

The CAISO received comments on the topics discussed at the November 17 stakeholder call from the following:

- A. ACP-California
- B. Bay Area Municipal Transmission Group (BAMx), Submitted on behalf of City of Palo Alto Utilities and Silicon Valley Power (City of Santa Clara)
- C. California Community Choice Association
- D. California Public Utilities Commission - Energy Division
- E. California Public Utilities Commission - Public Advocates Office
- F. California Western Grid Development, LLC
- G. California Wind Energy Association
- H. Center for Energy Efficiency and Renewable Technologies (CEERT)
- I. City of San Jose
- J. Clearway Energy Group
- K. Coalition for the Optimization of Renewable Development
- L. Defenders of Wildlife
- M. EDF-Renewables
- N. Fervo Energy
- O. Fulin Zhuang, Submitted on behalf of Wellhead Electric Company, Inc
- P. Gallatin Power Partners
- Q. Golden State Clean Energy
- R. GridLiance West
- S. LS Power
- T. Large-Scale Solar Association (LSA)
- U. New Leaf Energy, Inc.
- V. North Gila - Imperial Valley #2 Project Sponsors, Submitted on behalf of NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District
- W. Pacific Gas & Electric
- X. San Diego Gas & Electric
- Y. Shell Energy
- Z. Southern California Edison
- AA. Vistra Corp.

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

<https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/2022-2023-Transmission-planning-process>

The following are the CAISO's responses to the comments

1. [Please provide your organization's comments on Accessing out-of-state Idaho wind resources.](#)
2. [Please provide your organization's comments on the Recommended Reliability Projects less than \\$50 million for the North region.](#)
3. [Please provide your organization's comments on the Recommended Reliability Projects less than \\$50 million for the South region.](#)
4. [Please provide your organization's comments on the MIC Expansion Requests.](#)
5. [Please provide your organization's comments on the Preliminary Policy Assessment Results for the SCE and GLW areas.](#)
6. [Please provide your organization's comments on the Preliminary Policy Assessment Results for the SDG&E area.](#)
7. [Please provide your organization's comments on the Preliminary Policy Assessment Results for the PG&E area.](#)
8. [Please provide your organization's comments on the Preliminary Economic Analysis Results.](#)
9. [Please provide your organization's comments on the Preliminary LCR study results for the North region.](#)
10. [Please provide your organization's comments on the Preliminary LCR study results for the South region.](#)
11. [Please provide your organization's comments on the Special Study Reduced Reliance on Aliso Canyon Gas Storage.](#)
12. [Please provide any additional comments on the November 17, 2022 stakeholder meeting.](#)

1. Please provide your organization's comments on accessing out-of-state Idaho wind resources

No	Submitting Organization	Comment Submitted	CAISO Response
1a	ACP – California	<p>ACP-California greatly appreciates the work that CAISO has done to assess interest in accessing Idaho wind. As CAISO pointed out in its presentation, there is significant commercial interest from California LSEs in Idaho wind and these resources continue to show up in the portfolios transmitted by the CPUC. Thus, CAISO should continue to explore transmission solutions to deliver Idaho wind to CAISO load and to consider transmission approvals that may be required.</p> <p>Additionally, ACP-California urges the CAISO to utilize the Requests for Expressions of Interest (REOI) that was developed as part of this work to assess interest in other resources and begin to explore potential transmission solutions.</p>	<p>Thank you for your feedback.</p> <p>CAISO will continue to explore transmission solutions for out-of-state wind consistent with evolving CPUC resources portfolios studied under the TPP.</p>
1b	Bay Area Municipal Transmission Group (BAMx)	<p>The Bay Area Municipal Transmission group (BAMx) appreciates the opportunity to comment on the CAISO's 2022-23 Transmission Planning Process. The comments and questions below address the material presented at the CAISO Stakeholder meeting on November 17, 2022.</p> <p>BAMx appreciates the CAISO's recognition of the need to take into account evolving CPUC portfolios for out-of-state (OOS) resources and concerns expressed by stakeholders. Since the 2022 -2023 TPP does not explicitly include OOS wind from Idaho in the Base Case, BAMx believes it would be inappropriate for the CAISO to approve the SWIP-North project in the current TPP. It is the only current proposal providing direct access to the Idaho resources.</p>	<p>Thank you for your feedback.</p> <p>Transmission for out-of-state resources are long lead time assets and this key aspect needs to be considered in any decision making. Hence it is important to consider the evolving CPUC resource portfolio especially in the context of OOS resources in Idaho and how these resources (1,000 MW) are moving from sensitivity cases to base cases as the state moves towards meeting its GHG targets. The Administrative Law Judge proposed electricity resource portfolios for use in the CAISO's TPP under rulemaking 20-05-003, refers to the July 01, 2022 letter to the CAISO on direction regarding portfolios to be used for the 2022-2023 TPP while noting [page 8] "And, considering that the 30 MMT High Electrification sensitivity passed to 2022-2023 TPP is very similar to the 30 MMT HE portfolio proposed above as the 2023-2024 TPP base case, CAISO staff may be able to get a "head start" on identifying any associated transmission needs by considering the results of the 30 MMT High Electrification sensitivity in making transmission investment recommendations to its board in the 2022-2023 TPP cycle."</p>
1c	California Community Choice Association	<p>The California Independent System Operator (CAISO) issued a Request for Expressions of Interest (RFI) in Idaho wind in August 2022 and received 16 responses from load-serving entities (LSEs). These responses indicated interest in up to 1,200 of Idaho wind, including 800 megawatts (MW) with</p>	<p>Thank you for the feedback.</p> <p>CAISO is encouraged by both (a) the results of the RFI and (b) the specific inclusion of Idaho wind resources in the sensitivity case for the 2022-2023 TPP and in both base and sensitivity cases for the</p>

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		<p>exclusivity agreements, letters of intent, or term sheets. Despite this significant level of interest, questions remain regarding the next steps the CAISO will take in studying and recommending transmission upgrades resulting from the information gathered from the responses to the RFI. The CAISO indicates its next steps are to (1) take into account evolving California Public Utilities Commission (Commission) portfolios for out-of-state (OOS) resources and concerns expressed by stakeholders, (2) close the stakeholder engagement within the 2021-2022 Transmission Planning Process (TPP) extension, and (3) assess out-of-state resource requirements within the 2022-2023 and 2023-2024 TPPs.</p> <p>The CAISO should not delay further study of OOS wind resources on the basis of “evolving CPUC portfolios” and should provide further details as to how it plans to use the results from the RFI in its determination of how much to Idaho wind compared to wind in Wyoming. The 2021-2022 base case resource portfolio included 1,062 MW of OOS wind from either Wyoming <u>or</u> Idaho. The 2022-2023 resource portfolios included 1,062 MW of OOS wind from either Idaho <u>or</u> Wyoming in base case and 1,000 MW from Idaho and 1,500 MW from Wyoming in the sensitivity case. The draft 2023-2024 resource portfolios included 1,000 MW of OOS wind from Idaho in both the draft for the base and sensitivity cases. While the most recent TPP portfolios ask the CAISO to choose between two locations to site OOS wind, these portfolios indicate a trajectory of increasing reliance on OOS wind in both locations. The main uncertainty for these OOS wind projects is CAISO approval of the transmission line. The CAISO should indicate how the results of the RFI will affect CAISO studies in the near term, when it must pick between two locations, and in the long term when both location are included in the base case.</p>	<p>2023-2024 TPP. As a result, and as noted, CAISO is further pursuing the potential for integrating out-of-state wind resources specifically from Idaho within the 2022-2023 and 2023-2024 TPPs.</p> <p>The CAISO by itself does not pick specific locations and its TPP is driven by resource portfolios provided by the CPUC for study in its base and sensitivity scenario case studies. CAISO is specifically addressing out-of-state wind resources from Idaho as the other locations, Wyoming and New Mexico, are both already covered by subscriber-based transmission projects which are currently being developed, namely the Trans West Express (TWE) and the SunZia transmission projects.</p>
1d	California Public Utilities Commission – Energy Division	<p>CPUC Staff supports assessing the out of state resource requirements – including Idaho – and related transmission needs in the 2022-2023 TPP for two reasons. First, per the 07/01/2022 Transmittal Letter to CAISO for 2022-23 TPP High Electrification</p>	<p>Thank you for the feedback.</p> <p>CAISO is taking into consideration, the evolving CPUC resource portfolio which includes increasing need for out-of-state wind</p>

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		<p>Portfolio[1] the 2022-2023 TPP will be the first transmission planning cycle to fully account for transmission Plan Deliverability (TPD) allocations and Maximum Import Capability (MIC) allocations when assessing transmission needs to accommodate injection of out-of-state resources on new transmission lines. This is significant because out-of-state capacity would likely be pseudo tied and would require a MIC allocation. With this study methodology modification, we believe that the transmission implication results will be more accurate. Second, recent IRP findings indicate the need for even larger quantities of out-of-state resources. The policy-driven sensitivity portfolio transmitted to CAISO for the 22-23 TPP contains 4,800 MW of OOS resources. As summarized on slide 14 (PDF) of the presentation this included “1,000 MW from Idaho and 1,500 MW from Wyoming in the sensitivity case” and the remainder mapped as New Mexico wind. Furthermore, the recent Ruling Seeking Comments on Electricity resource Portfolios for the 2023-2024 Transmission Planning Process proposed a similar 23-24 TPP base case portfolio containing 4,828 MW of out-of-state resources on new transmission. Of that, 2,328 MW could be mapped to New Mexico, and the remaining 2,500 MW potentially mapped to Wyoming or Idaho. Therefore, although the 22-23 TPP base case does include only 1,062 MW of out-of-state resources to be studied by CAISO as at either Wyoming or Idaho, CPUC staff suggests the CAISO take into consideration these recent out-of-state increases in the IRP planning track findings when recommending transmission needs to the CAISO Board of Governors for approval.</p>	<p>resources and as evidenced in the IRP planning track findings, as you have noted.</p>
1e	California Public Utilities Commission - Public Advocates Office	<p>The following are comments from the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) on the California Independent System Operator’s (CAISO) 2022-23 Transmission Planning Process (TPP). Cal Advocates is an independent consumer advocate with a mandate to obtain the</p>	<p>CAISO is responsible for regional transmission planning and for the annual TPP process which receives its resource portfolios from the CPUC, for use in its base and sensitivity study cases.</p> <p>It must be noted that CAISO has an inter-regional transmission planning framework which includes other planning areas within</p>

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		<p>lowest possible rates for utility services, consistent with reliable and safe service levels, and the state’s environmental goals.</p> <p>Regarding next steps for the analysis of out-of-state transmission lines, Cal Advocates agrees with the Executive Director of the Western Interstate Energy Board’s recommendation that an analysis of the entire western interconnection is needed to determine which out-of-state transmission lines are the most cost-effective. This analysis should consider all the generation that is planned in the western interconnection to determine the synergies and interplay between existing and planned resources to determine the western interconnection wide cost-effective solution/cost minimizing solution.</p> <p>Currently, the Department of Energy (DOE) is engaged in a National Transmission Planning Study. The study objectives are to:</p> <ul style="list-style-type: none"> (1) Identify interregional and national strategies to accelerate cost-effective decarbonization, while maintaining system reliability and specifically “test transmission options that lie outside current planning.” (2) Identify which transmission benefits are key drivers for investments in interregional lines. (3) Inform regional and interregional transmission planning processes, particularly by engaging stakeholders in dialogue; and (4) Provide results that prioritize future DOE funding for transmission infrastructure support. <p>This DOE study will identify transmission solutions that would provide California access to renewable resources in the western interconnection including wind from Wyoming and New</p>	<p>WECC such as WestConnect and NorthernGrid. Additionally, CAISO is also involved in the DOE’s National Transmission Planning Study which is only an informational study and should not be relied upon to make transmission investment decisions. However, CAISO needs to make transmission approval decisions in a timely manner especially regarding out-of-state transmission as these are long lead time assets and the most effective mechanism to do so is through its TPP.</p>

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		<p>Mexico. However, this DOE study may recommend different transmission line alignments than the transmission projects CAISO is currently evaluating. These alternative alignments may give greater consideration to the location of new and existing generation and load in the entire western interconnection. The DOE study considers current state energy policies and tests 168 resource development scenarios and is a much broader study in comparison to the CAISO's out-of-state wind study. The results of the DOE study are expected by July 2023. Given this short timeline, it would be prudent for CAISO to incorporate the DOE study results into CAISO's out-of-state wind transmission study.</p> <p>Regarding cost allocation for the proposed out-of-state wind projects, Cal Advocates agrees with the CAISO that Federal Energy Regulatory Commission (FERC) Order No. 1000 Interregional Coordination policy did not provide a framework for engaging in meaningful discussions on benefits and cost allocation, and decisions on moving forward with a joint project. Cal Advocates also agrees that transmission planners in the western states need a better framework that outlines how consensus decision making and project participation are achieved. Based on Cal Advocates observations of prior interregional transmission planning meetings, an independent entity is needed to facilitate discussions on proposed interregional projects and system reliability issues and to assist with determining if there are possible solutions that could benefit more than one region.</p> <p>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 the CAISO transmission access charge (TAC). Subscriber-based projects comply with cost causation and results in more equitable outcomes for ratepayers. Sunzia and TransWest Express (TWE) projects are subscriber-based projects that are not seeking cost recovery through the TAC. To compete with these</p>	

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		<p>options, any transmission project considered for accessing Idaho wind should also be subscriber-based.</p> <p>PacifiCorp also started construction on the Gateway South 500 kilovolt (kV) transmission in 2022 and is expected to complete this 400-mile line between Wyoming and Utah by 2024. This transmission line will increase access to Wyoming wind in the western interconnection. Cal Advocates recommends that CAISO investigate whether California Load Serving Entities can reserve any capacity on Gateway South to access Wyoming wind in its out-of-state wind transmission options study.</p>	
1f	California Western Grid Development, LLC	No comment	
1g	California Wind Energy Association	No comment	
1h	Center for Energy Efficiency and Renewable Technologies (CEERT)	<p>CEERT supports continued assessment of transmission projects necessary to enable out-of-state wind resources including those in Idaho to be considered in the 2022-2023 TPP. The CAISO should give weight to the 30 MMT with high electrification scenario as it assesses long-lead transmission projects that will be needed to ensure delivery of out-of-state wind capacity. In-state transmission capacity from the El Dorado substation or other first points of entry to the CAISO balancing area needs to be evaluated to ensure that California load serving entities have competitive opportunities to access of out-of-state wind resources.</p>	<p>Thank you for the feedback.</p> <p>Noted.</p>
1i	City of San Jose	No comment	
1j	Clearway Energy Group	<p>Clearway supports CAISO's effort to enable out-of-state wind resources that can provide needed resource diversity, including Idaho wind. However, we note that additional work is needed to enable out-of-state wind to reach the boundary of the CAISO system, including transmission that would bring resources to hubs such as Eldorado and Palo Verde. FERC Order 1000 has proved to be insufficient to motivate regional transmission development, and Clearway encourages the CAISO to continue seeking solutions to this problem.</p>	<p>Thank you for the feedback.</p> <p>Noted.</p>

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1k	Coalition for the Optimization of Renewable Development	No comment	
1l	Defenders of Wildlife	No comment	
1m	EDF-Renewables	No comment	
1n	Fervo Energy	It is clear that regional coordination is a key component of the future western electricity grid. All else being equal, CAISO should prioritize needed transmission upgrades that have the nearest in-service dates to facilitate getting access to anticipated resources. While Idaho wind access is a significant issue, it is important to consider that the SWIP North project also provides improved access to Northern Nevada (and other) geothermal resources. The fact that geothermal can deliver more MWh per MW of transmission should be taken into account when considering future projects and allocating import capacity.	Thank you for the feedback. CAISO would like to note that under its TPP, it only studies resource portfolios and corresponding locational mapping, provided to it by the CPUC.
1o	Wellhead Electric Company, Inc.	No comment	
1p	Gallatin Power Partners	No comment	
1q	Golden State Clean Energy	No comment	
1r	GridLiance West	GridLiance West (GLW) has no specific comments on the Idaho wind study. GLW encourages the CAISO, in conjunction with the CPUC, to ensure there is sufficient transmission infrastructure within the CAISO to satisfy near-term LSE and developer needs for renewable integration. While GLW supports out-of-state (OSW) and off-shore wind as important resources for the long-run supplies, and while GLW believes it is useful for the CAISO to assess needs for out-of-state (OOS) wind deliveries, it is not seem prudent to presume that those wind resources will fill a substantial portion of the LSE resource needs in the short run. Further, LSE plans filed on November 1 convey a strong sentiment by LSEs that relying on OOS wind is risky at this point given the uncertainty with OOS wind deliverability (e.g., Maximum Import Capability, or MIC). (GLW filed comments with the CPUC in response to the LSE plan submittals identifying many LSEs who expressed these concerns. And these comments have been provided with GLW's TPP comments.) LSEs instead are relying in the near term on more certain resources in the CAISO. Additionally, many LSEs are already	Thank you for the feedback. CAISO's TPP is based on resource portfolios provided by the CPUC. Moreover, the CAISO is encouraged by the responses it received from the LSEs for its request for expressions of interest regarding accessing Idaho wind resources. As a result of these considerations, CAISO is further pursuing the potential for integrating out-of-state wind resources specifically from Idaho within the 2022-2023 and 2023-2024 TPPs.

