with previous portfolios is one of the criteria the CPUC uses in the resource planning process. Cal Advocates blanket proposal could create a catch 22 condition between transmission planning/ development and resource planning/development that could hamper the ability to meet California’s resource and transmission needs in a timely fashion.</p> <p>The ISO understanding from CPUC IRP staff is that CPUC has weighed the potential for further transmission upgrade costs but the other mapping factors of aligning with high confidence commercial interest and land use criteria meant these were still preferred locations to map resources to.</p>

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		<p>the 2021 White Paper ADNUs in RESOLVE. Put another way, these ADNUs are not sufficient to interconnect the resources identified by the IRP.</p> <p>For example, during the CAISO's February 28, 2023 presentation on the 2023-2024 Draft Study Plan, CAISO confirmed that the CPUC's 2035 base case resource portfolio included 3,826 MW of Full Capacity Deliverability Status (FCDS) resources subject to the Morro Bay-Templeton 230 kV Constraint (Templeton Constraint). Of this total, 1,708 MW can be accommodated without transmission upgrades.[7] The remaining 2,118 MW (i.e., 3,826-1,708=2,118) of FCDS resources subject to the Templeton Constraint in the 2035 base case resource portfolio would not be deliverable without transmission upgrades. However, RESOLVE only included a 2021 White Paper ADNU that could expand the transmission capacity by another 739 MW, at an estimated cost of \$1.248 billion. The 2021 White Paper and RESOLVE do not include additional ADNUs and the corresponding costs that would be needed to interconnect the remaining 1,379 MW (i.e., 2,118MW-739MW=1,379 MW) of mapped resources that are subject to the Templeton Constraint. The quality of the selection and mapping of these resources is relatively uncertain because these incremental resources have no corresponding transmission costs for co-optimization in RESOLVE.</p> <p>CAISO, therefore, should exercise caution regarding the identification of any additional ADNUs for the deliverability of the 1,379 MW of FCDS resources mapped in excess of the 2021 White Paper ADNU, as well as any additional ADNUs needed to deliver similar resources mapped in excess of the 2021 White Paper transmission constraints. Caution is necessary because RESOLVE did not include a full set of transmission upgrades and relevant costs to co-optimize the selection and mapping of these resources. The full costs of delivering those resources are not reflected in the RESOLVE results and the busbar mapping. Thus, the optimal generation-and-transmission portfolios could change if and when the CPUC incorporates additional</p>	

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		<p>transmission project and cost information into future versions of RESOLVE. Therefore, the identification of any such additional ADNUs in the 2023-2024 TPP would present ratepayers with an especially high risk of stranded assets that presents CAISO with a need for caution regarding any additional ADNUs.</p> <p>Should the CAISO's 2023-24 TPP identify a need for any such project, Cal Advocates specifically recommends CAISO assign each such project as a Category 2 project rather than identify the project as a Category 1 project for adoption. In addition, the CAISO should update the 2021 White Paper ADNUs so that the CPUC can improve future versions of RESOLVE, and the CAISO should undertake to submit regular updates in the future.</p> <p>Improved future versions of RESOLVE that include additional ADNUs will better optimize the selection of transmission upgrades. In turn, future RESOLVE results will then be able to inform the CPUC and CAISO as to the need for any of those additional ADNUs, which may or may not align with the mapped results for the 2023-2024 base case portfolio given the potential for future additional ADNUs to cause portfolio re-optimization. Finally, Cal Advocates notes that any additional ADNUs beyond the 2021 White Paper ADNUs would likely be associated with the furthest study years of this TPP cycle (e.g., 2033-2035). As a result, the CAISO has sufficient time to reconsider any additional ADNUs in future TPP cycles; there is a minimal opportunity cost if the CAISO identifies any such projects as Category 2 projects in this TPP cycle, for potential reconsideration in future cycles.</p> <p style="text-align: center;">D. Confirm Assumptions that will be used to determine the costs and benefits for integrating 1,000 MW of out-of-state wind from Idaho.</p> <p>Consistent with Cal Advocates' prior comments during the CAISO 2021-2022 TPP, Cal Advocates recommends that the</p>	<p>The comment is noted.</p>

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		<p>total costs to import out-of-state (OOS) wind be considered in the modeling assumptions. Specifically, the cost to import wind at the Harry Allen, Eldorado and Palo Verde substations, and the cost to transfer the wind capacity from these substations to CAISO load centers on in-state transmission should be included in the 2023-2024 TPP model analysis.</p> <p>For the 2023-2024 TPP, CPUC's modeling assumptions include 1,000 MW of wind from Idaho in the 2035 base case.[1] To evaluate the feasibility of integrating this OOS wind, CPUC recommends that CAISO study Idaho and Wyoming wind injection points at Harry Allen or Eldorado 500 kV substations, and maps New Mexico Wind to the Palo Verde Substation.[2] In its November 18, 2021 presentation, CAISO already identified that the injection of wind at the Eldorado substation may require more significant infrastructure upgrades than at Palo Verde. Specifically, the CAISO noted worse overloads on the Eldorado-McCullough 500 kV tie-line with 1,062 MW OOS wind at Eldorado (Base A) compared with that same injection at Palo Verde (Base B).[3]</p> <p>Cal Advocates recommends that CAISO continue to evaluate the cost and benefits of importing Idaho wind through the Southwest Intertie Project-North (SWIP-North) line, which is the identified transmission project to access Idaho wind. These cost estimates should include not only the cost of upgrading the Harry Allen or Eldorado substations but also any additional in-state projects necessary to bring the OOS wind to CAISO load centers. Cal Advocates makes this request because selecting the SWIP-North project for 1,000 MW of Idaho wind would involve increasing the CAISO transmission revenue requirement by more than \$640 million.[4] This is a significant cost for California ratepayers that does not include the total transmission costs of importing Idaho wind to serve California Load (it does not include the mentioned substation upgrade and transmission capacity upgrades in-state). Cal Advocates also recommends that the cost of this project be shared or reduced if deemed necessary. These costs could be shared with more equitable</p>	<p>The ISO will model resources including OOS Wind in accordance with the bus bar mapping provided by the CPUC. The ISO notes that the amount and geographic distribution of portfolio resources has greatly changed since the 2021-2022 TPP. As such, the 2021-2022 TPP results may not reflect the current situation. The picture will further change significantly, if the transmission upgrades recommended for approval in the 2022-23 draft transmission plan are approved.</p> <p>Thank you for your comments. These are noted. The CAISO continues to assess access to Idaho wind resources due to CPUC portfolio requirements and interest from Idaho Power in the SWIP-North transmission project. Apart from cost sharing opportunity with Idaho Power, the CAISO is also engaging the DoE Grid Deployment Office (GDO) for unallocated capacity on SWIP-North. There are specific efforts that the CAISO is proactively engaged in so as to reduce overall costs to the California ratepayer. CAISO will continue to develop a recommendation for SWIP-North as a potential policy-driven regional transmission project as an extension to the 2022-2023 TPP.</p>

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		<p>transmission cost allocation that considers all the benefits that the SWIP-North line would provide to California, Idaho and Nevada. Consistent with the recommendations discussed in the February 16, 2022 Joint Federal State Task Force on Electric Transmission meeting, the reliability benefits that should be considered for transmission cost allocation include increased import/export transfer capacity. Transmission benefits should also be considered over a 15 to 20-year timeframe versus a 10-year timeframe.[5] Additionally the economic benefits the SWIP-North line would generate for Idaho and Nevada should also be considered for transmission cost allocation purposes.</p> <p>Alternatively, given the challenges of equitable cost allocation for interregional transmission projects, CAISO should focus exclusively on out-of-state transmission projects that are subscriber-based over projects requesting costs recovered through CAISO's transmission access charge (TAC). Subscriber-based projects comply with cost causation and could result in more equitable outcomes for ratepayers. Sunzia and TransWest Express (TWE) projects are subscriber-based projects which provide access to New Mexico and Wyoming wind respectively are not seeking cost recovery through the TAC. To compete with these options, any transmission project considered for accessing Idaho wind should also be subscriber-based.</p> <p style="text-align: center;">C. Integrate Morro Bay Offshore Wind via the Diablo Switching Station</p> <p>The final busbar mapping of the 2023-24 TPP base case portfolio assigns all mapped Morro Bay offshore wind resources to the Diablo switching station, whereas previous portfolios had mapped these resources to a new \$110 million, 500 kilovolt (kV) Morro Bay substation.[6] However, the 2023-24 TPP modeling assumptions documentation states, "CPUC staff ask that the CAISO also consider a new Morro Bay substation as an</p>	<p>The ISO agrees with Cal Advocates' comment and intends to model Morro Bay OSW at Diablo consistent with the CPUC's busbar mapping. We understand the CPUC's guidance regarding consideration of a new Morro Bay substation as an alternative POI is intended to provide the ISO the flexibility to model the resource at the new substation if the ISO identifies the need to do so.</p>

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		<p>alternative interconnection for some or all the Morro Bay offshore wind.”[7] Cal Advocates supports the assumed interconnection of all mapped Morro Bay offshore wind resources to the Diablo switching station. (Re-)utilization of existing infrastructure, where possible, can avoid unnecessary ratepayer costs, such as the hypothetical investment in a new 500 kV Morro Bay substation.</p>	
2B	California Western Grid Development, LLC	California Western Grid does not have any comments on the draft Policy Assessment	The ISO appreciates California Western Grid's participation in the ISO transmission planning process.
2C	Center for Energy Efficiency and Renewable Technology	<p>CEERT is pleased that the 2023-2024 Transmission Plan will be developed in parallel with an update to the 20-Year Transmission Outlook report. CEERT believes that the more forward looking report can be used to identify alternative projects that can then be evaluated in the Policy Assessment for the 2023-2024 Transmission Plan and subsequent plans.</p> <p>One key policy that needs to be considered in the 2023-2024 TPP is the need for California to reduce dependence on the Aliso Canyon gas storage facility as well as reducing the dispatch of gas-fired generation in Southern California and particularly plants that are in or adjacent to disadvantaged communities.</p> <p>The 20-Year Transmission Outlook report identified three HVDC projects that could significantly increase the import capability into the Los Angeles Basin and the broader SCE/SDG&E areas. Those projects are the Diablo South HVDC subsea cable and the HVDC lines that connect the Lugo and Devers 500 kV substations to load centers in the LA Basin. These lines could facilitate the curtailment of approximately 3,500 MW of gas generation in the LA Basin. Each of these lines should be considered as part of the Policy Assessment.</p>	<p>Thank you for the comment.</p> <p>The ISO uses resource assumptions provided by the CPUC in its policy-driven assessment. Since the current portfolios do not include Aliso Canyon gas storage facility related gas-fired generation retirement assumptions, the ISO does not have justification to perform its policy-driven assessment with reduced gas-fired generation in the current planning cycle.</p>
2D	Clean Power Alliance	No comment at this time, however CPA reserves the right to comment later.	The ISO appreciates Clean Power Alliance's participation in the ISO transmission planning process.
2E	Fervo Energy	As noted above, alignment between the CPUC's goals and the required transmission for achievement of these goals is needed.	

No	Submitting Organization	Comment Submitted	CAISO Response
2F	Golden State Clean Energy	<p><u>GSCCE supports CAISO conducting an update to the 20-Year Transmission Outlook in parallel with this TPP cycle and urges CAISO to consider those findings in the TPP as possible policy-driven solutions.</u></p> <ul style="list-style-type: none"> • The SB 100 report process is a cumulative effort to study the resources required to meet the state’s long-term policy objectives for the electric energy sector with a study horizon long enough to fully consider the needs of this resource build. Given the draft study plan’s recognition that SB 100 is an “overarching public policy objective” that the policy-driven studies seek to realize,^[1] carrying out the vision of the SB 100 report should be part of the state policy requirements that CASIO is empowered to consider in its policy-driven TPP studies under existing tariff authority. <ul style="list-style-type: none"> ○ The updated CAISO-CPUC-CEC Memorandum of Understanding regarding transmission and resource planning recognizes the need to update planning process and their linkage “in light of the escalation in new resource development and related transmission necessary to meet state reliability and renewable energy goals <i>between now and 2045</i>.”^[2] • The SB 100 report process translates into transmission studies most directly through the 20-Year Transmission Outlook. • The 20-Year Transmission Outlook provides a top-down perspective of transmission needs, but more granular TPP studies are required for CAISO to approve transmission solutions. CAISO should ensure it not only considers the transmission solutions in the 20-Year Outlook for informational purposes in the TPP, but also starts to bridge the gap between these planning processes by considering transmission solutions in the 20-Year Outlook as possible TPP policy-driven solutions (or solutions in other TPP studies). 	<p>Your comment is noted. The ISO will consider the 20-year transmission outlook when identifying transmission solutions to address constraints in its policy-driven assessment that limit the deliverability of the resource portfolios adopted by the CPUC for use in the 2023-2024 TPP.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> ○ The new Manning Substation is a good start, but the numbers show that additional transmission facilities are needed to serve the Central Valley. New transmission facilities should be evaluated and potentially approved in this TPP cycle to support the expected significant build-out on retired agriculture lands in the Central Valley. ● By directly feeding 20-Year Outlook results into the TPP to consider whether such projects would be a viable policy-driven solution, CAISO will better ensure it meets the broader goals envisioned in the MOU on transmission and resource planning and in the 2023 Interconnection Process Enhancements initiative. <ul style="list-style-type: none"> ○ The recent 2023 IPE Issue Paper & Straw Proposal is moving toward a process of limiting generator interconnection requests to zones where new transmission is being planned and capacity amounts that reflect the state's resource planning. Given the record-setting new capacity addition that is called for in the resource portfolio being studied this TPP cycle, it is all the more important to approve new long lead-time transmission facilities this cycle in zones where there is a known need for clean energy resources. The 2023 IPE and MOU envision the TPP proactively guiding resource development, and using the 20-Year Outlook to guide policy-driven solutions best ensures the overall resource build is forward looking and focused on the ultimate requirements to achieve SB 100. <p><u>The CPUC resource portfolios suggest there is a strong policy interest in solar and battery storage development in the Central Valley (PG&E South). CAISO should ensure its study plan includes assumptions to allow at least 9 GW of solar and 5 GW</u></p>	<p>The study plan has been updated to include the resource assumptions that will be used in the policy driven assessment to reflect the resource portfolios provided by the CPUC, which were adopted by the Commission after the draft study plan was published.</p>