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		<p>planning to achieve the 25 MMT carbon goal by 2025, and in some cases, are on a faster trajectory to greening their supplies than the CPUC's portfolios indicate.</p> <p>In short, while GLW believes it important to study the impacts of long-term beneficial supplies, the determination of needed projects within the CAISO in the must be based on realistic planning build out assumptions and not assume that a large amount of OOS wind (or even off-shore wind) meets LSEs' needs in the near term.</p>	
1s	LS Power	<p>LS Power appreciates CAISO's efforts in reviewing LSE interest in Idaho wind resources. Given the economic benefits shown for SWIP-North in the 2021-2022 Transmission Planning Process (TPP) study in addition to the positive input with regard to interest in Idaho wind (16 responses and ~1200 MW of interest) along with the escalating need for OOS wind in CPUC's base and sensitivity portfolios, we encourage CAISO to evaluate the project for approval as part of the current 2022-2023 TPP cycle. SWIP-North can be placed in service by the end of 2025 and is differentiated from other out-of-state (OOS) transmission projects in terms of the reliability, risk mitigation, and economic benefits it can provide to the CAISO grid. These benefits should be accounted for in CAISO's analysis along with the policy benefits of providing access to diverse renewables. For the policy aspect CAISO should be forward looking in its analysis so that LSE's have certainty on transmission being available sooner rather than later in order to make necessary resource decisions.</p>	<p>Thank you for the feedback.</p> <p>Noted.</p>
1t	Large-scale Solar Association	<p>LSA's earlier comments in the Idaho wind supplement to the 2021-2022 TPP expressed concerns that the CAISO did not explain how it would treat any "expressions of interest" in Idaho wind resources. The presentation at the stakeholder meeting still did not clarify this point, e.g.:</p>	<p>Thank you for the feedback.</p> <p>CAISO will consider the specific need for transmission to deliver Idaho wind power to California given that Idaho wind resource is mapped specifically in the 2023-2024 base case. This has evolved given that Idaho was mapped specifically only in the sensitivity case for the 2022-2023 TPP portfolio studies.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> • How the CAISO will “Take into account evolving CPUC portfolios for out of state resources and concerns expressed by Stakeholders;” • How the CAISO’s “assessment” of out-of-state resource requirements, including Idaho, and related transmission needs in 2022-2023 TPP and 2023-2024 TPP” will differ from the assessments it would otherwise make in those TPP cycles, i.e., how this information will be used in the TPP Deliverability Assessment; or • How this part of the process will impact consideration of Idaho vs. Wyoming wind resources in the CPUC resource portfolios. 	<p>Based on the attributes of the proposed SWIP-North transmission project, resources in Idaho contracted to provide power to LSEs in California will be pseudo-tied and LSEs would need to procure based on the allocation procedure under the CAISO’s MIC allocation process. Power flow will occur through the provisioning of incremental MIC (MIC expansion) while preserving the existing transmission capacity that has been allocated to other projects earlier in the queue (respecting TPD already allocated). This consideration stands irrespective of whether the transfer of power occurs from Idaho or Wyoming. This is also consistent with the letter received by the CAISO from the CPUC regarding the 2022-2023 TPP portfolio: “Based on the long lead time resources mapped in the portfolios for the policy and reliability driven base case and the High Electrification sensitivity study, it is important that CAISO begin undertaking necessary studies to inform and enable the development of incremental transmission capacity to support these long lead-time resources while preserving the existing transmission capacity that has been allocated to other projects earlier in the queue.”</p>
1u	New Leaf Energy, Inc.	No comment	
1v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	No comment	
1w	Pacific Gas & Electric	No comment	
1x	San Diego Gas & Electric	No comment	
1y	Shell Energy	<p>Shell Energy appreciates the opportunity to comment and is following TPP’s potential to enable greater amounts of out of state wind resources with interest. As a Load Serving Entity, Shell Energy’s customers have a direct interest in the availability of transmission to enable energy decarbonization reliably and affordably. As such, changes to the TAC and/or embedding transmission costs into procurement contracts is of interest.</p> <p>The MIC allocation process obviously has outsized impacts on the deliverability of out of state resources especially for the potential for newly accessible supply from Idaho. Additional information on the implications of MIC expansion process for</p>	<p>Thank you for the feedback.</p> <p>Based on the attributes of the proposed SWIP-North transmission project, resources in Idaho contracted to provide power to LSEs in California will be pseudo-tied and LSEs would need to procure based on the allocation procedure under the CAISO’s MIC allocation process.</p> <p>Of the proposed transmission projects for accessing out-of-state wind resources which are in the public domain, SWIP-North, being developed by LS Power, is pursuing a rate-base cost recovery model whereas TWE, developed by Trans West Express LLC, and Sunzia,</p>

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		<p>Eldorado on those entities who have expressed interested in Idaho out of state wind is appreciated in future TPPs. MIC constraints could significantly hamstring access to out of state supply, further restricting supplies in a tight procurement market.</p> <p>Given out of state wind resources are included in CPUC portfolios, does the CAISO anticipate new transmission required to access out of state resources will be funded using the Subscriber PTO model, the CAISO TAC, or a combination of both? What are the potential cases for utilizing either or both approaches? More detailed discussion on this would be helpful in subsequent TPP processes.</p>	<p>developed by Pattern Energy, are both pursuing a subscriber-based cost recovery model.</p>
1z	Southern California Edison	No comment	
1aa	Vistra Corp.	No comment	

2. Please provide your organization’s comments on the Recommended Reliability Projects less than \$50 million for the North region

No	Submitting Organization	Comment Submitted	CAISO Response
2a	ACP – California	No comment	
2b	Bay Area Municipal Transmission Group (BAMx)	<p>Need for Previously Approved PG&E Projects</p> <p>BAMx has no comments on the recommended reliability projects less than \$50 million for the North region at this time. However, as the CAISO has indicated in its response to BAMx comments, the CAISO should review the need and timing for the proposed transmission projects in the Draft Transmission Plan. These projects include the Midway-Temblor 115 kV Line Reconductor & Voltage Support project and the Morgan Hill Area Reinforcement project.</p> <p>Consideration of Reliability Upgrades: Cortina 60 kV Line and Garberville Area Reinforcement Projects</p> <p>In our comments in response to the September 27-28, 2022, Stakeholder meeting, BAMx had encouraged the CAISO to explore other options for PG&E's Cortina and Garberville areas, where PG&E is proposing capital-intensive projects (\$300 million) to accommodate small incremental demand increases. Since then, we have had the opportunity to further examine the reliability needs in these areas.</p> <p>BAMx examination of the CAISO-posted reliability assessments and underlying power flow cases indicate <u>no overloads</u> on the Cortina #1 60kV, as observed in the PG&E assessment. BAMx found low voltages in the 2032 case – 0.892 at the end of the line at the Dunnigan substation. Under normal conditions, the loading on the Cortina #1 60kV was 91.5%. The Cortina # 1 60 kV line is a radial line that serves one load and has no generation. So, its loading depends only on the load and is unrelated to the generation dispatch. The installation of battery storage will improve loading and voltages, but PG&E stated that this</p>	<p>The comment related to the less than \$50 million projects presented at the November 17 stakeholder call has been noted.</p> <p>In regards to other previously approved projects or projects to be recommended for approval to address the identified reliability constraints this will be included in the draft Transmission Plan.</p> <p>These projects are currently under review. Findings and recommendations will be included in the draft Transmission Plan.</p>

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		<p>alternative is infeasible because the charging capability on the transmission line is limited.</p> <p>Several switches are normally opened in this area. Closing some of them improves voltages. The system model has two open switches at the Arbalt 60 kV substation. Closing these connections between Arbalt and Arbuckle and Arbalt and Dunntap improves voltages and reduces loadings. In the 2032 case, the loading on the Cortina # 1 60 kV line was reduced from 91.5% to 77.4% by closing these switches. Closing the normally open switch on Wilkins between DIST2047 and DIST1500 60 kV buses will also improve voltages and reduce loadings. In the 2032 case, the loading was further reduced to 65.9%. In summary, BAMx believes that the CAISO needs to explore additional mitigation alternatives, such as the feasibility of the above switching operations.</p> <p>We also believe alternatives, such as installing energy storage and shunt capacitors, should be explored. There needs to be a more detailed investigation of the feasibility of an appropriate charging cycle for the storage and the ability of shunt capacitors to solve any remaining voltage issues. Those alternatives should be investigated before approving the Cortina #1 60 kV line reconductoring.</p> <p>While considering the Bridgeville-Garberville upgrade, it should be noted that loading of the Bridgeville-Garberville 60 kV line significantly depends on the output of the Humboldt Bay power plant, and its overload can be mitigated by reducing Humboldt Bay generation. It appears the Humboldt Bay Power plant output was reduced in the summer cases but was modeled at full output in winter. Reducing its output in the 2032 Winter case will mitigate the overload but will not help relieve low voltage criteria violations. Additional reactive support should be investigated as a</p>	

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		<p>solution for low-voltage violations. According to PG&E, space limitations at the Garberville substation prevent the installation of battery storage there. BAMx believes the feasibility of BESS needs to be investigated further. Even if a BESS at one of the substations connected to the Bridgeville-Garberville 60 kV line is unfeasible, other alternative locations should be investigated. Those investigations should include installation on the low side of existing transformers or obtaining a new site for installing BESS. BAMx endorses the CAISO methodology of only considering incremental interconnection costs for BESS that are needed for system issues. Even if there are interconnection costs, in this case, only those incremental costs should be included in an analysis of BESS for this area. A BESS should be investigated to mitigate any voltage or thermal criteria violations. BAMx believes that the CAISO needs to explore these additional mitigation alternatives before approving the Garberville Area Reinforcement project in the current planning cycle.</p>	
2c	California Community Choice Association	<p>CAISO should not delay consideration of the SWIP-North project to later TPPs. To accommodate the planned 2026 Commercial Operation Date (COD) of Idaho wind, CAISO approval is needed as soon as possible. The CPUC’s draft plan for the 2023-24 TPP indicates that Idaho wind will be a clear policy priority (one gigawatt is included in both the base and sensitivity). As discussed in response to question #1 above, information collected in the RFI demonstrated strong commercial interest. The main uncertainty for the project is CAISO approval of the transmission line. Waiting to grant approval is simply delaying COD of a resource that provides cost-effective clean energy and reliability for California ratepayers. A delay will push LSEs to try and procure alternative resources in an already overly strained PPA market, driving up costs or lead to slower emissions reductions.</p>	Please see response to 1c above.
2d	California Public Utilities Commission – Energy Division	No comment	

No	Submitting Organization	Comment Submitted	CAISO Response
2e	California Public Utilities Commission - Public Advocates Office	<p>Cal Advocates is concerned that Pacific Gas and Electric Company (PG&E) intends to move forward with a previously approved project that has significantly increased in cost. CAISO approved the Bellota-Warnerville 230kV Reinforcement project in the 2012-2013 TPP with an estimated cost of \$28 million. Based on the November 17, 2022, update on recommended reliability projects in the north region less than \$50 million, the cost for this project has nearly quintupled to a cost ranging between \$100 to \$150 million and the project's status has not changed since its approval in 2012. Given this significant project cost increase and delay, this project should be reevaluated as a project over \$50 million to confirm it is still needed and that there are no other lower cost alternatives that can be considered.</p>	<p>The need for the Bellota-Warnerville 230 kV reconductoring project still exists as reflected in the 2023 NQC list where existing resources that are currently online require this upgrade to achieve Full Capacity Deliverability Status (FCDS), in addition to projects within the CAISO generator queue that also require this to achieve FCDS when they come online. The less than \$50 million dollar recommended for approval relates a need identified in the detailed design of the project for affected system upgrades and subject to Section 24.10 of the CAISO tariff.</p>
2f	California Western Grid Development, LLC	No comment	
2g	California Wind Energy Association	No comment	
2h	Center for Energy Efficiency and Renewable Technologies (CEERT)	<p>CEERT supports the approval of the recommended reliability projects in the PG&E area. CEERT is concerned about possible delays in the implementation of these projects since NERC reliability needs are expected to begin in 2024. Of particular concern is the need to complete the Banta Ring Bus Project in 2024 to improve reliability in the Central Valley and to support the development of additional renewable resources in this region of the state.</p>	The comment and support has been noted.
2i	City of San Jose	<p>The City of San Jose wholeheartedly supports all the projects recommended for management approval for the North region in this TPP cycle. However, the City does recommend that as many of the individual projects as possible in the PG&E "Limiting Elements Removal" proposal be expedited for in service dates prior to 2026. Most of the reliability need(s) for these projects exists today, plus the cost benefits for reduction in Local Capacity Requirements in the San Jose sub-region that they individually and collectively</p>	The comment and support has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>represent probably qualify them as economic projects as well as reliability projects.</p> <p>The August preliminary reliability assessment indicated that a multitude of locations in PG&E service territory have telemetry/control backup power supplies that do not meet current reliability standards. Does the lack of inclusion of mitigation measures for this identified reliability need in the November 17 list of Recommended Reliability Projects mean that this project(s) will cost more than \$50M? How much of this project involves resilience investments on the underlying distribution system that would not be CAISO jurisdiction?</p>	<p>The indicated P5 contingencies indicated are protection upgrades that the CAISO will be recommending the PTOs to undertake to address the identified constraints.</p>
2j	Clearway Energy Group	No comment	
2k	Coalition for the Optimization of Renewable Development	No comment	
2l	Defenders of Wildlife	No comment	
2m	EDF-Renewables	No comment	
2n	Fervo Energy	No comment	
2o	Wellhead Electric Company, Inc.	No comment	
2p	Gallatin Power Partners	No comment	
2q	Golden State Clean Energy	No comment	
2r	GridLiance West	No comment	
2s	LS Power	No comment	
2t	Large-scale Solar Association	No comment	
2u	New Leaf Energy, Inc.	No comment	
2v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	No comment	
2w	Pacific Gas & Electric	No comment	
2x	San Diego Gas & Electric	No comment	
2y	Shell Energy	No comment	
2z	Southern California Edison	No comment	

No	Submitting Organization	Comment Submitted	CAISO Response
2aa	Vistra Corp.	No comment	

3. Please provide your organization's comments on the Recommended Reliability Projects less than \$50 million for the South region			
No	Submitting Organization	Comment Submitted	CAISO Response
3a	ACP – California	No comment	
3b	Bay Area Municipal Transmission Group (BAMx)	No comment	
3c	California Community Choice Association	No comment	
3d	California Public Utilities Commission – Energy Division	No comment	
3e	California Public Utilities Commission - Public Advocates Office	No comment	
3f	California Western Grid Development, LLC	No comment	
3g	California Wind Energy Association	No comment	
3h	Center for Energy Efficiency and Renewable Technologies (CEERT)	CEERT supports the approval of the recommended reliability projects in the SCE area. The Mira Loma 500 kV circuit breaker project is clearly needed to support additional renewable project interconnections in the region.	Your comment and support has been noted.
3i	City of San Jose	No comment	
3j	Clearway Energy Group	No comment	
3k	Coalition for the Optimization of Renewable Development	No comment	
3l	Defenders of Wildlife	No comment	
3m	EDF-Renewables	No comment	
3n	Fervo Energy	No comment	
3o	Wellhead Electric Company, Inc.	No comment	
3p	Gallatin Power Partners	No comment	
3q	Golden State Clean Energy	No comment	
3r	GridLiance West	No comment	
3s	LS Power	No comment	
3t	Large-scale Solar Association	No comment	
3u	New Leaf Energy, Inc.	No comment	

No	Submitting Organization	Comment Submitted	CAISO Response
3v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	No comment	
3w	Pacific Gas & Electric	No comment	
3x	San Diego Gas & Electric	No comment	
3y	Shell Energy	No comment	
3z	Southern California Edison	SCE concurs with the CAISO's recommendation for approval of below \$50 million projects in SCE's area.	Your comment and support has been noted.
3aa	Vistra Corp.	No comment	

4. Please provide your organization's comments on the MIC Expansion Requests			
No	Submitting Organization	Comment Submitted	CAISO Response
4a	ACP – California	ACP-California commends CAISO for reassessing the MIC expansion requests that were received earlier this year and for further considering the validity of these requests. The reassessment has resulted in several requests that were previously deemed invalid being validated. As CAISO evaluates opportunities for projects to expand the MIC, we urge CAISO to continue to keep an eye towards the longer-term needs on the system and the 30 MT sensitivity case, which is expected to be in line with the base case in next year's TPP.	The comment has been noted.
4b	Bay Area Municipal Transmission Group (BAMx)	No comment	
4c	California Community Choice Association	<p>In its presentation, the CAISO presented the results of its assessment of Maximum Import Capability (MIC) expansion requests. The assessment indicated that, given the current transmission system, all of the MIC expansion requests studied by the CAISO failed the TPP deliverability study, meaning the CAISO cannot expand MIC. MIC expansion would necessitate transmission upgrades due to a lack of available deliverability. If a MIC expansion request results in a "fail" the CAISO's deliverability assessments, the CAISO must (1) reassess the MIC expansion requests after the completion of transmission upgrades that could result in additional deliverability and (2) provide a feedback loop to the Commission of MIC expansion requests that failed such that the Commission can use those requests to inform future base case resource portfolios for study in the next TPP cycle. The CAISO has stringent requirements for studying MIC expansion requests (e.g., LSE) demonstration of an executed contract), so the Commission should take MIC expansion requests as an indication that there are high levels of commercial interest in the resources at those locations.</p> <p>The availability of MIC is critical for meeting a variety of LSE compliance obligations. Both Resource Adequacy (RA) and Integrated Resource Plan (IRP) procurement obligations require LSEs to obtain MIC for the portions of their obligations being met by out-of-state (OOS) resources. It will be very difficult for LSEs to invest in the development of new OOS resources necessary</p>	<p>The MIC expansion requests will be reassessed for areas where additional transmission upgrades are approved.</p> <p>The CAISO already provides the Commission with estimates of deliverable transmission capability. The Commission can further use the results of the MIC expansion requests as a guidance in their future proposed portfolio.</p> <p>"Lack" of Remaining Import Capability and/or expanded MIC including the need for transmission reinforcement will be evident up-front based on technical studies and reports. The LSEs should adjust their procurement accordingly.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>to satisfy the variety of requirements (Renewable Portfolio Standard, clean energy, IRP, and RA) with significant uncertainty that those resources will count due to the lack of MIC both short and long-term.</p> <p>More specifically, the CAISO should provide enhanced transparency around how the proposed mitigations for the Lugo-Victorville, North of Lugo, and Drum-Higgins constraints enable deliverability for the MIC expansion requests to facilitate delivery of the geothermal resources included in the list of valid MIC expansion requests. Given that the resources underlying these MIC expansion requests are under contract and will be part of base portfolios for determining policy-driven transmission, they should be treated the same as base portfolio Renewable Energy Solutions Model resources in each constraint area. Mitigation alternatives should be selected that enable the MIC expansion requests to receive full deliverability. Including this in the 2022-23 TPP is essential to provide off-takers line-of-sight on project viability and developers the confidence to move forward and provide resources that are critical to meeting California's climate and reliability goals.</p>	<p>The MIC expansion requests will be reassessed for areas where additional transmission upgrades are approved and further details will be provided at that time.</p> <p>Per CAISO Tariff MIC expansion requests have lower priority than CPUC provided portfolio. If in the future these contracts are included in the CPUC base portfolio, the MIC expansion requests become duplicative (obsolete) and they will be eliminated from consideration.</p> <p>Per CAISO Tariff MIC expansion requests on their own cannot drive new transmission expansion, the concept was an integral part and clearly explained in the CAISO stakeholder process that established the MIC expansion process. In other words an RA contract been an LSE and a supplier cannot force all ratepayers to pay for deliverability upgrades required for such contract.</p>
4d	California Public Utilities Commission – Energy Division	No comment	
4e	California Public Utilities Commission - Public Advocates Office	No comment	
4f	California Western Grid Development, LLC	No comment	
4g	California Wind Energy Association	CalWEA generally supports backbone transmission expansions from development areas that are identified in multiple IRP scenarios. Applying that principle, the need for transmission upgrades to support MIC expansion does not seem necessary at this time.	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
4h	Center for Energy Efficiency and Renewable Technologies (CEERT)	All of the MIC Expansion Requests are reasonable and should be supported by the CAISO. It is of significant importance that the MIC expansion requests trigger deliverability constraints on portions of the CAISO system, particularly the Lugo-Victorville constraint. Development of a recommended North of Lugo transmission solution is clearly a high priority need. Transmission projects in the SCE Eastern area and San Diego area are also needed to meet the needs of the LSEs requesting MIC expansion.	The comment has been noted.
4i	City of San Jose	No comment	
4j	Clearway Energy Group	No comment	
4k	Coalition for the Optimization of Renewable Development	No comment	
4l	Defenders of Wildlife	No comment	
4m	EDF-Renewables	No comment	
4n	Fervo Energy	The current MIC process is somewhat inconsistent with the anticipated integrated western grid and the growing importance of out-of-state resources to support California's long-term energy goals. MIC was developed to assign residual deliverability to out-of-state resources and needs to be reevaluated to meet the increasingly important role of unit-specific imports procured to meet IRP needs and provide RA deliverability. To the extent that available import capacity is limited, the MIC allocation process should also consider the energy density of potential MIC allocation. 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 MIC is allocated. Fervo encourages CAISO to include this component in its ongoing MIC enhancements.	The comment has been noted.
4o	Wellhead Electric Company, Inc.	No comment	
4p	Gallatin Power Partners	No comment	
4q	Golden State Clean Energy	No comment	
4r	GridLiance West	GLW has no comments on the MIC Expansion Requests other than to emphasize what was explained by the CAISO during the November meeting question and answer session: that MIC cannot be expanded until the related transmission upgrades	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		are <i>completed</i> , and that it is not enough for the CAISO to <i>approve</i> upgrades. The implication of this is that the full suite of renewables being imported where MIC is constrained will not be able to count towards Resource Adequacy until the constrained transmission is upgraded.	
4s	LS Power	<p>With regard to the MIC expansion request at Eldorado_ITC (WILLOWBEACH):</p> <ul style="list-style-type: none"> • Is the 333 MW quantity part of the 1062 MW of OOS wind in the CPUC base portfolio? • Is the temporary expansion for 2023 only available for the 333 MW requested or for the entire 1062 MW in the base portfolio? • Is any of the 1062 MWs in the base portfolio eligible for MIC at Eldorado-ITC prior to the mitigation for the Lugo-Victorville constraint being put in service? 	<p>Yes.</p> <p>Is it available to all RA contracts with delivery dates in 2023.</p> <p>MIC is allocate to the LSEs on annual bases. It is up to the LSEs choice on what RA contracts they want to use for filling in the Remaining Import Capability (read un-locked MIC) part of their allocation.</p>
4t	Large-scale Solar Association	No comment	
4u	New Leaf Energy, Inc.	No comment	
4v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	No comment	
4w	Pacific Gas & Electric	No comment	
4x	San Diego Gas & Electric	No comment	
4y	Shell Energy	No comment	
4z	Southern California Edison	No comment	
4aa	Vistra Corp.	No comment	