No	Submitting Organization	Comment Submitted	CAISO Response																																																										
		<p><u>of storage capacity to be interconnected and operational in this area by 2035.</u></p> <ul style="list-style-type: none"> In the CPUC's 2035 base case busbar mapping dashboard, Southern PG&E is the RESOLVE resource area that contains the most solar capacity (8,861 MW, whereas no other area eclipses 7,000 MW - as shown in the below table).[3] However, at the busbar level there are some questionable results, seemingly a result of resource capacity being neatly spread around to available busbar capacity to find theoretical least-cost interconnections that limit the amount of transmission upgrades needed. CAISO should ensure the busbar assumptions do not skew transmission studies such that the identified solutions are inadequate for the area's overall expected future interconnections (as provided in this TPP and as expected beyond this TPP's study horizon). <table border="1" data-bbox="705 841 1203 1027"> <thead> <tr> <th rowspan="2">RESOLVE Resource Name</th> <th rowspan="2">Resource Type</th> <th colspan="3">Total Resource Summary (2035)</th> </tr> <tr> <th>FCDS</th> <th>EODS</th> <th>TOTAL</th> </tr> </thead> <tbody> <tr> <td>Distributed Solar</td> <td>Solar</td> <td>125</td> <td>-</td> <td>125</td> </tr> <tr> <td>Greater_LA_Solar</td> <td>Solar</td> <td>125</td> <td>1,776</td> <td>1,901</td> </tr> <tr> <td>Northern_California_Solar</td> <td>Solar</td> <td>685</td> <td>1,061</td> <td>1,746</td> </tr> <tr> <td>Southern_PG&E_Solar</td> <td>Solar</td> <td>4,123</td> <td>4,738</td> <td>8,861</td> </tr> <tr> <td>Tehachapi_Solar</td> <td>Solar</td> <td>4,146</td> <td>2,738</td> <td>6,883</td> </tr> <tr> <td>Greater_Kramer_Solar</td> <td>Solar</td> <td>1,310</td> <td>1,350</td> <td>2,660</td> </tr> <tr> <td>Southern_NV_Eldorado_Solar</td> <td>Solar</td> <td>2,157</td> <td>2,786</td> <td>4,943</td> </tr> <tr> <td>Riverside_Solar</td> <td>Solar</td> <td>1,958</td> <td>4,535</td> <td>6,493</td> </tr> <tr> <td>Arizona_Solar</td> <td>Solar</td> <td>1,550</td> <td>2,947</td> <td>4,497</td> </tr> <tr> <td>Imperial_Solar</td> <td>Solar</td> <td>120</td> <td>843</td> <td>963</td> </tr> </tbody> </table> <ul style="list-style-type: none"> For instance, on the criteria compliance summary tab of the 2035 base case mapping dashboard, solar mapped to the Gates Substation comes with a note that the capacity mapped is significantly less than high confidence EODS solar commercial interest. Yet a number of other substations have solar capacity mapped that exceeds the commercial interest or even where there is no commercial interest. The mapping also does not benefit from the inclusion of the new Manning Substation, which will likely attract a lot of new solar and battery storage. 	RESOLVE Resource Name	Resource Type	Total Resource Summary (2035)			FCDS	EODS	TOTAL	Distributed Solar	Solar	125	-	125	Greater_LA_Solar	Solar	125	1,776	1,901	Northern_California_Solar	Solar	685	1,061	1,746	Southern_PG&E_Solar	Solar	4,123	4,738	8,861	Tehachapi_Solar	Solar	4,146	2,738	6,883	Greater_Kramer_Solar	Solar	1,310	1,350	2,660	Southern_NV_Eldorado_Solar	Solar	2,157	2,786	4,943	Riverside_Solar	Solar	1,958	4,535	6,493	Arizona_Solar	Solar	1,550	2,947	4,497	Imperial_Solar	Solar	120	843	963	<p>The ISO would like to remind GSCE that comments on the portfolios or resource to bus bar mapping should be addressed to the CPUC during the IRP process, which includes opportunities for stakeholders to provide comment.</p> <p>Commercial interest is one of multiple criteria that the busbar mapping effort utilizes to map generic resources in the portfolio. We understand from CPUC IRP staff that several factors discouraged the mapping of additional EODS solar to Gates. These include additional resources had the risks of higher potential interconnection costs given the MWs of resources mapped to Gates, lack of additional high confidence storage resources at Gates for which busbar mapping prioritizes co-locating EODS solar with, and consistency of mapping resources to other substations in the Southern PG&E area as was done in prior TPP base cases.</p> <p>The mapping does benefit from the incremental transmission capacity provided by the approved Manning Substation. The transmission capability of the Los Banos 500/230kV Transformer Bank constraint was increased due to the approved Manning</p>
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		<ul style="list-style-type: none"> • CAISO’s presentation of the draft study plan also shows some of the largest capacity exceedance values in the Central Valley,[4] which indicates the transmission in the area is inadequate to handle future resource needs. This area requires increased attention in CAISO’s study plan to ensure the planned transmission infrastructure is sufficient to address the solar and storage the CPUC is directing to this area. • Ultimately, existing transmission is insufficient to accommodate the resource build called for in the resource portfolios and thus some of the resource portfolio capacity will interconnect to new transmission. CAISO should identify transmission solutions to interconnect a minimum of 9 GW of solar and 5 GW of storage capacity to Southern PG&E, as that is just the resource expectation within this study horizon but is not sufficient to reach California’s end policy goal. The busbar mapping process that focuses on existing transmission may not be sufficient to address this need to build new transmission, and CAISO as the transmission planner should determine the transmission solutions that will accommodate future resources. <ul style="list-style-type: none"> ○ The 20-Year Outlook should be used to address any planning gaps or concerns. <p><u>Given the 2023 IPE initiative envisions transmission planning proactively guiding future interconnections by limiting future interconnection requests to those responsive to state resource planning, the TPP must be more explicit in how approved projects facilitate generator interconnection that is needed to reliably meet state policy goals. To ensure California timely meets its emissions policy requirements (i.e., SB 1020, SB 100), CAISO should assess whether potential transmission solutions can help expedite the interconnection of new generator and storage resources.</u></p>	<p>Substation by the incremental capacity of the ADNU provided in the ISO white paper.</p> <p>Your comment is noted.</p> <p>Your comment is noted.</p> <p>Your comment is noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> • The current generator interconnection process risks preventing the state from reaching its policy goals. The TPP-generator interconnection nexus must be improved to address this issue. Interconnection process enhancements alone will not sufficiently improve this process, and CAISO is newly focused on ensuring new transmission assets proactively guide future resource interconnections. Thus, CAISO's policy studies should not only consider what transmission solutions facilitate required policy resources, but what transmission solutions will guide future interconnections to areas where interconnection can be expedited. This will best ensure that CAISO's policy studies are fully considering state policy directives and corresponding policy deadlines. • Approving transmission facilities in areas with least-conflict land is one way to ensure resource development is timely by heading-off potential environmental and local opposition to both transmission and clean energy resource development. <ul style="list-style-type: none"> ○ CAISO's finding in the 2021-22 Transmission Plan that "the Manning 500 kV substation will allow for the advancement of renewable generation within the Westlands or San Joaquin area that has been identified with significant least-conflict lands for potential solar development" should drive additional transmission to facilitate even greater development materializing in the Central Valley.[5] • Additional transmission development in the Central Valley (in PG&E South) would allow CAISO to expedite new clean energy development in an area that would benefit from upsized transmission solutions that undergo competitive solicitation. <ul style="list-style-type: none"> ○ This area represents in-state least-conflict land that is seeing delays to a number of existing projects due to the backlog of transmission upgrades in the area. Yet there is significant commercial interest in this area that is posed to explode in the coming 	<p>Your comment is noted.</p> <p>Your comment is noted. The ISO also notes that transmission upgrades may be needed in more challenging areas as well in order to deliver portfolio resources to load centers.</p> <p>Your comment is noted. The ISO agrees with GSCE that transmission upgrades should not only meet the immediate need but also consider the longer-term outlook.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>years. If new facilities are limited to only upgrades such as reconductoring existing lines, those will only add to the backlog of transmission upgrades in the area while not fully addressing future capacity needs. GSCE believes in a holistic approach to identifying the needs for the Central Valley (both generation and transmission) over the next 20 years in support of California policy.</p> <p><u>Energy-only assumptions are still questionable and should be scrutinized to ensure the study plan will carry out the ultimate goal of planning the transmission system for future resource needs.</u></p> <ul style="list-style-type: none"> • Including a significant amount of energy-only resources is consequential because resources that are largely selected for policy reasons will be omitted from CAISO’s policy-driven on-peak deliverability study. • The amount of energy-only resources does not seem reflective of the commercial interest in energy-only. To the extent the CPUC thinks energy-only may become more popular in the future based on declining ELCC values, RA reform should limit this by moving away from ELCC and requiring energy sufficiency for storage resources (which sustains the value of <i>deliverable</i> solar). • Given CAISO’s role as the entity ultimately responsible for reliable grid operations, the amount of FCDS resources should not be something CAISO must strictly adhere to. • To the extent CAISO is unwilling to adjust energy-only capacity, it should at least ensure it gives serious consideration to renewable curtailment seen in the off-peak deliverability studies as indicative of the potential to become an RA problem under RA reform. • The 20-Year Outlook may also be a way to test different assumptions about energy-only resources (i.e., study a 	<p>As noted above, comments on the portfolios should be directed to the CPUC during the IRP process, which includes opportunities for stakeholders to provide comment.</p> <p>The ISO’s understanding regarding the large amount of energy only resources, in particular solar resources, in the portfolios is a result of the limitation in handling collocated/hybrid resources in the resource portfolio development process. The ISO further understands that due to the limitation, a collocated/hybrid solar/storage resource is represented in the portfolios by a FC energy storage (that generally takes up more transmission room) and an EO or PCDS solar resource with off-peak deliverability. This is a reasonable approximation of hybrid/collocated resources as well as commercial interest for the purposes of the policy-driven assessment.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		much smaller portion of energy-only resources compared to the resource portfolio in the TPP).	
2G	GridLiance West	No comments	The ISO appreciates GridLiance West’s participation in the ISO TPP process.
2H	Imperial Irrigation District	No comments	The ISO appreciates IID’s participation in the ISO TPP process.
2I	LS Power	<p>LS Power offers the following comments on the draft Policy Assessment:</p> <ul style="list-style-type: none"> • CAISO should expand the study plan to include the details of out-of-state (OOS) wind evaluation. Given that CAISO has evaluated OOS wind in two TPP cycles now, the study plan should include the details on CAISO’s approach based on their experience to date. The methodology should address the details such as: <ul style="list-style-type: none"> ○ OOS transmission assumptions for base case portfolio and whether CAISO will perform scenarios with and without the required transmission to deliver the OOS wind; ○ Definition of any additional cases derived for performing any comparison of transmission alternatives; and ○ Criteria for comparison of alternative solutions. • As LS Power commented during the 2022-23 TPP, studying OOS wind at the CAISO injection point for the policy study does not provide a complete response to the CPUC directive. The deliverability analysis under the policy study should address both in-state and OOS constraints to deliver OOS wind to Eldorado substation. • Section 4.3 of the Draft Study Plan - “Resource portfolios to be studied” appears to contain information from the 2022-23 TPP cycle portfolios. For instance, the third paragraph references a 38 MMT GHG target and the 2020 IEPR demand forecast, whereas the current base portfolio is a 30 MMT GHG target and the 2022 IEPR demand forecast should be used. Other areas of the Draft Study Plan that required updates 	<p>Thank you for your comments. These are noted. Based on CPUC’s evolving portfolio regarding out-of-state wind resources and interest from Idaho Power, the CAISO will continue to develop a recommendation for SWIP-North as a potential policy-driven regional transmission project as an extension to the 2022-2023 TPP. Additionally, two out-of-state subscriber transmission developments to accommodate wind resources in Wyoming (TransWest Express) and New Mexico (Sunzia) are currently underway.</p> <p>While the ISO can identify OOS transmission projects that are needed to deliver OOS portfolio resources to its BAA, the ISO cannot perform deliverability assessment or other planning studies in neighboring systems to identify out-of-state constraints or transmission reinforcement needs in those systems. The approach the ISO models OOS wind is consistent with the CPUC’s bus bar mapping.</p> <p>The draft 2023-2024 TPP study plan was published prior to the CPUC adopting the portfolios. As such, the plan was to include an editorial note, which was overlooked, stating the policy-driven assessment section will be updated in the final version when the resource portfolios and associated documentation from the CPUC becomes available. The policy driven assessment section in the final study plan is fully updated with current information.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		include an editorial note but there is not one included in Section 4.3.	
2J	Southern California Edison	No comments	The ISO appreciates SCE's participation in the ISO TPP process.
2K	The Bay Area Municipal Transmission Group(BAMx)	<p>CAISO Needs to Update the Resource Portfolios and the Underlying Assumptions in the Final Version of the Study Plan</p> <p>The Base portfolios included in the Draft Study Plan (<i>Table 4.1-1: Composition of the base portfolio</i> and <i>Table 4.1-2: Base portfolio resources by location</i>) seem to be outdated. In the final version of eth Study Plan, the CAISO needs to update them based on the data and information provided during the February 28th stakeholder meeting.</p> <p>The CAISO needs to provide more details on how it proposes to model the location of out-of-state (OOS) wind resources. For instance, the proposed Base portfolio includes 1,500MW of Wyoming wind, 1,000MW of Idaho wind, 2,328MW of New Mexico wind OOS Wind, and 790MW of additional wind resources that can be accommodated on the existing CAISO transmission by 2035.[1] The CAISO needs to fully explain how these resources will be modeled, including their electrical location.</p> <p>Need for Complete Information on Transmission Capability Estimates for use in CPUC's Resource Planning Process</p> <p>BAMx appreciates the CAISO's inclusion of the transmission capability estimates behind each transmission constraint and how the 2035 Base portfolio exceeds those capability limits to accommodate full capacity deliverability status (FCDS) resources.[2] BAMx's review of this data indicates that the tables included by the CAISO are incomplete. For example, the FCDS</p>	<p>The draft 2023-2024 TPP study plan was published prior to the CPUC adopting the portfolios. As such, the plan was to include an editorial note in the policy-driven assessment section, which was overlooked, stating the policy-driven assessment section will be updated in the final version when the resource portfolios and associated documentation from the CPUC becomes available. The policy driven assessment section in the final study plan has been fully updated with current information.</p> <p>In the policy driven deliverability assessment, the ISO will model OOS resources on new transmission at the injection points near the ISO border as identified by the CPUC. OOS resources on existing transmission will be modeled at the resource locations identified by the CPUC. We have included these additional details in the study plan to address BAMx's comment. The resources will be dispatched based on the deliverability assessment resource output assumptions already provided in the study plan.</p> <p>We did not include the Morro Bay Offshore Wind transmission constraint exceedance in the table because the Morro Bay OSW will be modeled at the existing Diablo Canyon Substation rather than at a</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>capability estimate exceedances by portfolios in the Northern areas does not include how the Morro Bay Offshore Wind transmission constraint is modeled. For this constraint, BAMx understands that the existing system can accommodate 0MW based on the CAISO's estimated FCDS capability (on-peak study) as reported in the CPUC Integrated Resource Planning material.[3] It appears that a <i>new 500 kV Morro Bay substation</i> with an estimated cost of \$110 million expands the FCDS capacity from 0MW to 3,100MW. Therefore, it appears that 3,100MW of Morro Bay offshore wind resources can be accommodated in the Westlands, Kern, and Carrizo areas without triggering the need for additional transmission network upgrades beyond the new 500 kV Morro Bay substation. In general, BAMx notes that the CAISO needs to identify how the transmission capability estimates used to develop the CPUC-provided portfolios were informed not only by the CAISO's 2021 white paper[4] but also by the 2021-2022 Transmission Plan[5] and 2022-2023 preliminary policy-driven assessment presented at the November 17, 2022 stakeholder meeting[6]. Without these details, it will not be possible for the stakeholders to meaningfully assess the CAISO policy-driven transmission assessments in the 2023-2024 TPP cycle.</p> <p>BAMx's analysis of the CPUC busbar mapping spreadsheet indicates that CPUC's 2035 Base portfolio of FCDS resources exceeds the FCDS capability of not only the existing system FCDS capacity as shown in the CAISO's February 28th presentation, but also exceeds the incremental FCDS capacity offered by the additional area delivery network upgrades (ADNU) identified by the CAISO. In Table 1 below, BAMx has provided a summary of this analysis for twenty-nine (29) different transmission constraints. It shows that for thirteen (13) constraints (highlighted in yellow), the CPUC-provided Base portfolio of resources in the year 2035 exceeded the FCDS capability of the existing <u>plus</u> the ADNUs identified by CAISO with a total of 15,797MW. It is not clear to BAMx what transmission cost was assumed in selecting the additional 15,797MW resources. In other words, the question is, "If the</p>	<p>new 500 kV Morro Bay substation. As such, the new substation will not be required. Secondly, the new 500 kV Morro Bay substation is not needed as a result of transmission capability exceedance. It is rather needed to establish an alternative point of connection for the resource.</p> <p>While the 2021-2022 Transmission Plan indicated up to 5355 MW of OSW wind connecting to Diablo and/or Morro Bay will be deliverable without major transmission upgrades. However, the ISO cannot confirm Morro Bay OSW will not be behind a constraint that requires transmission upgrades without performing the studies given the expected and forecasted changes in the system (changes in forecasted load, the resource portfolio, system topology etc.).</p> <p>The ISO is not aware that transmission capability estimates used to develop the CPUC-provided portfolios were informed by the 2022-2023 preliminary policy-driven assessment. The ISO understands the 2021-2022 Transmission Plan has informed some of the updated estimates. Some examples are:</p> <ul style="list-style-type: none"> - the use of 3100 MW as incremental (default) Morro Bay OSW capacity due a new 500 kV Morro Bay substation and its based on the above information - The use of 3178 MW as the existing capability for the Laguna Bell – Mesa Constraint due to approval of the ADNU - The use of 1300 MW as the existing capability for the GLW-VEA Area Constraint due to approval of the ADNU - The use of 1573 MW as the existing capability for the Los Banos 500/230kV transformer constraint due to approval of the ADNU - The existing system capability, cost and incremental capacity for the Humboldt OSW constraint <p>The CPUC is aware of and has documented the potential transmission implications of the 2035 base portfolio in the Modeling Assumptions for the 2023-2024 TPP document. We understand from CPUC staff that in mapping to such areas with constraint exceedance they did weigh for the potential for further transmission upgrade costs, although they did not account for specific upgrade costs per say. But the other mapping factors of aligning with high</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>portfolio resources could not fit within the existing capabilities and defined expansions, then what assumptions were used about the relative costs of additional expansions to map the remaining resources?"</p> <p>BAMx requests the CAISO to confirm the content of Table 1 and encourages CAISO to coordinate with the CPUC to revise the originally selected resource capacities along with their busbar mapping if the modifications are deemed necessary. Furthermore, we request the CAISO not to consider the transmission network upgrades triggered by the 2035 Base portfolio for approval, especially in the areas where the transmission cost was not adequately considered (13 constraints identified in Table 1 below), as <i>category 1</i> policy-driven transmission upgrades. Instead, we encourage the CAISO to provide those transmission upgrades and associated transmission costs to the CPUC as part of the transmission capability estimates, per the latest MOU, to assist them in developing the 2024-2025 TPP portfolios. Without such an approach, the CAISO could approve sub-optimal <i>category 1</i> policy-driven transmission in the 2023-2024 TPP that would lead to under-utilized or stranded transmission assets.</p> <p>Table 1: FCDS Exceedance in 2035 Base Portfolio</p>	<p>confidence commercial interest and land use criteria meant these were still preferred substations to map resources to.</p> <p>The ISO does not agree with the request not to consider the transmission network upgrades triggered by the 2035 Base portfolio for approval. The request is not consistent with the intent of the CPUC's decision to adopt the portfolio for use in the 2023-2024 TPP and would hamper the ability to meet California's resource and transmission needs in a timely fashion.</p> <p>Stakeholders including BAMx and the CPUC will have the opportunity to provide comment on each of the transmission upgrades the ISO will be considering for approval in the preliminary results as well as the draft transmission plan. The ISO will consider all of the comments received before finalizing its recommendations to its Board.</p>

Transmission Constraint	Existing System FCDS Capacity (MW) [A]	Exceedance in 2035 Base (Higher of HSN or SSN) (MW) [B]	Incremental FCDS Capacity Attributed to ADNU [C]	Cost of ADNU (\$ million) [D]	Additional FCDS Needed to Accommodate 2035 Base Beyond Existing and ADNU Capacity [E=max (B-C,0)]
Humboldt-Trinity 115 kV	21	145	57	\$ 158	88
Cortina-Vaca Dixon 230 kV	454	2,213	2,838	\$ 3,531	-
Contra Costa-Delta 230kV Line	1,523	641	1,476	\$ 505	-
Midway-Gates 230 kV Line	1,431	1,507	3,137	\$ 142	-
Gates 500/230kV Bank #13 Constraint	3,151	598	4,453	\$ 40	-
Los Banos 500/230kV Transformer Constraint	1,573	1,155	-	\$ -	1,155
Wilson-Storey-Borden 230 kV	113	1,109	96	\$ 232	1,013
Tesla-Westley 230 kV Constraint	1,098	339	114	\$ 90	225
Morro Bay-Templeton 230kV	1,708	2,118	739	\$ 1,248	1,379
Las Aguilas-Panoche 230 kV	334	783	-	\$ -	783
Los Banos-Gates #1 500 kV Line Constraint	1,265	2,683	-	\$ -	2,683
Moss Landing-Los Banos 230 kV Constraint	1,611	2,885	-	\$ -	2,885
Warnerville-Wilson 230 kV	272	909	-	\$ -	909
Moss Landing-Las Aguilas 230 kV Constraint	316	1,009	-	\$ -	1,009
Humboldt Offshore Wind constraint	-	1,446	1,607	\$ 2,300	-
Morro Bay Offshore Wind	-	3,100	3,100	\$ 110	-
Antelope-Vincent 500 kV Constraint	4,040	822	2,700	\$ 15	-
Kramer to Victor Area 230 kV Constraint	826	355	430	\$ 108	-
Victor to Lugo 230 kV Constraint	1,156	86	430	\$ 226	-
Lugo 500/230 kV Transformer Constraint	1,576	23	980	\$ 70	-
Colorado River 500/230 kV Constraint	1,490	175	1,000	\$ 74	-
Devers - Red Bluff 500 kV Constraint	5,400	2,163	3,100	\$ 1,022	-
Serrano - Alberhill - Valley 500 kV Constraint	5,700	4,932	3,648	\$ 1,480	1,284
GLW-VEA Area Constraint	1,300	1,058	-	\$ -	1,058
Mohave/Eldorado 500 kV	1,560	1,326	-	\$ -	1,326
East of Miguel Constraint	731	397	1,412	3,680	-
Encina-San Luis Rey Constraint	1,000	1,888	3,718	102	-
San Diego Internal Constraint	968	1,217	2,067	89	-
San Luis Rey-San Onofre Constraint	1,500	1,388	4,269	237	-
Total FCDS Capacity Exceeding the Existing Plus CAISO-Identified ADNU					15,797