5. Please provide your organization’s comments on the Preliminary Policy Assessment Results for the SCE and GLW areas

No	Submitting Organization	Comment Submitted	CAISO Response
5a	ACP – California	<p>As CAISO continues to evaluate the public policy needs for the 2022-23 TPP in the SCE and GLW (and other areas), we urge CAISO to explore opportunities to “get ahead” of the anticipated needs in next year’s TPP, by looking at the 30 MT Sensitivity Case to help guide the approval of projects in this year’s TPP. This is important because it is expected that the base case for the 2023-24 TPP will look very similar to the 30 MT Sensitivity case currently being studied by CAISO and because of the substantial delays that are being experienced in bringing transmission projects online. Given these delays and the potential for further delays due to supply chain issues, getting transmission projects that will ultimately be necessary approved as quickly as possible should be prioritized to support system reliability and resilience.</p> <p>We also ask that CAISO work to provide an update on the likely project approvals that it is considering for the 2022-23 TPP ahead of the March Draft Transmission Plan release. If CAISO could host an informal workshop by the end of January providing preliminary direction on likely approvals, it would be incredibly valuable to generation developers as they make decisions about proceeding forward in the interconnection and deliverability processes. This, in turn, would be valuable to CAISO in better queue management. Thus, we urge CAISO to work to provide some information on likely approvals by the end of January 2023.</p>	<p>The comment has been noted.</p> <p>The ISO will not be able to identify transmission upgrades to be recommended for approval before the draft transmission plan has been completed.</p>
5b	Bay Area Municipal Transmission Group (BAMx)	<p>Need For More Complete Information for Stakeholder Understanding of CAISO Policy-Driven Assessment</p> <p>For the policy-driven assessments, the CAISO has not provided adequate information to stakeholders to understand and independently analyze the need for proposed Policy-Driven Projects. The CAISO needs to provide the kind of data and information it has provided for the last two TPP cycles. Such information includes, for each deliverability constraint, identifying the renewable portfolio capacity (MW) levels behind the constraint, energy storage (ES) portfolio capacity (MW) behind</p>	<p>The ISO will include the information in the draft transmission plan.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>the constraint, renewable curtailment levels without mitigation (MW), etc.[1] When probed during the November 17 meeting, the CAISO indicated that there are considerably more renewal resources and deliverability constraint violations in the current TPP relative to the last year's TPP, which makes it challenging for the CAISO to present the current year's assessment results. This should not, by itself, be the justification to avoid providing the stakeholder with a complete set of information. Instead, the stakeholders should be provided every opportunity to review the detailed set of results to better understand the CAISO's policy-driven assessments and related decisions.</p> <p>Per the CAISO's FERC-approved tariff, a Category 1 policy-driven transmission solution has to be identified to be needed "in the baseline scenario and at least a significant percentage of the stress scenarios."² Since several projects are not identified as needed under the Base portfolio, they clearly do not satisfy the criteria for Category 1 transmission and, therefore, should not be approved during the current TPP cycle. Furthermore, the draft 2023-2024 CPUC portfolios or any synergy with the CAISO 20-Year Outlook³ should not be used as criteria to recommend any projects as Category 1 policy-driven transmission solutions in the current TPP. They could be classified as Category 2 policy-driven transmission solutions and can be studied in subsequent transmission planning cycles.</p> <p>Need CPUC IRP-Developed Resource Portfolios To be Informed of All types of In-State, Offshore, and Out-of-State (OOS) Transmission Costs Triggered By Them</p> <p>BAMx acknowledges that over the years, there have been improvements in the feedback loop between the CPUC Integrated Resource Planning (IRP) and CAISO TPP in terms of including appropriate scope and cost of transmission upgrades in the CPUC IRP's resource portfolio development. The CPUC resource portfolio mapping needs to abide by existing transmission constraints and trigger only potential upgrades which are likely to be cost-effective or necessary to meet policy</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>goals and reliability requirements.[4] This process entails utilizing transmission constraints and upgrade information identified in the most recent CAISO's <i>White Paper – 2021 Transmission Capability Estimates</i>, which includes forty-four (44) transmission constraints with on-peak and off-peak limits and identified upgrades.[5] As an example, in Table 1 below, we have extracted those that are applicable to SCE North of Lugo (NOL) Study Area Constraints and SCE/GLW East of Pisgah (EOP) Study Area Constraints used in the CPUC IRP process. However, it appears that these transmission capability estimates were not adequate in optimizing the in-State and out-of-State (OOS) resource selection in the 2022-2023 TPP portfolios.[6] For instance, there does not seem to be any recognition that the resources modeled in the VEA 138kV system will automatically result in the need for 230kV system upgrades, such as the Beatty 230kV project as identified by the CAISO in the current TPP.[7] Similarly, the addition of several OOS resources and other Southern Nevada resources connected to the Eldorado substation seem to be triggering multi-billion dollars upgrades to the transmission infrastructure in the SCE Eastern area, including those meant to address deliverability constraints, such as the Lugo-Victorville 500kV constraint. As shown in Table 1 below, the transmission cost estimates for additional upgrades for the SCE NOL and SCE/GLW EOP area with a sum total of \$649 million is <u>well short</u> of the potential major transmission upgrades and related costs the CAISO has identified in these two areas in the current TPP.</p> <p>Table 1: Transmission Capability Estimates for Use in CPUC's IRP process - Revised 10/28/2021</p>	

No	Submitting Organization	Comment Submitted					CAISO Response	
		Transmission Constraint	Affected Zones	Condition under which Constraint is Binding	Estimated FQDS Capability Based on On-peak Study Resource Output (MW)**		ADNU & Cost Estimate (\$million)	
					Existing System***	Incremental due to ADNU	ADNU (Time to Construct)	Cost (Escalated to COD)
		SCE North of Lugo (NOL) Study Area Constraints						
		Lugo 500/230 kV Transformer Constraint	Inyokern_North_Kramer, Victor, Prigah	On-peak	1,576	980	New Lugo 500/230kV No. 3 transformer (42 months)	\$70
		Victor-Lugo Constraint	Inyokern_North_Kramer, Victor	On-peak	1,156	430	Reconductor Lugo-Victor 230kV lines(27 Months)	\$226
		Kramer-Victor/Roadway-Victor Constraint	Inyokern_North_Kramer	On-peak, Off-peak	826	430	Loop in Kramer-Victor 115kV line into Roadway and reconductor Kramer to Lugo 230kV lines(8 months)	\$108
		GLW-VIA Area Constraints						
		Eldorado 500/230 kV Transformer #5 Constraint	Southern_Nevada	On-peak	3,360	400	New Eldorado 500/230 transformer (42 months)	\$70
		GLW-VIA Area Constraint	Southern_Nevada	On-peak, Off-peak	300	1,000	Pahrump-Sloan Canyon 230kV line rebuild and Innovation-Desert View 230kV line rebuild + other upgrades (60 months)	\$175
		Mohave/Eldorado 500 kV	Southern_Nevada	On-peak	1,560*	N/A	N/A	

In summary, major transmission upgrades are needed, which were not incorporated in the CPUC's selection of the renewable portfolios provided to the CAISO for the current transmission planning cycle. Therefore, these major transmission upgrades triggered by the 2022-2023 renewable portfolios should not be approved until further investigations regarding their need occur. Furthermore, the CPUC's 2023-2024 TPP resource portfolio development must be informed on such major transmission upgrades and costs so that it could potentially remap these resources elsewhere in the system. Without this vital step, the 2023-2024 TPP portfolios could lead to sub-optimal outcomes with potential stranded transmission investments in the long term.

SCE Metro Area

Except for the Mesa-Mira Loma 500 kV UG Cable, none of the other criteria violations identified in the on-peak SCE Metro study area occur in the Base portfolio. [8] Given the uncertainty associated with the need for the proposed SCE Metro study area mitigation alternatives[9], the CAISO should not approve them in the current TPP. Also, comprehensive transmission upgrades are identified for the sensitivity portfolio, but should not be approved in the current planning cycle. It is prudent and consistent with the CAISO Tariff to wait for the next TPP cycle to determine if such transmission solutions are needed for the Base portfolio.

The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The Draft Plan should lay out how the CAISO would determine the cost-effectiveness of the mitigation alternatives, such as Alternative 1 versus Alternative 2.[15]</p> <p>VEA 138kV System</p> <p>It is unclear to BAMx why only the 230kV (Beatty 230kV) upgrades to address multiple potential overloads on the 138kV were considered.[16] The CAISO should consider additional 138kV upgrades and compare the scope and costs of such upgrades with the Beatty 230kV project before approving the Beatty 230kV project.</p> <p>GLW 230kV System</p> <p>None of the transmission facilities except the <i>IS Tap-Radar – Northwest 138kV</i> line is overloaded in the Base portfolio.[17] Given the uncertainty associated regarding the need for the five alternatives[18] under consideration, the CAISO should not approve them in the current TPP. It is prudent to wait for the next TPP cycle to determine if such transmission solutions are needed for the Base portfolio.</p> <p>Lugo-Victorville 500kV Constraint</p> <p>Lugo-Victorville 500kV Line is overloaded in the Base Case only under one particular contingency.[19] The alternatives considered to address the potential overloads on the Lugo-Victorville 500 kV are excessive and prohibitively expensive.[20] BAMx understands from the latest Transmission Development Forum documents that the current expected operational date for the Lugo-Victorville 500 kV Transmission Line Upgrade Project that was approved in the 2016-2017 TPP is January 2025. The CAISO needs to consider additional upgrades to the Lugo-Victorville 500 kV upgrades in coordination with LADWP before approving major additional 500kV projects.</p>	<p>230kV solution is needed to accommodate the scope of portfolio resources identified in VEA system. 138kV upgrade by itself won't be sufficient or cost effective.</p> <p>The comment has been noted</p> <p>The Lugo-Victorville Constraint includes but is not limited to Lugo-Victorville 500kV line overload. Upgrade just the line by itself won't completely eliminate this area constraint.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
5c	California Community Choice Association	No comment	
5d	California Public Utilities Commission – Energy Division	<p>CPUC Staff suggests that the CAISO take under consideration the proposed 23-24 TPP base case portfolio when evaluating transmission needs resulting from the 22-23 policy driven sensitivities. CAISO noted throughout their Preliminary Policy Assessment results cases in which transmission alternatives could either serve to address the immediate transmission needs (identified when assessing the base case) or could serve to address more long-term needs (as identified when assessing the policy-driven sensitivity). As indicated in the draft mapping released with the 10/07/2022 Ruling Seeking Comments on Electricity resource Portfolios for the 2023-2024 Transmission Planning Process's^[1] 23-24 TPP base case portfolio, although the two portfolios are similar in design, some mapping details can vary, and this can play a role in transmission need outcomes. Since the CAISO will be working on developing draft results through March and will only be making recommendations to the Board of Governors in May, that may be a good opportunity for the CAISO to do a crosscheck against the upcoming 23-24 TPP base case which will be transmitted to the CAISO in February 2023. CPUC Staff is happy to collaborate with CAISO staff on this.</p>	The comment has been noted.
5e	California Public Utilities Commission - Public Advocates Office	<p>For the 2022-2023 TPP, the California Public Utilities Commission (CPUC) forwarded two resource portfolios for study. The first is a base portfolio, which includes 26,597 megawatts (MW) of new renewable resources. This portfolio achieves the equivalent of a 74 percent renewable portfolio standard and 87 percent greenhouse gas-free resources in compliance with Senate Bill 100.^[1] The second portfolio is a</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>sensitivity portfolio that includes 70,489 MW of new resources, including double to triple the amount of out-of-state wind, offshore wind, solar, and long-duration energy storage resources than in the base portfolio. Based on CAISO's resource portfolio delivery modeling, the base portfolio could be integrated into the CAISO bulk transmission system without significant mitigations. In contrast, CAISO modeling analysis for the integration of the sensitivity portfolio, which triples the state's renewable capacity, finds that significant overloads may occur with the sensitivity portfolio and thus mitigations may be needed to capture the full capacity and benefit of the sensitivity portfolio.</p> <p>While CAISO does identify where overloads might occur with the integration of the base and sensitivity portfolios, CAISO did not provide information on the type of renewable resources that are undeliverable without mitigations at specific constraints and specifically the amount of MW by resource type that are undeliverable. Nor did CAISO provide the energy storage capacity behind each identified constraint. This information is necessary to assist with determining the least cost resource portfolios.</p> <p>Cal Advocates recommends:</p> <ol style="list-style-type: none"> 1. CAISO resume its practice of providing information on the amount and type of renewable capacity that is deliverable without mitigations and the amount and type of renewable capacity that would be undeliverable without mitigations at each constraint. 2. CAISO provide cost estimates for the alternative mitigations considered. 3. CAISO complete its studies on the impact of proposed mitigations on the base portfolio to determine if proposed mitigations are needed for both the base and sensitivity scenarios. 	<p>The ISO will include the information in the draft transmission plan.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The following are Cal Advocates' additional recommendations on the 2022 Deliverability Assessment by utility service area.</p> <p><u>Southern California Edison Company (SCE) Metro Area</u></p> <p>For the Southern California Edison Company (SCE) Metro area, CAISO observes some overloads on certain lines with the sensitivity portfolio. CAISO lists possible alternatives to address these issues with the sensitivity portfolio but has not determined if upgrades are needed for the base case as well. CAISO states that further study of proposed upgrades in the SCE Eastern/San Diego Gas & Electric Company (SDG&E) area will assist with determining possible upgrades to SCE Metro system for both the base and sensitivity portfolios.[2] Cal Advocates supports additional studies to determine if any policy upgrades are justified for the SCE metro area.</p> <p><u>SCE North Lugo Area</u></p> <p>For the SCE North of Lugo (NOL) area, CAISO foresees possible overloads on certain lines with the delivery of both the base and sensitivity portfolios. CAISO proposes several different alternatives to address these system issues but does not provide cost estimates for all the project alternatives under consideration.[3]</p> <p>Cal Advocates recommends that CAISO consider an additional alternative, specifically reconductoring the Kramer-Victor 115 kV line. Cal Advocates notes that overloads are observed in both the base and sensitivity cases on the Kramer-Victor 115 kV line. The other alternatives considered propose building 230 kV and 500 kV improvements that may not be needed to address the identified issues and would be more costly.</p> <p>Cal Advocates also recommends that the requested Kramer-Victor 115 kV reconductor project evaluation as well as the evaluation for the other suggested project area mitigations for the SCE NOL area also involve an evaluation of the alternatives</p>	<p>The comment has been noted.</p> <p>Cost information will be provided in the draft transmission plan</p> <p>The ISO does not believe reconductoring the Kramer-Victor 115 kV lines is an appropriate development for the NOL area. As can be seen from the preliminary results, in addition to the 115 kV lines being overloaded following a P7 outage of the parallel Kramer-Victor 230 kV lines, the contingency also causes voltage collapse because of the inability of the weak 115 kV lines to support the system north of Victor during the outage.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>effectiveness at reducing area congestion. This additional analysis will assist with determining the most cost-effective alternative with respect to meeting the state’s goals and reducing area congestion.</p> <p>Cal Advocates also recommends that CAISO provide cost estimates for all alternatives considered.</p> <p><u>SCE Northern Study</u></p> <p>For the off-peak SCE Northern Study area, CAISO observes more significant overloads in the sensitivity case than in the base case. CAISO proposes making operational changes to provide additional capacity when needed. Cal Advocates supports this plan of action.</p> <p><u>SCE Eastern Area</u></p> <p>For the on-peak evaluation of the SCE Eastern Area, CAISO finds the New Devers-Mira Loma 500 kV transmission line is not needed to support the base case portfolio.[4] Cal Advocates, therefore, recommends that this project not be considered as a necessary mitigation for the SCE Eastern Area.</p> <p>Additionally, Cal Advocates recommends CAISO further study the Imperial Valley – North Gila 500 kV transmission line, which is suggested as an alternative mitigation for the SCE Eastern Area.[5]</p> <p>The \$377 million Imperial Valley – North Gila 500 kV line would provide a second connection between the North Gila substation in southern Arizona and the Imperial Valley substation in SDG&E territory. Between those two points, it would also loop in a new substation (Dunes) in the service area of the IID (outside of CAISO).[6] The line connects to at least two entities outside the CAISO Balancing Authority Area (BAA), and thus CAISO should determine how the capacity, benefits, and costs of the</p>	<p>Cost information will be provided in the draft transmission plan for all alternatives considered</p> <p>The comment has been noted.</p> <p>The comments have been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>line would be equitably distributed before making any decisions regarding this project. IID has volunteered to be responsible for \$105 million of the \$377 million capital cost, but neither the CAISO nor IID has specifically outlined what the terms would be for this investment.^[7] While the line would likely provide benefits to Arizona ratepayers, the evaluation process for interregional projects has not quantified those benefits or indicated what Arizona's share of the project's costs would be.^[8] Before CAISO approves this project, CAISO should estimate the project benefits to ratepayers outside the CAISO BAA and propose a cost sharing agreements commensurate with estimated benefits.</p> <p><u>Gridliance West Area</u></p> <p>CAISO's deliverability analysis for the Valley Electric Association (VEA) 138 kV system demonstrates that there could be significant overload issues with integrating the base and sensitivity portfolios as proposed in the VEA service area.^[9] CAISO recommends upgrades to VEA's connecting 230 kV system but does not consider upgrades to the 138 kV system. Cal Advocates recommends that CAISO consider upgrades to the 138 kV system as well to address the noted overload issues.</p> <p>For the Gridliance West (GLW) 230 kV system constraints, CAISO's results reveal that significant overloads may occur with the integration of the sensitivity portfolio on the GLW 230 kV system. To respond to these identified overloads with the integration of the sensitivity portfolio, CAISO presents several mitigation alternatives.^[10] However, these alternatives represent a breakdown in the processes that the CPUC and the CAISO have established for identification and consideration of new transmission projects.^[11] These alternatives were not assessed during the CPUC's busbar mapping process, as part of the Integrated Resources Planning (IRP) proceeding, and as such the CPUC and stakeholders have not had the chance to</p>	<p>The comments have been noted</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>assess whether these project alternatives are cost-effective and efficient ways to access renewable energy.<u>[12]</u></p> <p>The CPUC’s resource-to-busbar mapping process attempts to geographically locate new resources at substation interconnection points on bulk transmission networks to help assess where transmission upgrades might be needed to support the CPUC’s recommended resources portfolio.<u>[13]</u> This process identifies upgrades that may be triggered by the resource portfolio.<u>[14]</u> The proposed GLW Alternatives project mitigations 2, 3, and 4<u>[15]</u> have not been included in the CPUC’s IRP bus-bar mapping process.</p> <p>GLW Alternatives 2, 3, 4 would connect the GLW system to SCE’s Lugo substation, at a cost of \$2.56 billion, \$2.84 billion, and \$2.73 billion, respectively.<u>[16]</u> These projects would substantially increase the amount of revenue that GLW would collect from all CAISO ratepayers, and because these projects have not been vetted in the CPUC’s IRP process, it is unclear what benefits CAISO ratepayers would receive for this significant proposed investment. CAISO’s analysis also does not specify the incremental megawatts that these alternatives would unlock to justify these upgrades.</p> <p>These alternatives should first be evaluated in the CPUC’s IRP process. In addition, CAISO should consider establishing a working group that would assess the viability of resources in southern Nevada and quantity of these resources needed to meet the state’s clean energy goals, with the goal of determining if additional, large-scale transmission connections represent cost-effective investments.</p> <p>To conclude, since the GLW alternatives mitigations presented are only necessary to support the sensitivity portfolio and are not required to support the integration of the base portfolio, they should be further studied and preferably through the recommended working group.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
5f	California Western Grid Development, LLC	<p>Cal Western is not surprised to see that the CAISO has found a considerable amount of new transmission will be needed to support the CPUC Base and Sensitivity Portfolios. We are pleased the CAISO has included an assessment of deliverability needs within the LA Metro Study area, not simply delivery to the LA Metro Area.</p> <p>However, we urge the CAISO not to view the problem too narrowly. More than deliverability is at stake. Finding the best solutions to achieve deliverability may require stepping back and looking at a broader range of needs for the LA Metro Area.</p> <p>The 11/17/22 CAISO presentation shows at Slide 52 of 358 alternative solutions ranging in cost from \$810 million to \$860 million to address deliverability constraints within the SCE Metro study area.</p> <p>Cal Western urges CAISO review the robustness of these project alternatives with a broader set of objectives in mind, e.g., with a goal of not only meeting deliverability needs driven by the assumed generator mapping of new resources, but additional needs driven by policy objectives such as reduced LCR requirements, reduced reliance on the Aliso Canyon Gas Storage facility, enabling offshore wind, reduce wildfire risk and increased wildfire mitigation, and repurposing legacy transmission that was built to deliver coast fossil generation output to load.</p> <p>In other words, if the CAISO were to approve a subsea transmission line into the LA Basin such as shown in transmission alternates 1A, 2B or 2C from the CAISO special study on Reduced Reliance on Aliso Canyon (slide 354 of 358) how might that change the need for the \$810 to \$860 million of SCE Metro area deliverability projects?</p> <p>And, by focusing on simply solving deliverability needs the CAISO may miss valuable opportunities. Slide 350 of 358 of the Stakeholder Presentation identifies major new transmission</p>	<p>The comment has been noted.</p> <p>The comments have been noted, the ISO has taken into consideration the mapping of the resources in the CPUC portfolios to determine the transmission needs to make the portfolio deliverable to load.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>alternatives needed to bring resources into SCE’s Metro LA service area to accommodate the potential closing of Aliso Canyon, including a project like PTEP. PTEP was not designed simply to allow the State the option to reduce reliance on Aliso Canyon. Yet, CAISO’s conclusion (see, slide 350) is correct, PTEP can be an important factor to support the policy objective of reduced reliance on Aliso canyon. But PTEP does so much more. PTEP also:</p> <ul style="list-style-type: none"> • Delivers new clean energy into transmission constrained West Los Angeles (“LA”) and reduces Local Capacity Requirements (“LCR”) on a MW for MW basis. • Reduces reliance on fossil generation in the LA Basin area, improves air quality generally and particularly in disadvantage communities. • Does not involve much if any wildfire risk and mitigates the risk of wildfires reducing power flows from the East (<i>SB 887 provides that “new transmission facilities should be designed to minimize the risk of Transmission-triggered wildfires.”</i>) • Allows for the delivery of offshore wind or terrestrial energy from northern and central California and provides another outlet for energy delivered to Diablo Canyon if the closing of Diablo Canyon is delayed further and absorbs the transmission capacity at Diablo Canyon. • Reduces congestion on Path 26 and can move power North to South or South to North. 	

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> • Provides the CAISO with tremendous operating flexibility as the VSC Converters provide the same operating flexibility as large generators and will reduce congestion within the SCE Metro area and may reduce the need for \$810 to \$860 million of new Metro Area transmission. • Produces other quantifiable economic benefits that offset half of its Project cost not counting unquantifiable benefits like wildfire risk mitigation and clean air benefits. <p>We urge CAISO to select projects based on the cumulative benefits projects provide in meeting a broad range of policy, economic and deliverability objectives.</p>	
5g	California Wind Energy Association	CalWEA is pleased that the CAISO has identified multiple alternate transmission upgrade options to meet the IRP policy target given the substantial need for transmission over the long term. As part of selecting the most suitable upgrade transmission alternatives, we urge CAISO to perform analysis to determine how much incremental deliverability each upgrade option provides, and to share the results with stakeholders. Such analysis should be properly coordinated with the generation interconnection studies to determine which upgrades would provide the largest increase in deliverability available to the generation in the queue.	The comment has been noted.
5h	Center for Energy Efficiency and Renewable Technologies (CEERT)	CEERT believes that heavy weighting should be given to the 2035 sensitivity resource portfolio based on the CEC's high electrification load forecast and a 30 MMT GHG target for 2030 in assessing the need for proposed policy-driven transmission project the the SCE and GLW areas. It is notable that in the SCE metro area, the sensitivity scenario triggers multiple constraints that are not seen in the base case. Given the long-lead time for high voltage transformers that will be needed the CAISO should immediately signal its commitment to projects that alleviate the metro area constraints.	The comment has been noted

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The age-based assumption about the potential retirement of thermal generation is reasonable at this time. However, in the future CEERT recommends that more thermal retirement should be modeled in considering the need for policy-driven transmission. It is important to note that the policy-driven transmission projects expand renewable development opportunities in multiple areas both inside and outside of California, including wind from Wyoming, Idaho and New Mexico, solar from Arizona, and wind, geothermal and solar from Nevada. As EDAM moves forward there will be more opportunities to integrate more out-of-state resources to help meet California GHG goals and reliability needs.</p> <p>For the North-of-Lugo area, CEERT supports development of the 500 KV upgrade option between the Kramer and the Lugo substations. This option will enable further development of renewable resources in regions north of Lugo.</p> <p>For the SCE Eastern area, CEERT supports development of both Alternative 1 (new Red Bluff to Devers 500 kV line and Devers to Mira Loma 500 kV line) and Alternative 2 (new North Gila to Imperial Valley 500 kV line and Imperial Valley to Serrano 500 kV line). While Alternative 1 alleviates sensitivity case constraints, there will still be constraints at the Colorado River substation that will need to be mitigated by a remedial action scheme.</p> <p>CEERT believes that top priority needs to be given to including transmission projects that enable resource development to occur in the Greater Imperial region. Geothermal opportunities in the Imperial Valley are important both to creating economic development in this historically underserved region and to mitigate the toxic impacts from the reduction of water inflows to the Salton Sea.</p>	<p>Comments regarding thermal generation retirement assumptions should be submitted to the CPUC.</p> <p>The comment has been noted</p> <p>Your comment and support has been noted.</p> <p>The comment has been noted</p>
5i	City of San Jose	No comment	
5j	Clearway Energy Group	SCE Eastern area:	

No	Submitting Organization	Comment Submitted	CAISO Response
5k	Coalition for the Optimization of Renewable Development	<p>C.O.R.D. supports the request of GridLiance West (GLW) and strongly urges the CAISO to approve the Beatty Upgrade as well as the upgrades from Innovation to Desert View in the GLW area. C.O.R.D. supports these upgrades because of their significance to disencumbering deliverability of renewable resources in Nevada proximate to the GLW portion of the CAISO.</p> <p>The region has excellent site attributes which have attracted renewable developers including: excellent solar insolation; access to large unparcelized areas with favorable topography; access to rich geothermal resources in Nevada; reasonable proximity to qualified labor; a stable and predictable permitting environment; fewer endangered or threatened species in comparison with California by a factor of approximately 4 (28:121 as of July 2016); as well as low population density. As a result, the region is an area of high commercial interest for renewable development that is well-suited to provide timely, low-cost, reliable, renewable energy to California in order to help meet its green house gas (GHG) reduction and renewable portfolio standard (RPS) goals. This is demonstrated by the fact that there are currently over 6,600MW of renewable generation (solar, geothermal and wind) and approximately 2,200MW of 4-hour battery storage currently requesting interconnection to the CAISO grid from the region.</p> <p>These facts are further supported by the California Energy Commission's (CEC's), California Public Utility Commission's (CPUC's), and CAISO's own findings in RETI 2.0 which identified the region as having "... some of the highest energy resource potential, commercial interest, and advanced planning examined in RETI 2.0." With expanded Southern Nevada transmission capabilities, California's ability to effectively utilize and develop the region's resources would be significantly higher taking advantage of Southern Nevada's high availability of land with over 100,000 MW of high quality solar, wind, and geothermal potential.</p>	Thank you for the comment and support.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Considering the commercial interest and resource potential outlined above, C.O.R.D. would like to point to GLW's analysis using RESOLVE that demonstrates with an additional \$260 million in cost-effective transmission upgrades, their system would be capable of delivering over 4100MW of renewable energy from the Southern Nevada region of the CAISO, nearly doubling the current amount of fully deliverable renewable resources sited in the 2021 PSP, at a cost-savings of over \$100 million annually to California ratepayers.</p> <p>C.O.R.D strongly urges the CAISO to approve the Beatty Upgrade as well as the upgrades from Innovation to Desert View in the GridLiance West area. This course of action will: save ratepayers money by allowing them to recover the costs for the proposed transmission upgrades in less than a 3 year period once the upgrades are completed; ensure that resources already requesting interconnection with the CAISO are brought into service as efficiently as possible to meet California's GHG reduction and increased RPS policy goals; and provide for increased geographic diversity of resources positively impacting grid reliability and strengthening the CAISO system's resource adequacy.</p>	
51	Defenders of Wildlife	<p>Between 1,179 and 3,272 MW of FCDS+EO of generic portfolio resources have been modeled to impact SCE's North of Lugo area, with most of that being solar development. However, the Desert Renewable Energy Conservation Plan (DRECP) designated North of Edwards Development Focus Area (DFA) located just north of Kramer is closed to solar energy applications at this time and should be removed from consideration for energy development until the Bureau of Land Management (BLM) resolves the status of this DFA. This area has been identified by the California Department of Fish and Wildlife as critically important to the ongoing survival and viability of the declining Mohave ground squirrel. At the conclusion of the DRECP planning process, the BLM agreed to close this DFA to solar energy applications and development pending a review by the BLM and CDFW to determine if Mohave ground squirrel</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>conservation should be the priority designation (BLM letter September 14, 2021, attached).</p> <p>At this time, the BLM and CDFW have not resolved the status of this DFA. The North of Edwards DFA should be removed from any expectation of energy development potential since it is not currently open to renewable energy development and there is a high likelihood that this area will never be opened to development due to the presence of Mohave ground squirrel and the importance of this area to this species' long-term viability. Therefore, any significant transmission investment at North of Lugo, particularly at Kramer, predicated on energy or storage development within the North of Edwards DFA runs the risk of stranded assets and is premature at best.</p>	
5m	EDF-Renewables	<p>With respect to the potential on-peak SCE Eastern Area mitigation alternatives EDF-R supports the CAISO's selection of Alternative 1. This area has historically been an area of concern, and the selection of Alternative 1 which mitigates the identified area deliverability constraints is preferable to the selection Alternative 2 which would require continued use of the West of Colorado River CRAS to mitigate the Devers-Red Bluff on-peak constraint. Furthermore, Alternative 1 is projected to cost considerably less for ratepayers, and as a result of having a smaller scope than Alternative2, is likely to have a shorter construction timeline. Understanding CAISO's point that the SCE Eastern Area upgrades cannot be considered in a vacuum, EDF-R looks forward to better understanding the interplay between the Eastern Area mitigation and the mitigation needs of the SCE Metro Area and requests that the CAISO provide greater detail on the various affects in the next document.</p>	The comment has been noted.
5n	Fervo Energy	<p>The proposed GLW expansion would provide access to facilitate development of new geothermal resources in Nevada, resources that can help support decarbonization goals and provide a mechanism for resources within the CAISO footprint, not subject to MIC allocation, to be available to provided needed RA capacity and thus further reduce reliance on GHG-emitting fossil resources. This potential benefit should be incorporated into the ranking of policy-related transmission planning.</p>	Thank you for the comment and support.