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Generation Retirements</p> <p>The Draft Study Plan identifies the existing generators that have been identified as retiring.[7] It also indicates that other thermal generators would be assumed to be retired in the Year-10 and beyond base cases based on the list provided by CPUC.[8] However, it does not identify the CPUC list. Please confirm that the CPUC list of the other thermal generators are included here. As far as the Diablo Canyon status is concerned, BAMx supports the CAISO’s plan to model it to be online in the near (2025) and mid-term (2028) and offline in the long-term (2035) scenarios based on the extension.[9]</p>	<p>As noted above, the final portfolios and documentation became available after the draft study plan was published. The final study plan includes all the relevant documentation including the list linked in the comment that provides thermal generators that will be assumed to be retired.</p> <p>Thank you for the comment.</p>
2L	Visra Corp.	<p>Visra requests the CAISO explain its logic behind the battery storage on-peak assessment for maximum resource dispatch of 50% for the Secondary System Need scenario. In our understanding of how the CAISO plans to use energy storage’s flexibility, storage would be relied on to provide capacity during HSN and provide flexibility during periods where variable resources output fluctuates during the SSN at full Net Qualifying Capacity. Please explain the logic behind assuming less than Pmax/NQC output for storage during SSN scenarios. We are concerned that this assumption would not ensure that storage is fully deliverable at the Pmax/NQC during SSN scenarios as well, and ask the CAISO to confirm this is not true. If it is true, then we request the CAISO study storage with maximum resource dispatch at 100% in both HSN and SSN since this is the expectation under Resource Adequacy.</p> <p>Similarly, Visra is struggling with assuming energy storage at 0% output in the off-peak assessments as well. Our understanding of our RA obligation is that we are obligated to be available for full output in all hours, with limits to the number of continuous dispatch hours. Our energy storage will need to be able to provide 100% Pmax/NQC in the hour of need regardless of when it occurs under our 24x7 must offer obligations. We are concerned that this assumption would not ensure that storage is</p>	<p>The 50% output assumption for energy storage in the Secondary System Need (SSN) deliverability assessment scenario for long-term studies is based on analysis of energy storage production data the ISO performed last year. Please see the linked ISO presentation. http://www.caiso.com/Documents/Presentation-GenerationDeliverabilityStudyDispatchAssumptions-Jun062022.pdf (starting page 18). The 50% production assumption during SSN timeframe will improve the ability of energy storage to obtain FCDS status.</p> <p>The objective of the off-peak deliverability assessment is to identify constraints in the system that could cause excessive renewable curtailment. In the off-peak deliverability assessment, energy storage is initially dispatched at 0% output but will be dispatched to up to 100% in charging mode to mitigate the constraints that are identified. In other words, energy storage charging is used to mitigate renewable curtailment in the off-peak deliverability assessment periods when its capacity is not needed to meet resource adequacy</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		fully deliverable at the Pmax/NQC during off-peak assessments and ask the CAISO to confirm this is not true. If it is true, then we request the CAISO study storage with off-peak deliverability at 100% since this is the expectation under Resource Adequacy.	due to the medium load and high renewable output assumptions. The energy storage output assumption used in the off-peak deliverability assessment does not affect its ability to obtain FCDS status.

3. Please provide your organizations comments on the draft Economic Assessment

No	Submitting Organization	Comment Submitted	CAISO Response
3A	California Public Utilities Commission – Public Advocates Office	At this time, Cal Advocates does not have any comments on this issue.	
3B	California Western Grid Development, LLC	California Western Grid does not have any comments on the draft Economic Assessment	
3C	Center for Energy Efficiency and Renewable Technology	<p>CEERT appreciates that the CAISO in 2017 adopted a set of principles to guide the TPP Economic Assessment, called the Transmission Economic Assessment Methodology (TEAM). Some of the benefits enumerated in TEAM include energy production benefits, capacity benefits, public policy benefits and renewable integration benefits. Capturing these economic benefits depends to a large degree on assuring market competitiveness in the markets used in California for economic dispatch, resource adequacy, renewable integration and carbon reduction. Assuring that these benefits can be obtained throughout the 12-year planning horizon needs to be an explicit component of the Economic Assessment for the 2023-2024 TPP.</p> <p>It is important that the CAISO plan for sufficient transmission to enhance market competitiveness over the next 12 years and beyond and enable an increase in the number and diversity of suppliers that can potentially serve load. Assuring market competitiveness will require that the CAISO allow for a reasonable amount of headroom on various transmission paths in the near and medium term to assure that Load Serving Entities can select new resources through competitive processes. Sufficient transmission headroom is particularly important since it is expected that LSEs in the aggregate will be procuring around 7,000 megawatts of new resources per year for at least the next decade.</p> <p>An excellent example of allowing procurement headroom was in the development of the Tehachapi Regional Transmission Project. This project which can carry 4,500 megawatts of electricity was an important decision leading to the development</p>	This comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>of a competitive market for utility-scale solar generation in California over the past 15 years.</p> <p>CEERT strongly urges the CAISO to consider the benefit of competitive markets as it conducts the Economic Assessment in the 2023-2024 TPP.</p>	
3D	Clean Power Alliance	No comment at this time, however CPA reserves the right to comment later.	
3E	Fervo Energy	<p>CAISO should consider the impact of geothermal on its ability to meet its defined objective “to support the economic delivery of renewable energy over the course of all hours of the year” and give the deliverability of proposed resources greater consideration during the transmission planning process. Specifically, the higher capacity factor of geothermal energy projects enables these resources to provide significantly higher generation for every unit of transmission capacity. Given limited resources and capacity, geothermal energy projects provide more value for investment in transmission capacity, since less transmission will be needed for geothermal projects than equivalent generation from other renewables.</p> <p>The Study Plan acknowledges increasing winter peak loads in the study timeframe. To the extent that available import capacity is limited, the TPP and MIC allocation processes should consider the seasonal variability of resources. The reliability benefit of firm resources that are expected to be available to deliver 24/7 regardless of weather conditions should be considered and prioritized when limited transmission and import capacity is allocated.</p>	This comment has been noted.
3F	Golden State Clean Energy	No comments	
3G	GridLiance West	No comments	
3H	Imperial Irrigation District	No comments	
3I	LS Power	LS Power had submitted an economic study request for SWIP North in the 2022-23 TPP which is currently under further evaluation by CAISO. If SWIP North is not approved under the 2022-23 TPP, LS Power hereby requests CAISO to study SWIP North as an economic project in 2023-24 TPP. Should this situation arise, LS Power will work with CAISO staff to submit	This comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		any updated information, as appropriate, prior to CAISO commencing the study.	
3J	Southern California Edison	No comments	
3K	The Bay Area Municipal Transmission Group(BAMx)	No comments at this time.	
3L	Vistra Corp.	See response to #1 requesting updated assumptions for Moss Landing – Las Aguilas 230 kV line ratings in the GridView model to better approximate those used in operations.	This comment has been noted.