No	Submitting Organization	Comment Submitted	CAISO Response
5o	Wellhead Electric Company, Inc.	No comment	
5p	Gallatin Power Partners	<p>Gallatin Power Partners is supportive of the Assessment Results for the SCE and GLW areas, particularly the inclusion of the 230kV Beatty Upgrade. Gallatin would like to note that with permitting challenges around the Amargosa area in Nevada, more renewable projects are viable, and likely, further North in Nevada near the proposed Esmeralda substation. In future cycles, Gallatin would like to see additional upgrades North of Amargosa considered to accommodate this generation, and eventually see GLW run North to the proposed Esmeralda substation. Gallatin recommends that CAISO expedite consideration of upgrades increasing the Transfer capability from Beatty to Sloan to accommodate larger amounts of renewables from Nevada such as Trout to Sloan upgrade to 500 kV.</p>	Thank you for the comment and support.
5q	Golden State Clean Energy	No comment	
5r	GridLiance West	<p>First, GLW offers a general comment regarding the policy assessments. With respect to the portfolios, GLW strongly encourages the CAISO to plan towards the Policy Sensitivity Case. The base case is a 38 MMT carbon goal, whereas the sensitivity case is a 30 MMT goal. The CPUC has proposed that the base portfolio for the 2023 – 2024 TPP be a 30 MMT case, and the total renewable need for that case is predicted to be even higher than the policy sensitivity case that the CAISO is studying this cycle. As such, not seeking approval for CAISO upgrades implicated by the policy sensitivity case would only result in a delay in the upgrades.</p> <p>With respect to the SCE and GLW area assessment results, GLW certainly urges the CAISO to recommend approval of the Beatty upgrade and the upgrades to Innovation to Desert View upgrades. The Beatty upgrades are critical to LSEs being able to deliver geothermal energy from Nevada. LSEs, in their filed IRP plans, have specifically sought increased transmission capability through the CAISO to deliver these Nevada-area geothermal</p>	Thank you for the comment and support.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>resources in development, and the upgrades on Innovation to Desert View are also needed to provide deliverability for that geothermal capacity coupled with other wind, solar and storage resources selected in the portfolios. The upgrades being considered are incredibly cost-effective relative to upgrades to CAISO import paths and deliverability across other main corridors in the CAISO. Further, the Beatty upgrade and the upgrades to Innovation to Desert View can be built quickly in comparison to upgrades to the CAISO import paths and deliverability across other main corridors in the CAISO.</p> <p>A question arose during the November meeting as to whether the renewable portfolio resources would still be selected if the cost of these transmission upgrades were factored into the capital expansion decisions. GLW performed a study that to a great extent addresses this issue for the CPUC's IRP process. GLW used RESOLVE and upgraded the capacity of the GLW network at the cost of the GLW Upgrade enhancement project submitted in the economic window. This enhancement included the Innovation to Desert View upgrade and several others, at a cost of approximately \$270 million. With these upgrades in place, RESOLVE fully builds out the renewables in this area, and the resulting capital expansion cost savings with these upgrades factored in was found to be over \$100 million per year – well beyond the cost recovery requirements of these upgrades. GLW has also provided with these TPP comments a set of comments to the CPUC detailing this upgrade enhancement opportunity and savings analysis.</p>	
5s	LS Power	No comment	
5t	Large-scale Solar Association	<p><u>General comments</u></p> <ul style="list-style-type: none"> • Some of the analyses are incomplete and not indicative of Transmission Plan approval of new upgrades for this cycle. The results in the SCE Metro and SCE North of Lugo areas seem to apply to the sensitivity case and not the base portfolio, i.e., most of the base-portfolio results are shown as “TBD,” and there are several statements like “some of the 	<p>As noted in the comment, the ISO did indicate that some of the mitigations identified for the sensitivity portfolio may be needed for the base portfolio. This is not because the Metro area analysis was incomplete but rather because of the interaction between the need for transmission in the Metro area and transmission developments</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>mitigations identified for the sensitivity portfolio may be needed for the base portfolio” (emphasis added). Thus, it appears that much of the base-portfolio analysis has not yet been performed. This seems backward, especially since only the base-portfolio analyses can trigger transmission upgrades for approval in this cycle.</p> <p>While the sensitivity case is similar to the proposed 2023-2024 base portfolio, so the results of those analyses are perhaps indicative of upgrades that might be approved in that next cycle, there are not yet any solid base-portfolio proposals to assess, i.e., indications of upgrades that will apply to the initial Cluster 14 participation in the Transmission Plan Deliverability (TPD) Allocation process.</p> <p>It is particularly important for both the CAISO and developers that information on upgrades in these critical areas that might actually be approved in this cycle be provided as soon as possible – i.e., before the January 13th Initial Interconnection Financial Security (IFS) posting for Cluster 14 projects, and well before issuance of the draft Transmission Plan in March. If the CAISO wants developers to withdraw projects that are infeasible without deliverability, it must provide information that can be used to distinguish feasible from infeasible projects.</p> <ul style="list-style-type: none"> • The upgrades that could be triggered by base-portfolio analyses may not provide deliverability for many projects in the applicable areas. There is no indication of whether deliverability from some transmission upgrades that might be approved could be held back “for the purposes for which they were approved,” i.e.: (1) the fate of the TPP Enhancements initiative where that proposal was made; or (2) determination of which upgrades indicated in the 	<p>ultimately selected in the upstream SDG&E and SCE Eastern study areas.</p> <p>The comment has been noted.</p> <p>The comment has been noted.</p> <p>The transmission planning process enhancements process is ongoing. The ISO existing tariff allows for MIC expansion through the transmission planning process, which the portfolio from the CPUC has indicated for the out-of-state resources identified on new transmission.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>analyses could be used to provide deliverability to certain resources but not others.</p> <ul style="list-style-type: none"> • Some solutions or options include mitigation through energy storage charging, but this mitigation might not be feasible. This issue is explained further below under comments below for the PG&E area, where reliance on energy storage as mitigation is pervasive. <p>Specific comments</p> <ul style="list-style-type: none"> • LSA strongly supports the proposed on-peak mitigation alternatives identified for the SCE eastern area. Deliverability has basically “run out” in these areas; these upgrades are needed to accommodate new generation development to meet state reliability and renewables goals. • More information should be provided about the timing of transmission needs. For example, it’s not clear when the Lugo-Calcite 230 kV constraint appears in the SCE North of Lugo area, since it was not evident in the 2022 Transmission Plan Deliverability (TPD) allocation process. 	<p>Please see response to comment 7u.</p> <p>Your comment and support has been noted.</p> <p>The comment has been noted.</p>
5u	New Leaf Energy, Inc.	No comment	
5v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	NGIV2, LLC, Imperial Irrigation District (IID), Citizens Energy, and Valley Power Connect LLC appreciate CAISO’s tremendous efforts in identifying long term transmission solutions for the ever evolving and complex California grid. While Alternative 1 is cheaper than Alternative 2 as mitigation for relieving just the thermal overloads, we respectfully request the CAISO consider the following long term additional benefits and considerations:	<p>The comments have been noted.</p> <p>The ISO is assessing the regional need for the ISO controlled grid. An economic study request was submitted for a joint project with IID to for a 500 kV line from North Gila-Imperial Valley with a new 500 kV switchyard at IID Highline Substation and one (1) 500/230 kV transformer. The ISO is continuing to explore a potential joint project with IID.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<ol style="list-style-type: none"> 1. Alternative 2, with its second 500 kV circuit from the North Gila Substation to the Imperial Valley Substation, provides an additional transmission import path for both the Southern California Edison (SCE) and San Diego Gas & Electric (SDGE) areas, as opposed to just the SCE area served in Alternative 1. 2. It also paves the way to integrate added in-state resources in the Imperial Valley in Southeast California, as well as out-of-state resources at the North Gila Substation in Arizona. 3. In addition, it will also help create a loop between the SDGE, SCE, and Palo Verde electric transmission systems that will provide added reliability benefits. 4. We believe this loop will relieve reliability, deliverability and economic constraints that have resulted from the retirement of the San Onofre Nuclear Plant and Once-through-Cooling plants along the California Coast from SDGE to SCE. <p>Specific to the Alternative 2 configuration - the Imperial Valley to Serrano 500 kV segment will need new right of way through difficult terrain and environmentally and culturally sensitive areas. Also, this line would potentially pass-through areas with little to no future load growth or generation integration potential.</p> <p>We would request CAISO to consider a modified alternative that consists of the NGIV2 Project with a 500 kV circuit from the proposed Dunes 500 kV Substation (near IID's Highline 230 kV Substation) to the Serrano Valley Substation following existing transmission corridors along the Salton Sea in the Imperial Valley. The NGIV2 Project includes a 500 kV line between the North Gila Substation to the Imperial Valley Substation with a 500 /230 kV tap substation called Dunes Substation that will connect into IID's Highline 230 kV system. This suggested</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>alternative has the following benefits compared to CAISO's Alternative 2 configuration:</p> <ol style="list-style-type: none"> 1. Creates an added tie with IID at the Highline Substation. IID is open to shared cost allocation for the NGIV2 Project. 2. The NGIV2 Project has a Phase II path rating increasing the West of River (WOR) rating by an incremental 1250 MWs. 3. The proposed Dunes to Serrano Valley Line will lay the groundwork for future geothermal expansion and other renewable resources in the vicinity. The proposed line will support the load growth driven by the lithium extraction from the thermal resource while supporting the growing demand for the chip industry. The California Energy Commission through a CA law in 2020 provided research support resulting in three developers bringing these plants online in the 2023-24-time frame. This initiative has state-wide interest and support, as well as support in the region. 4. Ability to collocate or expand the existing transmission corridor around the Salton Sea for future economic development and a pathway for the growing demand for load in the region. 	
5w	Pacific Gas & Electric	No comment	
5x	San Diego Gas & Electric	No comment	
5y	Shell Energy	No comment	
5z	Southern California Edison	<p>SCE greatly appreciates the continued diligence into transmission need evaluation in southern California and southern Nevada and looks forward to continued collaboration on issue identification and scope development of all maturity levels. SCE would like to reinforce the CAISO's statements regarding the North of Lugo (NoL) area assessment. The addition of portfolio resources in the NoL area will both increase RAS complexity and require additional transmission expansion.</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Furthermore, SCE agrees with the CAISO's approach of considering upgrades that provide capacity and address P7 outages, which would significantly help simplify RAS in the NoL area. For the 500 kV transmission development alternative, SCE would like CAISO to consider additional alternatives in future TPP cycles in addition to the Kramer-Lugo 500 kV option due to the large number of 500 kV lines already connected to Lugo Substation. Given the possibility of needing a new 500 kV line from the Eldorado or Mohave Substation areas to Lugo Substation and new developer interest in Lugo 500 kV as a point of interconnection, other project concepts could accomplish the same goal as the Kramer-Lugo 500 kV option but does so without creating physical line congestion near and within Lugo Substation.</p> <p>The CAISO's Policy Assessment Results also show the need to increase capacity from southern Nevada to Lugo Substation for the purpose of relieving known constraints that can and/or will limit the import of renewable energy. There were multiple novel project concepts that were presented, and SCE looks forward to additional maturation of the various concepts for consideration in future cycles.</p> <p>In the Eastern area, SCE agrees that upgrading the rating of various existing 500 kV and 230 kV lines would be a cost effective first step. Regarding RAS in this area, although SCE's Eastern area RAS have been converted to the more modern and flexible CRAS, additional generation development in this area is still increasing CRAS complexity, similar to the NoL area, as such new lines and substations are still likely to be needed in the future.</p> <p>In the Metro area, SCE appreciates the significant efforts to evaluate the policy driven scenario. With regards to specific mitigations identified, SCE agrees that a concept such as a new Mesa – Serrano 500 kV line as well as upgrading the underground segment of the existing Mesa – Mira Loma 500 kV line and various other terminal upgrades in the area would be</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p> <p>The comments have been noted.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>common to alternatives 1 and 2, and are worthy of further evaluations. Similar to the Eastern area, the potential to extract more capacity from existing transmission lines may exist, however SCE's own 2045 studies have shown a need for a 500 kV substation deeper into the LA Basin such as Del Amo 500 kV Substation with gas generation retirements and transportation electrification. .</p> <p>With these future conceptual projects, SCE anticipates short-circuit duty (SCD) analysis will be required to fully assess the impacts to the system and looks forward to supporting the CAISO on required studies. Performing some of the required studies prior to scoping, can help ascertain the feasibility of project concepts, while also assuring safety and reliability of substation infrastructure. Lastly, SCE requests clarification on whether conceptual estimates include items such as real estate, licensing/permitting, and environmental expenses.</p>	<p>The comment has been noted. In the draft transmission plan the cost estimates include estimates for additional costs such as real estate, licensing/permitting, and environmental expenses.</p>
5aa	Vistra Corp.	No comment	

6. Please provide your organization's comments on the Preliminary Policy Assessment Results for the SDG&E area

No	Submitting Organization	Comment Submitted	CAISO Response														
6a	ACP – California	Please see comments above (#5) for ACP-California's overall comments on the Preliminary Public Policy Assessments for the 2022-23 TPP.	The comment has been noted.														
6b	Bay Area Municipal Transmission Group (BAMx)	<p>As shown in Table 2 below, the costs associated with the options considered by the CAISO vary significantly from \$1.3B to \$3.6B. [1] Given the uncertainty associated regarding the need for the six options under consideration, the CAISO should not approve them in the current TPP. Furthermore, the Draft Plan should lay out how the CAISO would determine the cost-effectiveness of these options, including any economic assessment that the CAISO would perform in subsequent planning cycles.</p> <p>Table 2: Considered Transmission Options and Related Costs in San Diego Study Area</p> <table border="1" data-bbox="516 821 1188 1151"> <thead> <tr> <th>Alternative</th> <th>Capital Cost (M\$)</th> </tr> </thead> <tbody> <tr> <td>Option 1: BES 1-3</td> <td>\$1,324M</td> </tr> <tr> <td>Option 2: BES 1-4</td> <td>\$1,305M</td> </tr> <tr> <td>Option 3: IV-Serrano (no SC)</td> <td>\$3,286M</td> </tr> <tr> <td>Option 4: IV-Serrano with 70% SC</td> <td>\$3,265M</td> </tr> <tr> <td>Option 5: IV-Serrano with 70% SC & BES Part 1</td> <td>\$3,640M</td> </tr> <tr> <td>Option 6: IV-Serrano with 70% SC</td> <td>\$3,265M*</td> </tr> </tbody> </table> <p>*Costs are not identified for some elements in this Option</p>	Alternative	Capital Cost (M\$)	Option 1: BES 1-3	\$1,324M	Option 2: BES 1-4	\$1,305M	Option 3: IV-Serrano (no SC)	\$3,286M	Option 4: IV-Serrano with 70% SC	\$3,265M	Option 5: IV-Serrano with 70% SC & BES Part 1	\$3,640M	Option 6: IV-Serrano with 70% SC	\$3,265M*	The comments have been noted.
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6c	California Community Choice Association	No comment															
6d	California Public Utilities Commission – Energy Division	No comment															
6e	California Public Utilities Commission - Public Advocates Office	No comment															

No	Submitting Organization	Comment Submitted	CAISO Response
6f	California Western Grid Development, LLC	No comment	
6g	California Wind Energy Association	Our response to Question 5 also applies here.	Please see response to comment 5g above.
6h	Center for Energy Efficiency and Renewable Technologies (CEERT)	<p>As noted above CEERT supports the strong consideration of the 2035 sensitivity resource portfolio in evaluating the need for policy-driven transmission in the SDG&E area. Transmission projects in the SDG&E area will be critically important for the development of geothermal, solar and battery projects in the Imperial Valley.</p> <p>CEERT favors transmission Options 3 through 6 that all include a new 500 kV line from the Imperial Valley substation to the Serrano substation. More cost information is needed for each of these alternatives that will enable the CAISO to recommend a preferred solution in the 2022-2023 transmission plan. Also the transmission options need further analysis as to their impact on deliverability to load centers.</p>	Your comment and support has been noted.
6i	City of San Jose	No comment	
6j	Clearway Energy Group	No comment	
6k	Coalition for the Optimization of Renewable Development	No comment	
6l	Defenders of Wildlife	No comment	
6m	EDF-Renewables	No comment	
6n	Fervo Energy	No comment	
6o	Wellhead Electric Company, Inc.	<p>Wellhead Electric welcomes CAISO's identifying six transmission upgrade options to meet the policy target in the SDG&E area. However, the incremental deliverability associated with each option was not provided, leaving it hard to judge which options provide the biggest bang for the buck. We would like to see that CAISO release data on how much incremental deliverability each upgrade option provides, as well as how the incremental deliverability impact generators in the interconnection queue.</p> <p>We also noticed that the PG&E area presentation provides the amount of BESS needed to mitigate off-peak issues. BESS is an</p>	The comments have been noted.

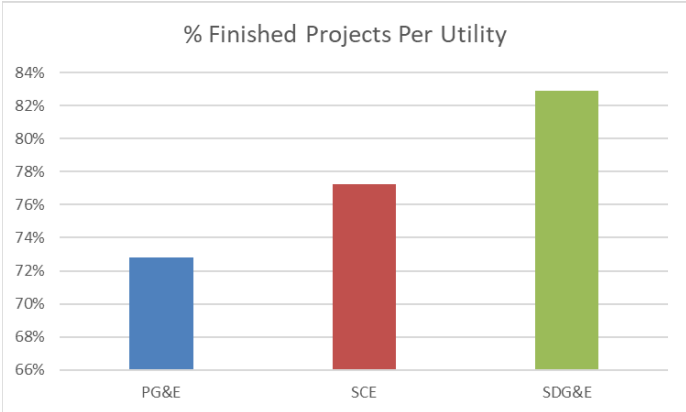
No	Submitting Organization	Comment Submitted	CAISO Response
		efficient solution that provides RA benefit and alleviate transmission congestion when dispatched by CAISO. We propose that CAISO explores ways of re-dispatching BESS to relieve overloads in SSN deliverability assessment under SSN scenarios.	
6p	Gallatin Power Partners	No comment	
6q	Golden State Clean Energy	No comment	
6r	GridLiance West	No comment	
6s	LS Power	No comment	
6t	Large-scale Solar Association	<p>General comments: As with the SCE/VEA/GLW results, there is no indication of whether the recommended mitigation will apply only to certain resources and not others – see the comments above regarding the TPP Enhancements initiative.</p> <p>Specific comments: LSA strongly supports the proposed on-peak mitigation alternatives identified for the SDG&E area, particularly the BES upgrades. Deliverability has basically “run out” in this area, and these upgrades are needed to accommodate new generation development to meet state reliability and renewables goals.</p>	The comments have been noted.
6u	New Leaf Energy, Inc.	No comment	
6v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	<p>We request that CAISO consider our proposed alternative (NGIV2 with IID Highline to Dunes connection + Dunes to Serrano 500 kV) described above in the SCE Preliminary Policy Assessment results as the long-term solution to relieve the constraints in the SDGE area along with SCE area.</p> <p>As described in the above section, we believe this transmission alternative can create an effective loop with SDGE, SCE and the Palo Verde hub.</p>	The comments have been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		By adding injection capability at the Serrano 500 kV Substation, we believe this configuration should help relieve the SDGE's key constraints in the San Onofre-Encina-San Luis Corridor.	
6w	Pacific Gas & Electric	No comment	
6x	San Diego Gas & Electric	No comment	
6y	Shell Energy	No comment	
6z	Southern California Edison	SCE greatly appreciates the continued diligence into transmission need evaluation in Southern California. Noting currently in early stages of development, SCE looks forward to continued collaboration on scope development of all maturity levels.	The comment has been noted.
6aa	Vistra Corp.	No comment	

7. Please provide your organization's comments on the Preliminary Policy Assessment Results for the PG&E area

No	Submitting Organization	Comment Submitted	CAISO Response
7a	ACP – California	Please see comments above (#5) for ACP-California's overall comments on the Preliminary Public Policy Assessments for the 2022-23 TPP.	The comment has been noted.
7b	Bay Area Municipal Transmission Group (BAMx)	BAMx supports relatively low-cost mitigation measures like the Series compensation on Collinsville-Pittsburg 230 kV lines and Series compensation on Contra Costa-Newark 230 kV path.[1] BAMx also appreciates the CAISO's consideration of a generic Battery Energy Storage System (BESS) to address potential violations of off-peak deliverability constraints. [2] As the CAISO has noted, a number of the criteria violations are identified in local areas on the 70 kV and 115 kV systems. As noted, alternatives that map generators at higher voltages (likely at 230 kV) need to be considered in subsequent planning cycles.[3] BAMx encourages the joint agencies (California Public Utility Commission, California Energy Commission, and CAISO) to develop such alternative mapping for the next TPP cycle.	The comment has been noted.
7c	California Community Choice Association	No comment	
7d	California Public Utilities Commission – Energy Division	CPUC Staff supports the CAISO studying all three transmission alternatives identified in the 2021-2022 TPP for the Humboldt area offshore wind in the sensitivity study in both the Policy Assessment and the production cost modeling. In developing the 30 MMT sensitivity study, CPUC Staff selected one of the three upgrades for capacity expansion modeling and portfolio development; however, staff noted that this choice was a placeholder only and not intended to select one potential upgrade over the others. Studying all three upgrades will give additional insight into the varied benefits and costs of each option within a much larger sensitivity portfolio and CPUC staff appreciate the extra effort in continuing this work.	The comment has been noted.
7e	California Public Utilities Commission - Public Advocates Office	<u>Request for Project Cost Information</u> CAISO does not provide enough information to establish that the proposed mitigations for PG&E area are just and reasonable. Indeed, the proposed mitigation projects for the PG&E area did not include any cost information. CAISO's Business Practice Manual states that one of the criteria for	Cost estimates for all policy projects being considered in the PGE area will be included in the draft transmission plan.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>determining the need for policy-driven projects is "the expected planning level cost of the transmission solutions as compared to the potential planning level costs of other alternative transmission solutions."[1] CAISO should provide the estimated cost information for each proposed PG&E project and for each alternative considered to allow stakeholders to analyze the merits of the proposed projects in light of alternative project cost.</p> <p><u>PG&E Unable to Complete its TPP-Approved Projects in a Timely Manner</u></p> <p>PG&E has demonstrated that it is not capable of completing its TPP-Approved projects in a timely manner. Figure 1. below shows the percentage of finished CAISO-approved projects from 2007 to 2020 for the three major investor-owned utilities (IOUs) - PG&E, SCE, and San Diego Gas and Electric Company (SDG&E).[2] PG&E completed 73% of its projects, SCE completed 77% of its projects, and SDG&E completed 83% of its projects. Based on these percentages, PG&E appears to be the least likely to be able to finish its own projects. Additionally, as noted in the CAISO Transmission Development Forum workbook, PG&E has a total of 83 CAISO TPP-approved transmission projects that are delayed or pending operational status to date. One of PG&E's severely delayed projects, the Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade, was approved by CAISO nearly 20 years ago, in 2003.[3] Indeed, PG&E has seven delayed projects that were approved before 2010 and 13 projects that were approved prior to the 2011 TPP.</p> <p>It is critical that CAISO scrutinize the need for previously approved transmission projects that are severely delayed. If a project was found to be necessary 20 years ago but is still not built and isn't scheduled to be built for another four years, it is imperative that CAISO determine if the same system conditions exist today as at the time of approval. Over the last 20 years system conditions have changed dramatically and new technology solutions are now available to address system issues</p>	<p>The CAISO is working with PG&E to understand and help address the delay in approved projects implementation. Need for previously approved projects are assessed on a case-by-case basis based on the nature of the project, area and known extend of changes in the input assumptions.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>at lower costs. Ratepayers should not be burdened with funding transmission projects that have become unnecessary or obsolete due to changes in grid resources, demand, and system conditions since the project was approved. More importantly, re-evaluating projects on hold or delayed for 10 years or more would allow ratepayers to benefit from advances made in lower cost grid enhancing technologies to address system issues.</p> <p><i>Figure 1: This graph shows the percent of each utility's finished projects out of each utility's CAISO-approved projects from 2007 to 2020. PG&E completed 73% of its projects, SCE completed 77% of its projects, and SDG&E completed 83% of its projects.</i></p>  <p>It is critical, given the urgency of the climate crisis and California's efforts to both maintain reliability and transition its energy sector to zero-carbon resources, that transmission projects are not unnecessarily delayed.</p> <p><u>PG&E Northern Area</u></p> <p>Cal Advocates recommends that the CAISO provide all the information used in conducting Policy Assessment studies,</p>	<p>Study assumptions and detailed results will be provided in the draft transmission plan. Study data will also be posted on the CAISO MPP.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>including projected load data sets and all inputs, conditions, and assumptions along with prepared detailed study results and recommendations to stakeholders. This will help stakeholders better understand the Policy Assessment analysis.</p> <p><u>PG&E Southern Area</u></p> <p><i>On-Peak Constraints – Sensitivity Case Only</i></p> <p>The study results for the on-peak constraints identify overloads with the integration of the sensitivity portfolio and as a result, CAISO recommends reconductoring several lines. During the November 17, 2022, CAISO TPP meeting, the presenter mentioned that a remedial action scheme (RAS) was considered for each of the lines, but CAISO chose to propose line reconductoring. No further information was provided regarding why RAS would not work as a project alternative.</p> <p>Given the lack of information regarding the viability of RAS to address noted overloads with the sensitivity portfolio and that no overloads were observed with the integration of the base portfolio, CAISO should continue to study the proposed reconductoring projects and possible alternatives.</p> <p><i>Off-Peak Constraints – Sensitivity Case Only</i></p> <p>CAISO discusses eight potential mitigations to address overloads for the off-peak constraints in the sensitivity-only case listed on slide 109 of CAISO’s November 17, 2022, presentation. CAISO frames these potential mitigations as needed “if economic.” This suggests that the proposed mitigations are not needed for policy reasons alone.^[4] These eight projects are also not needed to address overload issues with the base portfolio. Among these eight proposed projects are three proposed line reconductoring projects and no information is provided on alternatives considered to these costly reconductoring projects. Also, no cost information was provided for any of these projects. Without information on the alternatives</p>	<p>Feasibility of RAS application was considered using RAS guidelines included in the ISO Planning Standards. More details about why the RAS option was not selected will be included in the draft Transmission Plan. Mitigation for constraints only in the sensitivity portfolio will be further assessed in the next planning cycle.</p> <p>Mitigation for off-peak issues are developed only if it is economic compared the extent of curtailment. Cost estimates for all policy projects being considered in the PGE area will be included in the draft transmission plan.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>considered and their costs and the costs of the selected mitigations, stakeholders cannot assess the projects in a meaningful way. CAISO should provide information on the costs of proposed projects and possible mitigation alternatives considered. Since the eight projects mentioned are not needed for the base portfolio, CAISO should perform further studies to determine if these projects provide policy and or economic benefits in future TPP cycles.[5]</p>	
7f	California Western Grid Development, LLC	No comment	
7g	California Wind Energy Association	<p>It is obvious that CAISO took a very different approach to identifying mitigations in the PG&E area vs. southern California and Gridliance areas. Mitigations in the PG&E area are more narrowly focused on overloads without accounting for longer-term transmission needs. CalWEA supports using the same approach for the PG&E area as CAISO has applied to the other areas, i.e., using the 30 MMT, high electrification sensitivity portfolio to identify transmission upgrades. Such planning would be consistent with the encouragement expressed in the CPUC's October 7, 2022, ruling on the electricity resource portfolios that the Commission will provide for the 2023-24 TPP cycle, where the base case is anticipated to be in line with the 30 MMT sensitivity case.</p> <p>In that ruling, the Commission encourages the CAISO to get a "head start" on identifying needed transmission in the current TPP cycle. CalWEA also expects the CPUC will timely fulfill its requirement under SB 887 to request that the CAISO "identify the highest priority transmission facilities that are needed to allow for increased transmission capacity into local capacity areas" in the current TPP cycle.</p> <p>Regarding the series reactor solutions proposed for several 230kV transmission line overloads,</p> <p>CalWEA urges the CAISO to address downsides of such mitigations and use the 30 MMT sensitivity to consider longer-term transmission solutions, which would provide badly needed deliverability to generation in the queue in that area. One</p>	<p>Mitigations are developed on a case-by-case basis considering nature of the issue and potential mitigation. Sensitivity studies are taken into account for all constraints that occur in both the baseline and sensitivity. Mitigation for constraints only in the sensitivity portfolio will be further assessed in the next planning cycle.</p> <p>Please see above response.</p> <p>Mitigations are developed consistent with the need identified from the policy driven portfolios. In regards to the specific example, reduction</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>example is the mitigation North of the Greater Bay Area. Instead of adding series reactors on the Collinsville - Pittsburg 230kV lines, a better solution might be to remove the series cap from Vaca Dixon to Collinsville, which would effectively reduce flows not only on Collinsville-Pittsburg, but also on Vaca Dixon to Collinsville to Tesla and save the cost of the series capacitors and reactors. Further, adding a new 500kV line, as proposed in the CAISO's 20-year Outlook, would support the North Coast offshore wind in the 30 MMT sensitivity portfolio and provide deliverability to numerous new resources in the area.</p> <p>CalWEA does, however, strongly support the PG&E-area proposal to use substantial amounts of battery energy storage systems (BESS) to mitigate off-peak congestion. BESS is an efficient solution because the capacity can simultaneously satisfy the RA requirements of the LSEs that procure it, saving ratepayers the cost of additional transmission (or BESS as a transmission solution). Moreover, there is more than enough BESS in the queue to address this need.</p> <p>CalWEA urges CAISO to give the same consideration of BESS as a congestion solution under the SSN off-peak deliverability assessment, since the SSN scenario addresses congestion issues rather than reliability issues.</p>	<p>of overall series compensation on the Table Mountain-Vaca-Collinsville-Tesla path is considered.</p> <p>The comment has been noted.</p> <p>The comment has been noted.</p>
7h	Center for Energy Efficiency and Renewable Technologies (CEERT)	<p>The PG&E area has the greatest difference in resources contained in the base case (38 MMT) and the 2035 sensitivity case (30 MMT). The base case shows a need for 6,571 MW (FC and EO) compared to 25,734 MW (FC and EO) for the sensitivity case. The largest increase in resource is in the Southern PG&E region (Fresno, Kings and Kern counties). It is most important for the PG&E area that the CAISO take into account the difference between the base and sensitivity case and prioritize longer-term renewable development in this region of the state.</p> <p>Twelve on-peak constraints were identified in the Southern PG&E region for the sensitivity case. These include four constraints on 230 kV elements of the PG&E system and eight</p>	<p>The ISO approved new Manning 500/230 kV station policy project in the last cycle targeting to increase system capacity and support resource development in the Southern PG&E region. The ISO will continue to monitor need for further expansions based on the future portfolios.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>on lower voltage elements. The CAISO recommends that generators that are requesting interconnection at 70 kV or 115 kV reconsider their interconnection options.</p> <p>CEERT agrees that it makes sense, given the magnitude of the state's needs, to generally recommend interconnection in this region at 230 kV and above. That said, it appears likely that there may still be a need to reconnector a number of circuits on the 115 kV system to accomodate the large amount of new resources contemplated in the sensitivity case. Given PG&E's resource limitations CEERT supports prioritizing reconductoring projects in the Southern PG&E area.</p> <p>CEERT also notes that off-peak constraints in the Southern PG&E area can be mitigated with the development of a substantial amount of battery energy storage systems. CEERT is supportive of using non-wire solutions for transmission constraints. Further analysis of the need for storage systems is needed with consideration of hybrid solar plus storage projects that will be developed in this region.</p>	<p>Mitigations will be developed on a case-by-case basis depending upon the scenarios the issues are identified in and the nature of the mitigation required.</p> <p>The comment has been noted.</p>
7i	City of San Jose	Should the comment on Slide 110 that “a number of generators mapped to the lower voltage systems (70 kv and 115 kv) should be considered to be mapped at high voltage (230 kv),” also be applied to new load interconnections and existing approved generator interconnections?	The comment is applicable to those specific generic portfolio resources.
7j	Clearway Energy Group	<ul style="list-style-type: none"> • Clearway recommends revisiting zones in which upgrades are triggered in RESOLVE by the draft base portfolio for the 2023-24 TPP. In some cases, there may be an opportunity to get a head start on upgrades that are already identified now and will be triggered in the next TPP; in other cases, a need that appears in the 2023-24 modeling may serve as a signal to reevaluate a zone in the current cycle. • Clearway strongly supports the Fresno and Kern area upgrades identified in the preliminary results. Since this zone is one of the few areas that can serve PG&E's 	<p>The comments have been noted</p> <p>The ISO approved new Manning 500/230 kV station policy project in the last cycle targeting to increase system capacity and support resource development in the Southern PG&E region. The ISO will</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>load centers in the Bay Area and has significant demonstrated commercial interest, CAISO should revisit this study area and consider a broader upgrade to enable renewables development across the area, rather than a piecemeal approach to fixing individual violations observed in scenario studies. This zone should be treated similar to how SCE's Eastern and Southern NV zones are treated for identifying upgrades that provide long-term value.</p> <ul style="list-style-type: none"> The Fern Road – Vaca Dixon – Tesla 500kV line should be considered for approval in this cycle as it can enable buildout of offshore wind in current and future Northern California call areas. Given the long lead time for offshore wind development and long timeline for transmission upgrades needed to access North Coast wind, it is important for these upgrades to be approved as soon as possible so that development of projects can proceed in parallel. 	<p>continue to monitor need for further expansions based on the future portfolios. Mitigations will be developed on a case-by-case basis depending upon the scenarios the issues are identified in and the nature of the mitigation required. Mitigation for constraints only in the sensitivity portfolio will be further assessed in the next planning cycle.</p> <p>Various mitigation alternatives, as outlined in the 2021-2022 TPP policy sensitivity 2 study, are under review.</p>
7k	Coalition for the Optimization of Renewable Development	No comment	
7l	Defenders of Wildlife	<p>In addition giving serious consideration to the results of the sensitivity portfolio this cycle, we recommend CAISO further incorporate the results of the 20-Year Transmission Outlook and those resource build-out assumptions as least regrets for transmission planning in the current TPP. This will allow transmission planning to better prepare for the continuing capacity growth in the resource portfolios, avoiding some of the concerns in previous years associated with studying insufficient resource portfolio capacity.</p> <p>The Central Valley holds the potential to bring gigawatts of renewable energy and storage online by targeting resource development on least-conflict land and in a disturbed environment that has support from environmental, agricultural, and local valley stakeholders. In particular, the South PG&E area has significant potential to provide substantial resource</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		growth in solar and battery resources. It should be prioritized to determine what transmission development is needed to unlock Central Valley solar.	
7m	EDF-Renewables	No comment	
7n	Fervo Energy	No comment	
7o	Wellhead Electric Company, Inc.	No comment	
7p	Gallatin Power Partners	No comment	
7q	Golden State Clean Energy	<p>Golden State Clean Energy (“GSCE”) appreciates CAISO’s attention to the increasingly urgent need to approve of new transmission assets that will facilitate California’s SB 100 resource build-out. There is a general expectation that between this TPP cycle and the next, CAISO will need to approve significant new transmission assets to continue the progress that started with the policy-driven results in the 2021-22 TPP.</p> <p>With this expectation in mind, GSCE supports CAISO seriously considering the results of the sensitivity portfolio this cycle given its similarities with the base case that is anticipated to be studied in the next TPP cycle. GSCE would also like to see CAISO further incorporate the results of the 20-Year Transmission Outlook and those resource build-out assumptions.</p> <p>Addressing the sensitivity results and 20-Year Transmission Outlook allows transmission planning to prepare for the significant and continuing capacity growth in the resource portfolios that are in the immediate future. This will help identify emerging issues sooner and provide an opportunity to right-size some of the transmission solutions being considered, especially in areas like South PG&E where the current policy studies preliminarily identified many modest or non-transmission solutions like reconductoring and battery storage.^[1]</p> <p>The South PG&E area is particularly important because it shows the greatest resource growth between the base case and sensitivity in this TPP cycle for solar and battery resources in the PG&E area.^[2] Furthermore, the 20-Year Transmission Outlook identified 30 GW (or more) of PV potential and BESS for this</p>	<p>The comment has been noted.</p> <p>Mitigation for constraints only in the sensitivity portfolio will be further assessed in the next planning cycle.</p> <p>The comment has been noted.</p> <p>The ISO approved new Manning 500/230 kV station policy project in the last cycle targeting to increase system capacity and support resource development in the Southern PG&E region. The ISO will continue to monitor need for further expansions based on the future</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>region. GSCE views this as the most likely scenario, while the base case's representation of South PG&E solar greatly underestimates the environmentally and commercially expected upcoming solar build-out in the Central Valley. Thus, the sensitivity is far more appropriate to study and determine what transmission development is needed to unlock Central Valley solar. Central Valley solar offers the ability to timely scale several gigawatts of renewable energy and storage by targeting resource development on least conflict land and in a disturbed environment that has significant support from environmental, agricultural, and local valley stakeholders.</p>	<p>portfolios. Mitigations will be developed on a case-by-case basis depending upon the scenarios the issues are identified in and the nature of the mitigation required.</p>
7r	GridLiance West	No comment	
7s	LS Power	No comment	
7t	Large-scale Solar Association	<p>Many of the recommendations require further explanation.</p> <ul style="list-style-type: none"> • Mitigation for on-peak constraints • Mitigation in several areas is described as moving generation mapped to lower-voltage systems (70 kV and 115 kV) to higher voltages (230 kV). It's not clear: <ul style="list-style-type: none"> • What locations PG&E proposes to assume instead for mapping this generation; or • How this recommendation can be reconciled with CPUC mapping efforts. The extensive CPUC mapping effort used to develop the TPP portfolios considered a variety of factors – e.g., available land and environmental factors – that are not addressed by these recommendations. • The CAISO should clarify how sensitivity-case overloads in the Bulk and Greater Bay Area[1]is “dependent on Alternative to interconnect offshore.” What offshore Point of Interconnection will cause that overload in the Table Mountain-Vaca Dixon 	<p>The ISO recommended moving generic portfolio resources at specific stations to a higher voltage level to avoid costly upgrades associated with the lower voltage interconnections. The CAISO has provided these recommendations to the CPUC for consideration in the next IRP cycle.</p> <p>In the sensitivity case, the Humboldt offshore with is modeled as injecting to the new Fern Road station. Other alternative, like Bayhub, which will bring the Humboldt area offshore wind directly to the Bay Area load centers, could avoid such overloads but may result in overloads in other areas.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>500 kV and Round Mountain-Cottonwood 230 kV lines?</p> <ul style="list-style-type: none"> • Mitigation for off-peak constraints • Much off-peak mitigation for both base and sensitivity portfolios is described as “generic BESS” in charging mode. Per the recent situation with the Lamont battery procurement, the CAISO has had a preference for market procurement for storage needed for reliability reasons. Assuming that position is unchanged for policy-driven upgrades, large amounts of storage in the identified locations will be needed for this mitigation. <p>However, there is no attempt to examine the current resource-interconnection queue and TPD availability situation to see if these market solutions are feasible. On-peak deliverability is a critical need for energy-storage resources, and LSA is not aware of <u>any</u> Energy Only storage PPAs under contract or in negotiation; on the contrary, every Load-Serving Entity (LSE) Request for Offers (RFO) to date seeking storage procurement has required Full Capacity Deliverability Status (FCDS) for those resources.</p> <p>This means that any storage-based mitigation must provide for on-peak deliverability for those resources. However, the PG&E analyses (and others with possible storage-based mitigation – see above) do not examine the current queue to see if sufficient FCDS storage resources are available, and/or determine whether sufficient deliverability is available in the areas where future storage projects will have to be developed through the resource-interconnection</p>	<p>By generic BESS, the ISO is referring to BESS that is included in the CPUC portfolios being studied. The ISO is not proposing new BESS beyond what is included in the CPUC portfolios to mitigate off-peak deliverability constraints.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>process. Mitigation recommendations that are not feasible will obviously not yield any mitigation.</p> <ul style="list-style-type: none"> • Off-peak mitigation in other areas – reconductoring, “increasing area export capability,” or other upgrades – is described as recommended “if economic.” However, there is no indication in the Preliminary Economic Analysis Results that any of these upgrades are being considered for study to determine economics. It is not clear how upgrades can be approved in this cycle if they are not even studied in that manner. • Capacity hold-backs: As with the SCE/VEA/GLW results, there is no indication of whether the recommended mitigation will apply only to certain resources and not others – see the comments above regarding the TPP Enhancements initiative. 	<p>Mitigation for off-peak issues are developed only if it is economic compared to the extent of curtailment. As these off-peak issues are only identified in the sensitivity scenario, no further economic assessment are performed for these off-peak issues.</p> <p>See response to comment 5t.</p>
7u	New Leaf Energy, Inc.	<p>New Leaf Energy, Inc. (“New Leaf Energy”), an independent developer of energy storage that was recently spun out of solar and storage developer Borrego, thanks the CAISO for its work on integrating energy storage into the transmission planning process (“TPP”) and for the opportunity to provide these comments.</p> <p>New Leaf Energy offers two recommendations in response to the CAISO’s Preliminary Policy Assessment Results for the PG&E area presented at the November 17, 2022 stakeholder meeting. First, New Leaf Energy confidentially submits Attachment A, a memo on the Manning Substation Project and the Gates 500/230 kV Bank #13. The analysis relies on data that is subject to CAISO’s Market Participant Portal non-disclosure agreement (“NDA”).</p> <p>Second, New Leaf Energy seeks clarity on the 17.5 gigawatts (“GW”) of battery energy storage potential mitigations identified in PG&E territory.¹¹ New Leaf Energy is concerned that these</p>	<p>The comment has been noted.</p> <p>The BESS referred to as mitigation for off-peak deliverability constraints are included in the CPUC portfolio being studied both under on-peak as well as off-peak conditions. The ISO is not</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>resources will fail to come online unless the CAISO approves the Network Upgrades that would make them deliverable.</p> <p>At the November 17, 2022 stakeholder meeting, the CAISO proposed significant policy-driven and economic-driven Network Upgrades in SCE and SDG&E territories. By contrast, for arguably similar overloads on PG&E's system, the CAISO largely proposed battery energy storage mitigations (referred to as "generic BESS"), in particular in the off-peak analyses. New Leaf Energy applauds the CAISO's efforts to consider storage solutions within the TPP yet is concerned about these recommendations for three reasons:</p> <ul style="list-style-type: none"> • First, a comparison of the recommendations reveals a striking difference between those in the southern and northern areas – specifically, that recommendations in the southern areas include no energy storage, while those in the northern (PG&E) areas contain huge amounts of storage. • Second, New Leaf Energy is concerned that there has been insufficient consideration of other Network Upgrades that will be needed to bring these resources online. Without these additional upgrades, New Leaf Energy fears that the proposed BESS solutions will never come to fruition. In its PG&E off-peak analysis, the CAISO has identified a total of over 17.5 GW of generic BESS as potential mitigations for the identified off-peak constraints. However, these resources – or a subset thereof – will not be realized without the Network Upgrades needed to create deliverability for them. By and large, Load-Serving Entities (LSEs) are not seeking Energy Only energy storage resources. Rather, LSEs require the resources to have deliverability, in order to qualify as Resource Adequacy (RA) capacity and, therefore, the resources must have that deliverability to ensure that they are economically viable. Without deliverability, energy storage resources would be 	<p>proposing new BESS beyond what is included in the CPUC portfolios to mitigate off-peak deliverability constraints. The on-peak assessment ensures deliverability of portfolio resources including battery storage resources.</p> <p>Almost all of the transmission upgrade alternatives in the southern area are identified to address on-peak deliverability constraints, for which dispatching energy storage in charging mode is not a valid mitigation. As can be seen from the preliminary results presentation energy storage charging is used to address off peak deliverability constraints in the southern areas as well. .</p> <p>Please see above response.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>limited to only wholesale market participation, which has not yet proven to offer sufficient value or revenue certainty to support project financing.</p> <ul style="list-style-type: none"> Third, similar to the concerns raised in New Leaf's October 12, 2022 comments in this stakeholder initiative, energy storage resources can provide many valuable functions to the transmission system, but more attention is needed from the CAISO to clearly articulate its technical and operational expectations of energy storage solutions and to clarify how they relate to existing reliability standards and requirements such as full capacity deliverability status (FCDS).^[2] <p>Therefore, New Leaf Energy recommends that the CAISO identify and propose which PG&E Network Upgrades will be needed to enable the energy storage resources in the identified areas to acquire deliverability in order to enable them to come online to meet system needs. Approving energy storage mitigations without simultaneously approving the Network Upgrades needed to enable deliverability for these resources risks falling short of the CAISO's goal.</p>	<p>The comment has been noted.</p> <p>Please see above response.</p>
7v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	No comment	
7w	Pacific Gas & Electric	No comment	
7x	San Diego Gas & Electric	No comment	
7y	Shell Energy	No comment	
7z	Southern California Edison	No comment	
7aa	Vistra Corp.	Vistra requests the CAISO prioritize its reevaluation of the previously approved installation of a 10 ohms series reactors on the PG&E's Moss Landing – Las Aguilas 230 kV line ^[1] to address the overloading identified in the preliminary policy assessment on Las Aguilas – Moss Landing 230 kV overloaded	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>facility^[2]. CAISO identified an on-peak constraint in its sensitivity case achieving 30 MMT scenario for HSN scenario.</p> <p>In the preliminary reliability and policy studies, the CAISO identified that the PG&E Moss Landing-Las Aguilas 230 kV has \$8.21 million in counterflow congestion during 421 hours.^[3] Under the 30 MMT sensitivity case, the congestion on this line increases to \$155.58 million during 2,216 hours.^[4] The 30 MMT scenario is being proposed to be transmitted to the CAISO for its 2023-2024 Transmission Planning Process as the base case.</p> <p>Vistra urges the CAISO to be proactive in recommending policy projects based on the 30 MMT scenario to address overloading in the sensitivity case because the sensitivity scenario results are anticipated to show up in the base case next year. We believe the CAISO should recommend policy upgrades for sensitivity overloading so that upgrades needed to support the 30 MMT case can be approved expeditiously to better support development efforts.</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p>