4. Please provide your organizations comments on the draft Frequency Response			
No	Submitting Organization	Comment Submitted	CAISO Response
4A	California Public Utilities Commission – Public Advocates Office	At this time, Cal Advocates does not have any comments on this issue.	
4B	California Western Grid Development, LLC	California Western Grid does not have any comments on the draft Frequency Response	
4C	Center for Energy Efficiency and Renewable Technology	Understanding how the grid responds to transients in a future with higher levels of inverter based resources (IBRs) is an increasingly important planning consideration. CEERT supports the objective of the proposed Frequency Response study to identify planning scenario gaps when contingencies might restrict primary frequency response. This analysis is planned for scenario years 2028 and 2035 when the quantity of IBRs including grid forming inverters and HVDC converters are expected to be at higher levels. CEERT believes that convening subject matter experts including inverter manufacturers and HVDC project developers can lead to a more robust study,	Thank you for your comment. The CAISO works closely with PTOs, generation facility owners and project developers on the IBR front as new resources or transmission assets are developed and placed into service or as system events occur in real-time. Additionally, It is also involved in a number of industry led initiatives including those that NERC is presently working on (https://www.nerc.com/comm/Documents/NERC_IBR_Strategy.pdf) and those that several WECC working groups are engaged with, both from a planning and operations perspective
4D	Clean Power Alliance	No comment at this time, however CPA reserves the right to comment later.	
4E	Fervo Energy	No comments	
4F	Golden State Clean Energy	No comments	
4G	GridLiance West	No comments	
4H	Imperial Irrigation District	No comments	
4I	LS Power	LS Power has no comment at this time.	
4J	Southern California Edison	No comments	
4K	The Bay Area Municipal Transmission Group(BAMx)	No comments at this time.	
4L	Vistra Corp.	None at this time.	

5. Please provide your organization's comments on the Economic Study Requests.

No	Submitting Organization	Comment Submitted	CAISO Response
5A	California Public Utilities Commission – Public Advocates Office	At this time, Cal Advocates does not have any comments on this issue.	
5B	California Western Grid Development, LLC	<p>California Western Grid makes the following economic study request:</p> <p>March 14, 2023</p> <p>regionaltransmission@caiso.com California Independent System Operator (“CAISO”) 250 Outcropping Way Folsom, CA 95630</p> <p>Dear CAISO Transmission Planning,</p> <p>California Western Grid Development LLC (“California Western Grid”) appreciates the opportunity to comment on the CAISO’s 2023-2024 Draft Study Plan and submit this economic study request for the Pacific Transmission Expansion Project (“PTE” or “PTEP”). We also hereby request that the CAISO studies the PTEP as a solution to the reliability needs described herein and as a transmission solution needed to accommodate deliverability and the State Public Policy needs identified in Senate Bill No. 887 (“SB 887”). Given that the PTEP addresses all of these various needs, we request that the CAISO considers these study requests at the appropriate time in the 2023-2024 Transmission Planning Process (“TPP”). We request that the PTEP is analyzed on the basis of its cumulative reliability, economic, deliverability, and public policy benefits, and that the CAISO avoids analyzing benefits in individual silos. Analyzing all of the benefits of a project is the best approach for “no regrets” planning, in our opinion.</p> <p>The PTEP, as per our October 14, 2022, filing, is a controllable 2,000 MW HVDC system utilizing subsea cables, which the CAISO has found will allow existing power available at the Diablo Canyon 500 kV switchyard, new sources of offshore wind</p>	This economic study request has been included in the final study plan

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>(“OSW”), or other new sources of renewable energy to be delivered to and between northern and southern California. The CAISO has also determined that the project can reduce Local Capacity Requirements (“LCR”) in the West LA Basin by 1,993 MW, thereby displacing the need to rely on a similar amount of local capacity. The PTEP is described in Section 4.8.2 of the CAISO’s 2021-2022 Board Approved Transmission Plan dated March 17, 2022 (“2021-2022 Report”). California Western Grid requests the PTEP to be re-studied in the 2023-2024 Transmission Planning Process (TPP), with the following HVDC converter stations:</p> <p>One 2,000 MW, ±525 kV HVDC bipole converter station located at the northern terminus of the project, connecting either at the Diablo Canyon 500 kV AC station or the future Morro Bay 500 kV AC station.</p> <p>One 2,000 MW, ±525 kV HVDC bipole converter station located near the El Segundo 220 kV AC substation, with underground HVDC cables from the shoreline to the converter, and the following AC connections:</p> <p>Two 220 kV AC underground cable circuits to El Nido substation; and</p> <p>Two 220 kV AC underground cable circuits to La Fresa substation.</p> <p>California Western Grid also encourages the CAISO to evaluate different configurations of the PTEP, to the extent CAISO Staff thinks appropriate, including multi-terminal configurations and alternative points of interconnection (POI).</p> <p>In the 2021-2022 Report, the CAISO stated that:</p> <p>The potential PTE project benefit of reducing capacity requirements needs to be reassessed in future planning cycles as the assumptions change, particularly if the need to retain the existing gas-fired fleet for system-wide resource reliability purposes is relaxed.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Some of the assumptions related to the study of the PTEP have changed, which warrants the reassessment of the PTEP, and we call you attention to the following five factors:</p> <p>Senate Bill No. 887 In 2022, the Legislature unanimously approved and the Governor signed SB 887 into law. SB 887 identifies an urgent State Public Policy need for new transmission that can deliver renewable energy into currently transmission constrained load centers. SB 887 states that considering the CAISO’s FERC approved tariff that requires the CAISO to plan and approve transmission needed to meet state, federal, and local public policy needs, the legislature expects CAISO to take notice of the State Public Policy needs identified in SB 887.</p> <p>CAISO 20-Year Transmission Outlook The CAISO’s first-ever 20-Year Outlook was issued on January 31, 2022. In the Outlook, the CAISO states that:</p> <p>The CAISO expects to conduct additional stakeholder dialogue through 2022 about next steps as well as the long-term architecture set out in this 20-Year Outlook. Those additional efforts, together with the 20-Year Outlook and evolving resource planning and procurement, will inform the CAISO’s annual transmission planning processes that approve and initiate specific projects.[1]</p> <p>The 20-Year Outlook anticipates 15,000 MW of gas plant retirements by 2040, including 3 to 5 GW of retirements in the Los Angeles Basin and Big Creek-Ventura area. [2] In the Outlook, the CAISO found a need for an HVDC system from Diablo to LA and stated that the PTEP is an example of the line that is needed.[3]</p> <p>California Public Utilities Commission Decision Ordering Supplemental Mid-Term Reliability Procurement (2026-2027) and Transmitting Electric Resource Portfolios to the California</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Independent System Operator for the 2023-2024 Transmission Planning Process Issued February 23, 2023, in R. 20-05-003 This Decision by the California Public Utilities Commission (“CPUC”) transmits a Base Case Portfolio for the CAISO to use for transmission planning that includes the following:</p> <p>“86 GW of new resources by 2035, on top of the existing resource mix on the electric grid of approximately 75 GW. This is more than a doubling of nameplate capacity on the system within 12 years.”[4]</p> <p>A 30 million metric ton (“MMT”) target, high transportation electric loads, and 4.7 GW of OSW.</p> <p>Even without the 86 GW of additional new generation in the Base Case Portfolio, the CAISO is experiencing deliverability issues associated with interconnecting new generation</p> <p>The PTEP provides several deliverability benefits to the Bulk Electric System. These include the ability to deliver power directly from Central California to West LA, offset LCR within the LA Basin Local Capacity Area (“LCA”) and provide much needed transmission capacity between northern and southern California. The PTEP had previously demonstrated and was confirmed by the CAISO to reduce local capacity requirements within the LA Basin, potentially allowing for the replacement of up to 1,993 MW of thermal gas fired generation capacity. The PTEP will deliver 2,000 MW into the LA Basin, providing a 1:1 benefit in reducing the need for existing gas-fired generation in the LA Basin. These power injections also provide mitigation for some of the Southern California Edison (“SCE”) metro area contingency overloads identified in the CAISO 2022-2023 Transmission Planning Process (“TPP”).</p> <p>The PTEP also provides significant benefits in mitigating high flows on Path 26. Path 26 continues to be identified as a congested path and in the 2022-2023 TPP the PTEP was identified as providing high effectiveness in relieving flows under contingency conditions.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The CAISO has found that the PTEP provides valuable transfer capacity that can reduce reliance on the LA Area gas plants and the Aliso Canyon Gas Storage Facility</p> <p>At the November 17, 2022, stakeholder presentation, the CAISO provided the results of a sensitivity study showing that the PTEP could reduce dependence on the Aliso Canyon Gas Storage Facility and allow, but not require, it to retire. This is an important benefit considering the State's desire to close that facility at some point in the near term.</p> <p>In light of the preceding factors affecting the assumptions made in previous studies of the PTEP, we request the CAISO to study the PTEP as a transmission solution that will provide multiple benefits to CAISO ratepayers, including mitigation of Path 26 congestion, reduced renewable curtailment, and substantial Local Capacity Benefits.</p> <p>In California Western Grid's October 14, 2022, filing for the 2022-2023 TPP[5], we submitted an independent analysis performed by E3 of the benefits the PTEP will provide, even if the gas plants remain in service through the study period. California Western Grid hereby incorporates the October 14 filing herein by reference and will not repeat the many benefits analyzed therein. The E3 analysis concludes that, without retirement of any gas generation and without quantifying many of the known benefits of the PTEP (wildfire risk reduction, reduced reliance on Aliso Canyon, air quality improvement especially among underserved communities, etc.), economic benefits of the PTEP would offset 50% or more of the PTEP's cost. The benefits not quantified include environmental air quality benefits that lie at the core of the State's energy goals, as well as wildfire mitigation benefits that SB 887 requires to be considered in planning new transmission. This raises an important planning issue. We urge the CAISO not to evaluate the benefits of the PTEP in separate silos, but rather in terms of the cumulative benefits the PTEP provides, including the benefit of accommodating the need for transmission for State Public Policy needs identified in SB 887. There are many other non-</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>quantifiable public policy benefits that the PTEP addresses and a silo approach to analyzing benefits is sure to ignore the true value of a project like the PTEP.[6] In terms of the quantifying the benefits of the PTEP, we request that the CAISO utilize the E3 methodology, which anticipates storage (not gas-fired generation) will be the marginal Resource Adequacy (“RA”) resources in the 2030’s and beyond. The E3 methodology is described in detail in the October 14th filing.</p> <p>We disagree with the CAISO’s historic approach to continue using conservative valuations for LCR benefits as mentioned above. We believe the E3 methodology is a superior approach to calculating LCR benefits and should be used by the CAISO to quantify LCR reduction benefits.</p> <p>But even if the CAISO continues to use gas plants as the marginal RA resource in the 2030’s and beyond, the CAISO valuation understates the actual cost of LCR when procured from existing gas fired resources . Based on the publicly available FERC EQR data for 2021, the weighted average price of local capacity contracts in the Western LA Basin ranges between \$4.86/kW-month and \$7.45/kW-month. This is based on an analysis of the publicly available FERC EQR data for existing RA contracts totaling 2,434 MW of existing gas plants in the LA Basin. This is in sharp contrast to the approximately \$2.00 / kw/mo. the CAISO has historically use as the cost of LCR procurement in the LA Basin.</p> <p>.</p> <p>If the CAISO had valued the LCR benefits for the PTEP at the current 2021 LA Basin capacity costs, the LCR benefit for the PTEP would have ranged from \$1,604 million to \$2,459 million net present value and resulted in a benefit-to-cost ratio between 0.76 and 1.11. A result that should have qualified a project for approval in the 2021-22 TPP when combined with all of the additional reliability, deliverability, and Public Policy benefits.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>California Western Grid submits that the CAISO TPP will not achieve its objective of providing helpful information to State policy makers and regulatory agencies by continuing to use “conservatively” low or outdated values for local capacity.</p> <p>We agree with and support the CAISO’s previous comment to the Commission that transmission solutions can have long lead times and, therefore “planning for transmission-dependent projects should start as soon as possible.”[7] Indeed, if the State is to reach its 2030, 2035, and 2045 greenhouse gas (“GHG”) SB 100 requirements in a reliable and least-cost manner, the CAISO must begin planning now for transmission solutions that reduce LCRs that currently cause reliance on local fossil fuel-fired resources. To do so, the CAISO will need to change its conservative assumptions and use realistic capacity values in its economic analysis and should begin to incorporate the added cost of operating and maintaining the generation plants that are providing LCR capacity.</p> <p>We appreciate the CAISO’s consideration of these comments, and we urge the CAISO to re-study the PTEP in the 2023-24 TPP consistent with the comments herein. We are available to discuss the PTEP’s many benefits with CAISO transmission planners at your convenience.</p> <p>Thank you for your consideration. Martin Walicki on behalf of California Western Grid Development, LLC</p>	
5C	Center for Energy Efficiency and Renewable Technology	As noted above CEERT believes there is the potential for very large scale solar and battery development (30 GW+) in the PG&E South Area. CEERT believes there would be planning benefits from studying the potential to convert portions of Path 15 to HVDC and recommends that the CAISO study this possibility in the 2023-2024 TPP.	This economic study request has been included in the final study plan.
5D	Clean Power Alliance	No comment at this time, however CPA reserves the right to comment later.	
5E	Fervo Energy	No comments	
5F	Golden State Clean Energy	No comments	