8. Please provide your organization’s comments on the Preliminary Economic Analysis Results

No	Submitting Organization	Comment Submitted	CAISO Response
8a	ACP – California	As CAISO evaluates potential economic projects and project necessary to address public policy needs, we urge CAISO to provide strong consideration to the needs, congestion, and curtailment identified in the 30 MT sensitivity case. The 30 MT sensitivity case is far more reflective of the longer-term direction of the system than the base case in this cycle. And given the long-term nature of transmission investments, CAISO should be strongly focusing on the needs identified in the 30 MT Sensitivity case when considering approvals for this year’s TPP.	The comment has been noted
8b	Bay Area Municipal Transmission Group (BAMx)	Beatty 230 kV upgrades presented in the GridLiance/VEA policy assessment were modeled in the CAISO Production Cost Model (PCM) in order "to have feasible dispatch for the portfolio generators originally proposed at the 138 kV buses." [1] BAMx questions this modeling as it does not allow the stakeholders to meaningfully assess the potential economic benefits of the Beatty 230kV upgrades. Therefore, BAMx suggests that the CAISO model the Base portfolio without the Beatty 230kV upgrades.	In the base portfolio there are 440 MW of geothermal at Beatty. Interconnecting 440 MW of geothermal on a 120 MW line is not practical without some amount of transmission upgrades. Beatty 230 kV upgrades will be needed to interconnect the geothermal resources and other resources in this area identified in both base and 30 MMT portfolios. They have been identified as policy upgrades in this TPP cycle. Without Beatty 230 kV upgrades, not only the simulation cannot provide feasible dispatch, but also the potential issues in the downstream system of the GLW/VEA system would be masked.
8c	California Community Choice Association	Of utmost importance to the development of the TPP is current geographic and market information, to allow for significant, cost-effective resource development in line with Commission requirements. Prioritization of economic projects should factor in the availability and location of cost-effective “long-lead-time resources” resources that can fulfill the Commission’s Mid-term Reliability requirements, including OOS wind in Idaho and geothermal resources in Nevada (including the SWIP North and Gridliance West projects). The CAISO should evaluate necessary import expansion or transmission upgrades for at least 2,000 MW of further incremental renewable resources imported from Nevada, which falls within the range of available resources cited by the relevant stakeholders in the IRP proceeding.	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
8d	California Public Utilities Commission – Energy Division	No comment	
8e	California Public Utilities Commission - Public Advocates Office	<p>Southwest Intertie Project-North</p> <p>CAISO continues to evaluate the South-West Intertie North (SWIP-North) project in the TPP to determine if this project has economic and or policy benefits that are greater than the project costs. SWIP-North has a cost estimate of \$636 million in 2020 dollars and would provide approximately up to 1,100 MW of bi-directional transmission capacity between Midpoint substation in Idaho and Harry Allen substation in Nevada. Through this link, SWIP-North could provide California access to Idaho renewable resources including wind.[1] The 2021 Transmission Plan did not determine that SWIP-North would generate ratepayer benefits that would justify the project costs. In addition, the capacity factor for wind in Idaho is considerably less than New Mexico or Wyoming wind at 33.9% versus 41.4 to 42%, respectively.[2] Therefore the benefit to cost ratio for accessing Idaho wind was considerably less than from Wyoming or New Mexico. Cal Advocates recommends that CAISO continue to compare the benefits of accessing Idaho wind versus Wyoming and New Mexico wind, considering the ratepayer benefits with a subscriber-based project versus a fully ratepayer funded project.</p> <p>Pacific Transmission Expansion Project</p> <p>The Pacific Transmission Expansion (PTE) project consist of 2,000 MW of controllable high-voltage direct current (HVDC) subsea transmission cable that connects northern and southern California via submarine cables in the Pacific Ocean just off the coast of California. This project, as proposed, would have transfer capacity of 2,000 MW to and from PG&E area and the SCE/SDG&E area. The PTE project would run parallel to the lines in Path 26 and thus could potentially reduce congestion on Path 26. PTE’s current cost estimate (from 2021) is \$1.85 billion. CAISO production cost modeling simulation of PTE in 2021 did not demonstrate that the PTE could significantly reduce</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>congestion on Path 26 to justify its cost. Also, the production cost modeling results with PTE demonstrated that congestion could also increase on Path 15.[3]</p> <p>Cal Advocates recommends that the economic risks associated with this project be factored into CAISO's analysis. California is served by only three HVDC transmission lines, which include: (1) the 3,100 MW Pacific Intertie; (2) the 2,400 MW Intermountain Power Project (Path 27), and (3) the 400 MW Trans Bay Cable. Given the state's limited experience with HVDC lines, choosing an HVDC subsea alternative could result in massive cost over-runs and/or project delays. For example, the Trans Bay Cable line's original cost estimate of \$200 million later increased to \$571.9 million, which exceeded the 50% project cost cap.[4]</p> <p>North Gila-Imperial Valley #2</p> <p>For the 2022 TPP cycle, the North Gila-Imperial Valley #2 project developer and Imperial Irrigation District (IID) jointly submitted the North Gila-Imperial Valley #2 project for economic benefit consideration. The North Gila-Imperial Valley #2 project developer also submitted this project to CAISO and WestConnect for cost recovery through the Interregional Transmission Project Evaluation process. As mentioned previously, this line connects to the IID, and IID proposes an investment partnership. However, all the terms and details of this partnership are unknown at this time. Since the Interregional Transmission Planning Evaluation for this project is underway, it is also not clear whether California ratepayers would receive sufficient benefits to justify a CAISO partnership in this project. Given the multiple benefits (reliability, economic etc.) that IID may gain with this project,[5] Cal Advocates recommends that the CAISO analysis of this project consider the western interconnection-wide benefits to determine the full extent of benefits and beneficiaries for this project. Cal Advocates also recommends that the CAISO determine if the project benefits to CAISO ratepayers justify any level of</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>partnership in this proposed new line, and the maximum level of participation based on determined benefits. IID proposes to pay for roughly 1/3 of the project, but it is not known that California's benefits would justify funding the remaining project costs.</p> <p>Fresno Avenal Area Congestion</p> <p>Cal Advocates notes that projects in the Fresno Avenal Area were studied in prior TPP cycles. In the 2019-2020 TPP, CAISO selected the PG&E Gates-Tulare Lake 70kV line in the Fresno Avenal Area for further study due to the area's impact on the entire CAISO system and heavy congestion in the area.[6] Specifically, there are long hours of congestion on the Kettleman Hills Tap to Gates 70 kV section of the Gates-Tulare Lake 70 kV line. PG&E proposed reconductoring the Gate-Tulare Lake 70 kV line to address this issue. This congestion occurs mainly when solar output is high in summer months.[7] In 2019, CAISO found that the benefits of the proposed upgrade didn't justify the costs. Cal Advocates notes that renewable curtailment has noticeably reduced in the PG&E Fresno area due to additional energy storage capacity in the area,[8] and recommends the CAISO consider grid enhancing technologies such as energy storage to address any significant remaining congestion issues in the Fresno Avenal area.</p> <p>Inyokern 230 kV Upgrade</p> <p>SCE submitted the Inyokern 230 kV upgrade to address congestion in the NOL area. This area has the longest hours of congestion and the highest cost to the system (with congestion costs estimated at \$77.93 million).[9] Cal Advocates supports the consideration of reconductoring the 115 kV Kramer-Victor line to address congestion in the SCE NOL area and recommends this project be evaluated for both policy and economic benefits.</p>	<p>The comment has been noted.</p> <p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Cal Advocates also recommends that energy storage be considered as part of the solution to address issues in the SCE NOL area. The 2018-2019 Transmission Plan noted that because the Kramer and Inyokern zones are in a radial pocket, they can experience severe congestion due to high levels of behind-the-meter solar especially during off-peak hours.[10]</p> <p>Moss Landing – Las Aquilas 230 kV Line Reevaluation</p> <p>Vistra requested a study to identify cost-effective solutions to address transmission congestion on the Moss Landing – Las Aquilas 230 kV line in the PG&E areas. The 2021 TPP observed that congestion on this line was correlated with solar generation output in the PG&E Fresno Area during the summer months.[11]</p> <p>In prior comments, Cal Advocates requested that grid issues on the Moss Landing 230 kV line be reassessed with the current energy storage capacity expected in the Moss Landing area.[12] During the February 7, 2021, TPP Meeting discussion on this project, CAISO acknowledged that it had not evaluated the Vistra Moss Landing energy storage expansion project.[13] The original energy storage project at 400 MW at Moss Landing is now complete. Vistra also recently signed a resource adequacy agreement with PG&E to expand this existing Moss Landing energy storage facility to 1,500 MW by 2026. For this reason, Cal Advocates also recommends reevaluation of the project needs for this line and the previously approved 10 ohms series reactor project, to determine if this upgrade is still needed. [14]</p> <p>Gridliance West Upgrades</p> <p>Regarding the economic planning study request from Gridliance West (GLW) for a GLW 500 kV upgrade and a GLW Geothermal upgrade project, Cal Advocates recommends that the CAISO establish a working group to confirm the available geothermal resources in southern Nevada to meet the state’s clean energy</p>	<p>The comment has been noted. The resources within the CPUC portfolios are include in the assessment.</p> <p>The comment has been noted. The resources within the CPUC portfolios are include in the assessment.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>goals and options to access these resources. This working group would be open to all interested CAISO stakeholders and would assess the viability of resources in southern Nevada with the goal of determining if additional and significant transmission upgrades to GLW system would be cost-effective investments to meet California's clean energy goals.</p> <p>California Oregon Intertie and Wyoming Wind Congestion Study</p> <p>CAISO's production cost modeling results for the base and sensitivity portfolios on the California Oregon Intertie (COI) indicate that wind from Wyoming is causing congestion on this Intertie.[15] If wind from Wyoming can now travel to California via PacifiCorp transmission lines and cause congestion on the COI, Cal Advocates recommends that CAISO include in its evaluation of out-of-state wind options, how California could schedule access to Wyoming wind through PacifiCorp's transmission system.</p>	<p>The comment has been noted.</p>
8f	California Western Grid Development, LLC	No comment	
8g	California Wind Energy Association	No comment	
8h	Center for Energy Efficiency and Renewable Technologies (CEERT)	<p>The Preliminary Economic Analysis highlights the reason why the CAISO should give weight to the 2035 sensitivity case in determining which policy-driven transmission projects to adopt in the 2022-2023 transmission plan. The economic results show that there is nearly four times as much congestion costs in the sensitivity case. The top 15 areas with congestion in the sensitivity case show over \$2 billion in congestion costs. We note that the CAISO's assesses the increased congestion costs are driven by the 2035 high electrification load forecast and the incremental renewable resources in the 30 MMT portfolio. This high amount of congestion indicates that the deliverability assumptions for the 30 MMT portfolio production cost model needs to be further evaluated.</p>	<p>The comment has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The Preliminary Economic Analysis also shows that the 2035 sensitivity case has greater curtailment in the PCM simulation compared with the base portfolio results. The levels of curtailment seen in the sensitivity case suggest that the development of projects in many renewable zones will be economically challenged because of the very high levels of expected curtailment.</p>	
8i	City of San Jose	<p>Slide 11 indicates relatively high COI congestion especially in the sensitivity case and cites WY wind as a factor. Previous studies have shown that the SWIP N project reduces COI congestion by providing Path Rating(s) increase on the eastern WECC N-S path in parallel to the western N-S path through COI. Is this the reason for citing WY wind as a factor in COI congestion? Does the economic analysis of the SWIP N project in this TPP cycle account for this impact?</p> <p>Slide 38 indicates that the Maximum Export Constraint used in PCM modeling is binding in an increasing number of hours as renewable generation in CAISO increases. Should the value of this constraint be restudied given the recent expansion of EIM and the likelihood of an EDAM launch in this timeframe?</p>	<p>In the presentation for preliminary results, three major factors contributing to the increase in COI congestion were identified: NW hydro, NW solar and wind, and WY wind. Further analysis will be conducted in this TPP cycle.</p> <p>The value of the net export limit will be evaluated in future planning cycle with considering market design and operation changes.</p>
8j	Clearway Energy Group	<p>While results are not available yet, there would be benefit from further studies to evaluate and mitigate Fresno area congestion, as well as GLW/VEA and East of Lugo area congestion.</p>	<p>The comment has been noted.</p>
8k	Coalition for the Optimization of Renewable Development	<p>C.O.R.D. supports GridLiance West's (GLW) request to further consider and prioritize the Geothermal Upgrade study (Northern Expansion) and the 500kV Upgrade Enhancement projects as either economic or policy projects for the reasons stated in C.O.R.D.'s answer to Question 5.</p>	<p>The comment has been noted.</p>
8l	Defenders of Wildlife	<p>PG&E's Fresno Area has the potential to provide significant amounts of least-conflict siting for solar and storage development and we support this area as one of the "high priority study areas," preliminarily proposed by CAISO.</p>	<p>The comment has been noted.</p>
8m	EDF-Renewables	<p>No comment</p>	
8n	Fervo Energy	<p>No comment</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
8o	Wellhead Electric Company, Inc.	No comment	
8p	Gallatin Power Partners	No comment	
8q	Golden State Clean Energy	GSCE supports the PG&E Fresno Area being one of the “high priority study areas,” as preliminarily proposed by CAISO.	Your comment and support has been noted.
8r	GridLiance West	<p>The CAISO’s slide deck invited stakeholder feedback on the list of high-priority economic study projects. GLW sought study of the Geothermal Upgrade study (Northern Expansion) and the 500kV Upgrade Enhancement projects as indicated on the CAISO’s slide 176 (electronic slide number). There is significant overlap between these proposed economic projects and the policy needs identified by the CAISO. GLW would be pleased to work with the CAISO to determine whether these projects warrant study as economic projects as opposed to the CAISO simply proposing to approve them as policy projects. Certainly, both of these projects have high viability, are very cost-effective, and can increase the ability to interconnect geothermal and other renewable resources. The GLW Upgrade Enhancement will enable delivery of an additional 2,000 MWs of renewables to California load centers from an area where there are over 7,000 MWs of active interconnection requests in the CAISO queue currently. Thus, the projects warrant economic study if they will not be promoted by the CAISO by their policy solution status alone.</p>	The comment has been noted.
8s	LS Power	<p>The CPUC clarified in the 2021-2022 TPP Modeling Assumptions that Idaho wind is an effective alternative to Wyoming wind and acknowledged that any references to Wyoming wind are not intended to indicate a preference for Wyoming wind. Further, CPUC portfolio for 2022-2023 TPP requires studying OOS wind in base portfolio from Idaho/Wyoming. Therefore, LS Power does not agree that TransWest Express (TWE) should be in the base model for economic evaluations. While CAISO and TWE are working to implement and approve the Subscriber PTO model, such approval does not mean that TWE will be built. Given that CAISO has no control over when or if TWE will be installed this</p>	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>project should not be part of the base case economic models as it would be speculative and skew results.</p> <p>LS Power submitted SWIP-North for an economic study assessment in the 2022-2023 TPP cycle and requests that a robust analysis of its benefits be conducted by CAISO including quantifying congestion relief, WEIM benefits, and other reliability/resiliency benefits. These benefits should be reviewed in combination with the policy benefits SWIP-North can provide when determining whether to recommend for approval. LS Power has previously provided comments to CAISO with suggestions for detailed analysis using TEAM methodology[1]. LS Power asks CAISO to publish an updated study plan describing detailed modeling assumptions for evaluating economic study requests. Additionally, it is not clear what reference case CAISO will use to compare the benefits of the economic study requests. Such details should be added in the updated study plan.</p>	
8t	Large-scale Solar Association	<p>There are no actual preliminary analysis results yet. The CAISO describes the economic studies it will perform, but it has not yet actually performed them.</p> <p>In addition, the connection between the curtailment/economic analyses and potential recommended transmission upgrades is not clear. Will the ultimate analyses consider recommended transmission upgrades and, if so, which of the many alternatives presented for transmission upgrades will be incorporated? If not, how will the CAISO consider the reliability/policy-driven upgrade results vs. the economic upgrade results?</p> <p>Also, it would be helpful if the CAISO could explain whether the primary criterion for CAISO prioritization for economic study renewable curtailment is renewables curtailment or aggregate area congestion costs.</p>	<p>The CAISO conducts detailed economic assessment based on CAISO's TEAM methodology. Please find the details of TEAM in http://www.aiso.com/Documents/TransmissionEconomicAssessmentMethodology-Nov2_2017.pdf</p> <p>High priority study areas are selected based on both production cost simulation results and economic study request evaluations with considering stakeholder inputs.</p>
8u	New Leaf Energy, Inc.	No comment	
8v	NGIV2, LLC, Valley Power Connect, LLC, Citizens	The NGIV2 Project granted by WECC (Western Electric Coordinating Council) Phase 3 (Accepted Rating) a path rating of an incremental 1,250 MWs on Path 46. We respectfully	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
	Energy, Imperial Irrigation District	request CAISO to consider NGIV2's holistic impact on relieving Path 46 congestion while evaluating the discrete benefits of the project.	
8w	Pacific Gas & Electric	PG&E supports the CAISO's inclusion of the PG&E Fresno area in the list of high priority study areas for reducing transmission congestion. As is evident in CAISO's preliminary results, the Fresno area has high total congestion costs as low-cost renewable generation has to be curtailed due to insufficient transmission capacity. PG&E requests the CAISO identify cost-effective transmission solutions that would mitigate congestion in the Fresno area.	The comment has been noted.
8x	San Diego Gas & Electric	No comment	
8y	Shell Energy	No comment	
8z	Southern California Edison	SCE appreciates the CAISO's continued efforts to perform economic assessments on the ISO controlled grid. SCE would like to note that the economic results seem to indicate that many of the project concepts being considered in other parts of the TPP, specifically in the East of Lugo (EoL) and North of Lugo (NoL) electrical areas (in addition to those projects submitted in the request window), would provide economic benefits in addition to their respective policy and/or reliability benefits.	The comment has been noted. In the CAISO's study, economic benefit, policy benefit, and reliability benefit are considered in upgrade justification.
8aa	Vistra Corp.	<p>Vistra appreciates that the CAISO identified its economic study request on the Moss Landing – Las Aguilas 230 kV line on its preliminary high priority study area list. Vistra also appreciates the CAISO previously approving an economic study project in the 2021-2022 TPP to upgrade the line by installing a 10 ohms series reactors. We request the CAISO reevaluate and recommend an upgrade to fully resolve the identified congestion in the 2022-2023 TPP. Vistra expects future TPP results are going to continue to identify increasing levels and frequency of congestion as a function of incremental capacity and the 30 MMT base case proposed.</p> <p>In the 2023-2024 TPP proposed portfolios, the CPUC proposes transmitting 750 MW of Battery Energy Storage System to be modeled at the Moss Landing 500 kV substation.^[1] This will be an increase from 400 MW used in the 2022-2023 TPP^[2]. Vistra notes that the additional 350 MW was filed for approval on</p>	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>January 21, 2022 and was approved on April 21, 2022 for a commercial operation date of August 1, 2023.[3]</p> <p>The upcoming TPP case is expected to remedy the inaccuracy of the modeled generation at the Moss Landing 500 kV interconnection point, where we expect more congestion will surface in the results. CAISO should recommend a transmission upgrade to the Moss Landing – Las Aguilas 230 kV line to fully resolve the congestion need as the development at this site is outpacing the amount of generation being modeled.</p> <p>Vistra urges the CAISO to recommend a larger scope to the previously approved economic project. Additionally, Vistra requests the CAISO identify this upgrade as a high priority upgrade to allow for better transmission capability into the local capacity area in its recommendations to the CPUC by end of Q1 2023.</p>	