No	Submitting Organization	Comment Submitted	CAISO Response
5G	GridLiance West	GridLiance West respectfully requests that the CAISO conducts an economic study in the 2023 – 2024 Transmission Planning Process to assess the benefits of expanding the existing GridLiance West / Valley Electric Association system from the existing Beatty substation to NV Energy’s Esmeralda substation, a new station to be built as part of the Greenlink West project.	This economic study request has been included in the final study plan.
5H	Imperial Irrigation District	<p>IID, Citizens Energy, and Valley Power Connect LLC appreciate the opportunity to review and submit comments on the Draft 2023-2024 TPP study plan. It is our intent to respectfully request CAISO evaluate our Valley Power Connect project (aka NGIV2) as an economic and policy project as part of the 2023-2024 TPP. The project scope involves a 500kV circuit from North Gila 500kV to Imperial Valley 500kV substation including an intermediary in-and-out 500kV Dunes substation, a 500/230kV transformer and a 6-mile 230kV circuit from Dunes 230kV yard to IID’s Highline 230kV substation. We provided detailed comments on the configuration and the expected mutual benefits to both the CAISO and the IID during the previous TPP cycle.</p> <p>With the TPP study plan’s base scenarios targeting significant GHG emissions reductions, we believe the assumptions have changed significantly enough to warrant an additional evaluation of the project.</p>	This economic study request has been included in the final study plan.
5I	LS Power	If SWIP North is not approved under the 2022-23 TPP, LS Power hereby requests CAISO to study SWIP North as an economic project in 2023-24 TPP. Should this situation arise, LS Power will work with CAISO staff to submit any updated information, as appropriate, prior to CAISO commencing the study.	This economic study request has been included in the final study plan.
5J	Southern California Edison	<p>SCE appreciates the opportunity to suggest topics of study for customer benefit.</p> <p>First, SCE would appreciate a CAISO study to support in the selection of Dynamic Line Rating devices on transmission assets. With the upcoming FERC Order No. 881, SCE would appreciate economic benefits to customers surrounding the addition of more precise monitoring devices compared to benefits from basic implementation of Ambient Adjusted Ratings.</p>	<p>This comment has been noted. According the ISO Tariff 24.3.4.1, an economic study request needs to be submitted to address specific congestion or local area issues. In this comment, however, no specific congestion or local area was provided. Therefore, it is not categorized as an economic study request.</p> <p>In regards to dynamic line rating devices these are utilized within the operating horizon and not in the planning horizon.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>In addition, SCE would also appreciate further investigation into utility-owned storage for purposes of demand response and customer economic benefit. More specifically, SCE would appreciate additional insights into the break-even point for batteries and long duration energy storage compared to economic benefit seen by customers due to impacts of import prices.</p>	<p>The comment regarding the battery as demand response and the comparison between battery and long duration storage should be considered by the CPUC in the IRP development.</p>
5K	The Bay Area Municipal Transmission Group(BAMx)	No comments	
5L	Vistra Corp.	<p>Vistra appreciates the opportunity to submit an economic study request to the CAISO for consideration in the 2023-2024 Transmission Planning Process (TPP). We request the CAISO evaluate transmission expansions to further alleviate congestion on Moss Landing – Aguilas 230 kV line in Greater Bay area.</p> <p>In the 2021-2022 TPP, the CAISO approved an economic project on the Moss Landing – Las Aguilas 230kV line to install a 10 Ohms series reactor on the line. This proposed project was identified in the Production Cost Model case where the modeled generation at the Moss Landing 500 kV substation was only 400 MW of 4-hour batteries. In the 2023-2024 TPP, the CPUC is transferring a 30 MMT additional transportation electrification base case portfolio for 2033 to the CAISO where the generation at the Moss Landing 500kV point of interconnection has increased substantially from 400 MW to 750 MW.[1] In addition, there is another 193 being modeled in the base case at the Moss Landing 230 kV substation.[2] Importantly, we do not think the 193 MW at the 230kV POI is feasible because we already use the full interconnection rights for the Moss Landing Combined Cycle Gas Turbines and the least regrets approach would be to assign the 193 MW to the 500 KV interconnection point since Vistra has up to 1500 MW of interconnection rights at the 500 kV intended for battery storage development. The combined 943 MW of Full Capacity Deliverability Status in the base case at the Moss Landing substation is expected to result in increased levels of observed congestion.</p>	<p>This economic study request has been included in the final study plan.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Consequently, Vistra again requests the CAISO analyze the Moss Landing – Las Aguilas 230 kV line for its congestion in its Production Cost Model and explore alternatives to resolve its congestion more fully. Vistra requests the CAISO conduct an economic study to identify solutions to relieve the transmission congestion on the Moss Landing – Las Aguilas 230 kV line in the Greater Bay Area to unlock multiple benefits including production cost savings, capacity benefits in local capacity requirements, and avoided renewable curtailment benefits among others.</p>	

6. Please provide your organization's Maximum Import Capability (MIC) expansion requests. Any confidential details should not be included in this comment template and should instead be emailed to regionaltransmission@caiso.com

No	Submitting Organization	Comment Submitted	CAISO Response															
6A	California Public Utilities Commission – Public Advocates Office	At this time, Cal Advocates does not have any comments on this issue.																
6B	California Western Grid Development, LLC	California Western Grid does not have a MIC expansion request																
6C	Center for Energy Efficiency and Renewable Technology	CEERT recommends that the CAISO work together with Northern Grid in determining the need for future expansion of import capability from Oregon as part of the sensitivity study regarding transmission needs for the delivery of offshore wind from the Humboldt area. Northern Grid at the recent FERC Order 1000 annual interregional transmission meeting discussed transmission projects that would be needed to deliver three gigawatts of offshore wind from the Brookings and Coos Bay areas to the I-5 transmission corridor in Oregon. There are likely synergies in planning for transmission that could delivery offshore wind from all three of these resource rich offshore wind areas.	The CAISO will work with Northern Grid and other parties through interregional coordination regarding new transmission projects, including integration of offshore wind resources as dictated by the CPUC provided portfolios.															
6D	Clean Power Alliance	<p>In compliance with CPUC D. 19-11-016, D. 21-06-035, and the ongoing CPUC resource procurement orders generally, CPA has executed PPAs for dynamically scheduled out of state resources that require import into the CAISO BAA. To ensure the full capacity value of these resources—being used to meet state policy goals—is allowed CPA requests the following MIC expansions:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>Resource</th> <th>Contract Execution Date</th> <th>Resource Type</th> <th>Intertie/Branch Group</th> <th>MW Expansion Request (Minimum)</th> </tr> </thead> <tbody> <tr> <td>White Hills Wind Energy Center</td> <td>October 3, 2019</td> <td>Wind</td> <td>MEAD_ITC</td> <td>75.16</td> </tr> <tr> <td>Cape Station</td> <td>September 1, 2022</td> <td>Geothermal</td> <td>IPPDCADLN_ITC</td> <td>33</td> </tr> </tbody> </table>	Resource	Contract Execution Date	Resource Type	Intertie/Branch Group	MW Expansion Request (Minimum)	White Hills Wind Energy Center	October 3, 2019	Wind	MEAD_ITC	75.16	Cape Station	September 1, 2022	Geothermal	IPPDCADLN_ITC	33	Your requests have been validated and will be included in the final study plan.
Resource	Contract Execution Date	Resource Type	Intertie/Branch Group	MW Expansion Request (Minimum)														
White Hills Wind Energy Center	October 3, 2019	Wind	MEAD_ITC	75.16														
Cape Station	September 1, 2022	Geothermal	IPPDCADLN_ITC	33														
6E	Fervo Energy	Fervo is requesting MIC expansion to accommodate ten executed contracts for a total of 53 MW at BG/MSL IPPDCADLN_ITC. Fervo will submit the requisite supporting documentation via email.	Your requests have been validated and will be included in the final study plan.															

No	Submitting Organization	Comment Submitted	CAISO Response
6F	Golden State Clean Energy	No comments	
6G	GridLiance West	No comments	
6H	Imperial Irrigation District	No comments	
6I	LS Power	LS Power has no comment at this time.	
6J	Southern California Edison	No comments	
6K	The Bay Area Municipal Transmission Group(BAMx)	No comments at this time	
6L	Vistra Corp.	Not applicable	

7. Please provide any additional comments on the February 28th, 2023 Stakeholder Meeting discussion.

No	Submitting Organization	Comment Submitted	CAISO Response
7A	California Public Utilities Commission – Public Advocates Office	Cal Advocates recommends that CAISO record all TPP meetings and post recordings in a publicly accessible location consistent with its practice for other CAISO stakeholder engagement initiatives and workshops. TPP meetings provide important information and are a key engagement platform for stakeholders. All TPP meetings should also be recorded and published for stakeholders who cannot attend the TPP meetings. CAISO already demonstrates that there is no technological or logistical barrier to recording and publishing their workshops or stakeholder engagement events.	<p>The CAISO has decided that stakeholder calls related to the transmission planning process will not be recorded as they may be subject of future regulatory proceedings.</p> <p>The CAISO provides opportunity for written comments and responses as are provided in these comment matrices, as well as the workbooks and presentations being posted.</p>
7B	California Western Grid Development, LLC	California Western grid has no further comments	
7C	Center for Energy Efficiency and Renewable Technology	CEERT encourages the CAISO to work cooperatively with the Los Angeles Department of Water and Power in exploring alternatives to increase deliverability of offshore wind from the Morro Bay area and solar and wind from the South PG&E area to the Los Angeles Basin.	Comment noted.
7D	Clean Power Alliance	CPA looks forward to working with the CAISO and stakeholders in the 2023-2024 Transmission Planning Process to enhance grid reliability while being responsive to environmental and economic policy goals	Thanks for the note!
7E	Fervo Energy	No comment	
7F	Golden State Clean Energy	No comment	
7G	GridLiance West	No comment	
7H	Imperial Irrigation District	No comment	
7I	LS Power	<p>LS Power offers the following additional comments:</p> <ul style="list-style-type: none"> • Slide 13 of 92 indicates that the reliability base cases will post in Q3. LS Power requests that CAISO identify the timing of when the economic and policy base cases will post and recommends the study models be posted promptly after the first draft of results for each study is posted. This is in line with CAISO’s objective of keeping stakeholder processes open and transparent. • As part of the SPTO model initiative, CAISO indicated that TWE is already modeled in the TPP and the only 	Comment noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>difference in the 2023-24 TPP cycle is that it will be considered inside the CAISO BAA versus outside the BAA. LS Power requests CAISO clarify the rules for including new SPTO lines in the TPP base cases. What is the milestone such new SPTO line has to meet to be included in a base case? Relying on a new SPTO line in the TPP base cases absent certainty that the SPTO line is truly committed to being constructed and placed in service could cause planning issues.</p>	
7J	Southern California Edison	No comments	
7K	The Bay Area Municipal Transmission Group(BAMx)	<p><u>Need for a Separate Stakeholder Process to Consider Dynamic Ratings</u></p> <p>Transmission line ratings represent the maximum transfer capability of each transmission line. Appropriate ratings are dependent on weather conditions.[1] One such example is PG&E's recommendation that the CAISO evaluate the implementation of dynamic ratings on the Midway-Whirlwind 500 kV line.[2]</p> <p>On February 17, 2022, Federal Energy Regulatory Commission (FERC) launched an inquiry to examine whether the use of dynamic line ratings (DLRs), which are based on a wide range of weather and line-specific factors affecting the operation of electric transmission lines, would help ensure just and reasonable wholesale rates by improving the accuracy and transparency of line ratings.[3] BAMx requests CAISO to start a stakeholder process in parallel to the 2022-2023 TPP cycle to evaluate the relative benefits, costs, and challenges of dynamic line rating implementation.</p> <p>Although we expect that a major focus of such an effort will be to identify dynamic ratings that can occur in real-time to eliminate or minimize congestion, BAMx believes the stakeholder process should also investigate ratings used for planning studies. The CAISO's transmission planning analysis assumes the summer</p>	<p>The application of dynamic line ratings is focused on the operational horizon when ratings can be adjusted based on forecasted events in the operational horizon.</p> <p>The ISO is not intending to use dynamic line ratings in the planning horizon due to the specific events that adjust the ratings which aren't considered in the long term planning.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>emergency ratings that were developed assuming weather conditions deemed appropriate for the traditional summer net peak hour (likely HE16 for most regions). However, it has become standard practice to study the net peak in addition to the load peak. It appears that by using the temperature assumptions for the load peak hour, the CAISO is underestimating transmission line capacity for the net peak studies and, in turn, the local area import capabilities. In the proposed stakeholder process, the CAISO Participating Transmission Owners (PTOs) can present their opinion on the role of dynamic line ratings going forward. Although we would expect some circumstances might lead to different rating methodologies among PTOs, it would be very informative to have a single stakeholder process to allow comments on the proposed methods.</p> <p><u>BAMx Appreciates Commenting Opportunity</u></p> <p>BAMx appreciates the opportunity to comment on the draft Study Plan. BAMx would also like to acknowledge the significant effort of the CAISO staff in developing the Study Plan to date, as well as the CAISO staff's willingness to work with the stakeholders in the process of developing the Study Plan. We hope to work with the CAISO staff to continue to improve and enhance the Study Plan.</p>	
7L	Vistra Corp.	None at this time	