9. Please provide your organization's comments on the Preliminary LCR study results for the North region			
No	Submitting Organization	Comment Submitted	CAISO Response
9a	ACP – California	No comment	
9b	Bay Area Municipal Transmission Group (BAMx)	No comment	
9c	California Community Choice Association	<p>The CAISO and the Commission must begin explicitly studying the ability to reliably serve load in local areas and disadvantaged communities while reducing reliance on fossil fuel resources. Without robust upfront planning focused specifically on how to reliably phase out local carbon-emitting resources, California risks jeopardizing the fast-approaching Senate Bill 100 target of zero-carbon resources supplying 100 percent of electric retail sales to end-use customers by 2045.</p> <p>Local reliability can be addressed through locating generation within the local area or building new transmission to relieve the local area constraints. The ability to retire fossil fuel resources in local areas will depend on either (1) eliminating transmission constraints that limit the number of resources capable of serving load in the local area, or (2) bringing online enough effective carbon-free resources inside of the local area to replace the existing fossil fuel resources. The Commission and the CAISO must begin studying the feasibility and cost-effectiveness of transmission alternatives and new clean resource alternatives in local areas. Studying reduced reliance on fossil fuel resources in local areas now will result in forward planning that ensures an orderly and reliable transition from reliance on fossil fuels in local areas at least cost.</p> <p>In evaluating the NGBA area, CAISO identified overloading of the Cloverdale – Eagle Rock 115 kV with a mitigation of relocating policy generation. The generation underlying that constraint is 79 MW of Solano geothermal and includes two projects under development and in the CAISO queue. Replacing the attributes of those resources with alternatives in other locations is not possible in the short-term—geothermal resources have much less locational flexibility than solar and storage and most other near-term geothermal opportunities are imports. CAISO should identify a specific mitigation rather than</p>	<p>For specific studies please see Appendix G to the 2020-21 Transmission Plan http://www.caiso.com/Documents/AppendixG-BoardApproved2020-2021TransmissionPlan.pdf .</p> <p>The relocation is referring to connecting the portfolio resource to higher kV (230 kV) system and not necessarily relocating outside of the geothermal area.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		suggesting relocation. This is especially important because Sonoma Clean Power is expecting the amount of Solano geothermal to grow in the 2023-24 TPP and through its own GeoZone initiative.	
9d	California Public Utilities Commission – Energy Division	No comment	
9e	California Public Utilities Commission - Public Advocates Office	<p>Long-Term Local Capacity Technical Study: North Region</p> <p>Cal Advocates recommends that CAISO provide all the information used in conducting local capacity requirements (LCR) studies, including projected load data sets and all inputs, conditions, and assumptions along with prepared detailed study results and recommendations to stakeholders. For example, in the 2032 Draft Long-Term LCR Study Results Humboldt Area, (Slides 1 – 7, presentation pages 214-216) the Local Capacity Requirement shows 182 MW as the projected area load without qualification. CAISO should clarify whether this is an evaluation for a summer peak scenario or whether it is for the winter demand scenario. Also, for CAISO’s proposed topology changes, (Slide 3) the Resource Addition of a 15 MW energy storage system may be sufficient for a summer peak scenario but would likely be inadequate for a winter demand scenario that could require an eight to 12 hours of energy storage system. Cal Advocates recommends the CAISO specify the sensitivity, such as summer on-peak in which the proposed 15 MW of energy storage would be useful. Cal Advocates also recommends that for winter peaking areas, that studies be performed to determine energy storage capacity to address winter peaking needs and that the results be presented to stakeholders.</p>	<p>The CAISO will include all the details in the 2032 Long-Term LCR study report that will be published as an Appendix to the 2022-23 Transmission Plan.</p> <p>Humboldt area is a peaking area and therefore winter peak drive their LCR requirement.</p> <p>For further details the latest LCR study manual can be found here: http://www.aiso.com/InitiativeDocuments/2023LocalCapacityRequirementsFinalStudyManual.pdf</p>
9f	California Western Grid Development, LLC	No comment	
9g	California Wind Energy Association	No comment	

No	Submitting Organization	Comment Submitted	CAISO Response
9h	Center for Energy Efficiency and Renewable Technologies (CEERT)	No comment	
9i	City of San Jose	<p>Could the CAISO expand on the Slide 11 footnote that “Reliability project currently under review in 2022-2023 TPP that will address the first limit. The San Jose sub area definition and effective generating units are different between the first and second limit.” Which reliability project? How does the sub area definition change?</p> <p>Does the identification of the Metcalf-EI Patio 115 kv line as the Limiting Facility for the 2032 Second Limit mean the Limiting Element Removal Project at EI Patio under review in this TPP cycle is insufficient to relieve this long-term constraint? What is the LCR benefit from the Limiting Element Removal project at EI Patio as a stand-alone project? Is the statement on Slide 35 of the September 27 Reliability Assessment Results that “the long-term overloads will continue to be monitored in future cycles. New capacity increase project may be needed” refer to this constraint and mitigation?</p> <p>Does the identification of the Newark-NRS and Metcalf-San Jose B HVDC lines as the “contingency” for the 2032 Second Limit mean the loss of these two new lines is the controlling N-1-1 event for the region? What is the controlling contingency for LCR need in 2027?</p>	<p>The reliability project is “Metcalf 230115 kV Transformers CB Addition Project”. Because of the different contingency being binding, the set of effective resources behind the new constraint will be different.</p> <p>Yes, based on the system condition studied under the 2032 scenario, the higher rating of the Metcalf-EI Patio 115 kV line is not sufficient to eliminate the LCR need. The incremental LCR benefit from the limiting element removal project has not been calculated. No, the statement on Slide 35 of the September 27 Reliability Assessment Results are referring to long-term overloads identified on other 115 kV lines in the San Jose area.</p> <p>Not sure what the word “controlling” meant here. The driving contingency for 2027 was a P2 contingency at Metcalf.</p>
9j	Clearway Energy Group	No comment	
9k	Coalition for the Optimization of Renewable Development	No comment	
9l	Defenders of Wildlife	No comment	

No	Submitting Organization	Comment Submitted	CAISO Response
9m	EDF-Renewables	No comment	
9n	Fervo Energy	No comment	
9o	Wellhead Electric Company, Inc.	No comment	
9p	Gallatin Power Partners	No comment	
9q	Golden State Clean Energy	No comment	
9r	GridLiance West	No comment	
9s	LS Power	No comment	
9t	Large-scale Solar Association	LSA believes that the CAISO should expand its “4-hour battery” analyses to incorporate longer-duration batteries, given the CPUC’s encouragement of procurement of such resources in the Mid-Term Reliability (MTR) procurement directives. LSA has no other comments on these results.	The current studies provide the maximum MW and MWh of batteries that can be charged in each local area and sub-area. The “4-hour battery” numbers represents a max 1-for-1-replacement of existing resources with a 4-hour battery.
9u	New Leaf Energy, Inc.	No comment	
9v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	No comment	
9w	Pacific Gas & Electric	<p>PG&E requests the CAISO to provide more details on how the MW of 4-hour battery (1 for 1 MW replacement) is calculated in the 2032 long-term LCR study.</p> <p>It has been observed that for some of the areas/sub-area, the load profile is above the Emergency Load Serving Capability for the entire study period. That would indicate charging limitation exists for adding new battery storage in that area, however the “Max 4-hr storage” number for that area indicates a large amount of batteries can be added. By reviewing the curves, the areas/sub-areas which seem to have the conflicting information include: San Jose Sub-area, South Bay-Moss Landing Sub-area, Greater Bay Area, Humboldt Area, Placer Sub-area, Tesla-Bellota Sub-area, Coalinga Sub-area, Reedley Sub-area, Panoche Sub-area, Herndon Sub-area, Greater Fresno Area. Also, by comparing with the study results for 2030, the change of the “Max 4-hr storage” number is significant for some areas/sub-areas. The areas/sub-areas with significant change include San Jose Sub-area, South Bay-Moss Landing Sub-area, Greater Bay Area, NCNB-Lakeville Sub-area, Placer Sub-area,</p>	<p>The details about the 4-hr MW calculations were included in the past LCR reports, study manual and presentations.</p> <p>The Load Serving Capabilities in the charts are the “Transmission Only” load serving capabilities. The Total load serving capabilities would also include load serving capabilities from the local generation. As such, there could be some room to replace existing non-battery local resources with a future battery resource on a 1-to-1 basis, which will essentially be the 4-hr MW battery amount.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Tesla-Bellota Sub-area, Reedley Sub-area, Panoche Sub-area, Greater Fresno Area.</p> <p>PG&E requests the CAISO to provide more details on how the MW of 4-hour battery (1 for 1 MW replacement) is calculated and the main driver for the change of “Max 4-hr storage” between the 2030 and 2032 study results.</p>	<p>As stated above, the details about the 4-hr MW calculations were included in the past LCR reports, study manual and presentations. The drivers for changes could be change in the load forecast, change in the driving constraint, implementation of transmission upgrade etc.</p>
9x	San Diego Gas & Electric	No comment	
9y	Shell Energy	No comment	
9z	Southern California Edison	No comment	
9aa	Vistra Corp.	<p>Vistra provided detailed comments on the 2024 Local Capacity Technical Study methodology on November 22, 2022.[1] Vistra requests the CAISO make the three changes to its LCR results for the 2032 study results, including:</p> <p>We respectfully request the 2032 LCR results:</p> <ul style="list-style-type: none"> • Require local reliability requirements for both capacity and energy • Identify local reliability requirements in areas with resource deficiencies for that would allow forward procurements to cure the resource deficiency by 2032 • Update the Oakland Sub-Area to show a 35 MW and ~176 MWh deficiency <p><u>Require local reliability requirements for both capacity and energy:</u></p> <p>California’s fleet has evolved to include a greater concentration of use limited resources such that the installed capacity requirement is insufficient to capture the energy requirement necessary to meet the LCT need. The LCT Study should evolve to recognize that the local needs will increasingly come from non-conventional resources and adopt changes for 2024.</p>	<p>Thank you for your comments.</p> <p>See response in each section below.</p> <p>Your suggestion has been noted.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Vistra requests the CAISO revise its 2032 LCR results to identify both a minimum capacity (MW) and minimum energy (MWh) requirement for each LCR area(s). Additionally, we request the CAISO specify in its methods whether the energy requirement is (1) non-continuous hours requirement or (2) continuous hours requirement[2].</p> <p>For example, CAISO identified a local need for Oakland sub-area of 35 MW.[3] However, there is also an energy requirement of 176 MWh based on Vistra’s review of the studies. This means to meet the need there needs to be resource(s) that provide either 35MW with at least a ~5-hour continuous output or 44MW with at least a ~4-hour continuous output.</p> <p>Vistra requests CAISO specify the requirements with both capacity and energy requirements for all areas going forward to address the changing RA fleet’s various capabilities. In the case of our Oakland example, Vistra’s requested change would update the 2032 Oakland LCR Sub-area Requirement table to include the existing LCR (MW) column (e.g., 35 MW) and a new LCR (MWh) column (e.g., 175 MWh).</p> <p><u>Identify local reliability requirements in areas with resource deficiencies to allow forward procurements to cure the resource deficiency by 2032:</u></p> <p>California RA framework has evolved to require local RA for three-year forward years.[4] CPUC further revised its program to create a Central Procurement Entity to accomplish the three-year forward procurement in the Pacific Gas & Electric (“PG&E”) and Southern California Edison (“SCE”) transmission access areas[5]. In addition, the CPUC has issued procurement orders under its Integrated Resource Planning (“IRP”) process and is considering establishing programmatic IRP program, which could require new resources to cure deficiencies prior to the compliance year, and that we believe should be aligned with the TPP horizons.</p>	<p>The LCR results currently contain a daily and an yearly graph that has a representation of the overall energy need. At this time the CAISO does not plan to add specific MWh of local energy requirements.</p> <p>All deficient local areas and sub-area have specified the amount of “deficiency” both at peak and NQC in order to aid future procurement.</p> <p>The CAISO only has authority to impose local capacity requirements and local back-stop authority for one year out. As such it cannot ask LSEs to procure something that does not exist today or is not scheduled to be in-service by next year.</p> <p>The CPUC and other Local Regulatory Agencies (LRAs) can use the full amount of local need (for “deficient areas and sub-areas”) if they so desire in their longer-term procurement process. Please submit these comments to the appropriate procurement agencies.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>In CPUC Decision 20-12-006[6] issued on December 4, 2020, the CPUC acknowledges that new preferred resources and new storage resources are eligible to be shown into the CPE to support meeting local reliability needs identified through this LCT Study, although it is most likely that these new resources are shown for the two-year forward or three-year forward[7] periods based on our experience.</p> <p>In CPUC Decision 22-03-034[8], the CPUC went further to facilitate new resources be procured to meet multi-year forward local RA needs by affirmatively removing CPE-imposed restrictions to term length, thus allowing the CPE to award local RA to new resource offers into the CPE solicitation. If the CPE cannot fulfill its obligations determined by the LCT Study and approved by the CPUC, D.22-03-034 provided for the CPE to attempt to cure any procurement shortfalls outside the annual all-source solicitation process and can do so by entering agreements with new resources for contracts that are five years or longer subject to Tier III Advice Letters[9].</p> <p>Vistra strongly believes that the three-year forward local RA requirements that are established through the LCT Study must be revised to require new resources be procured either bilaterally or through annual all-source CPE solicitations to cure area(s) with resource shortfalls for the forward-year requirements. Vistra hopes that the CAISO will adopt this change for its near and mid-term LCR study results. Logically, we also urge the CAISO to adopt this principal in the long-term LCR assessment. The long-term assessment should also ensure the long-term requirements include the need, even if there are currently insufficient resources, to better align the long-term LCR requirements and the local RA program. The local RA program has evolved to require procurement of local RA on a three-year forward basis and new resources are able to be procured to meet those local RA needs. Similarly, the IRP procurement orders may also give rise to opportunities to cure the deficiencies in advance of the year.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>The 2032 estimated LCR requirements should not be reduced for resource deficiency and the long-term LCR requirement should be met by new resources if there is a resource deficiency through either multi-year local RA or IRP procurements.</p> <p>Vistra illustrates our requested change using the 2032 LCT Study for Greater Bay local area, where the proposal should be adopted consistently throughout to apply to any area. In the preliminary 2032 results, the Greater Bay Area Overall has a 2032 Net Qualifying Capacity of 7,436 MW^[10]. The Greater Bay Area Overall has a 2032 Requirement of 7,936 MW with a roughly 500 MW deficiency^[11]. In today's methods the CAISO reduces the LCT Study requirements from the 7,936 MW requirement by the resource deficiency to roughly 7,426 MW shown on the 2032 Draft Long-Term LCR Needs table. ^[12] Under our proposal and in the best interest of reliability, the Greater Bay Area Overall requirement would be 7,936 MW since this is the need and the procurement entities should be able to use the LCR needs for 2032 to identify the total local capacity needed from both existing and new resources.</p> <p>Vistra strongly believes this change should be made for the three-year forward requirement in the forward years and also in the long-term LCR assessment, in this instance for 2032. We look forward to further discussing with CAISO and stakeholders how to appropriately transition the LCR requirements in this manner.</p> <p><u>Update the Oakland Sub-Area to show a 35 MW and ~176 MWh deficiency</u></p> <p>Vistra continues to request the CPUC and CAISO Staff more accurately represent the Oakland sub-area assumptions in its 2024 LCT Study. We believe it should be the goal of the CAISO to produce forward local RA requirements in the Oakland sub-area that:</p>	<p>Oakland sub-area will not be allowed to become deficient. The existing Oakland resources will continue to be under an RMR contract until a suitable replacement is in-service and therefore calculating a deficiency is not appropriate.</p> <p>A suitable replacement "new resource" was modeled in the ten year out case because the CAISO approved plan calls for such a resource to be made available.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<ul style="list-style-type: none"> • Continue to model the approved <u>transmission elements</u> of the Oakland Clean Energy Initiative project, which include the 115kV Bus Upgrade & Bank 3 115 kV Switches, which has a planned in-service date of Q4 2023[13]. • Recognizes that 49 MW of municipal generation cannot be used to meet the local need in its LCT Study and explicitly state this in the report to remove it from the NQC calculated for the area[14], • Assumes 0 MW of market resources due to the assumption that the jet-fueled Oakland Power Plant Units 1 and 3 are retired[15], and • Assumes 0 MW of battery resources assumed since there is no commercial arrangement currently to support developing battery storage in Oakland for 2032. <p>We continue to disagree with the CAISO results for Oakland not identifying a local deficiency in the modeled scenario that assumes the jet-fuel units are retired and in light of the municipal generation not being available to address the need. Further, Vistra strongly disagrees that the battery assumption should be anything other than 0 MW because at this time there are no projects with regulatory approvals nor are there any generic resources mapped at this substation. To reiterate, there is no commercial arrangement in place at this time to support the development of batteries at Oakland Station C. CAISO studies implying that there are planned resources under an agreement disrupts commercial efforts.</p> <p>Vistra provides the following update on the battery storage development efforts in the Oakland local sub-area. Vistra is committed to its efforts to retire and replace the jet-fuel Reliability Must Run units as soon as a commercial opportunity arises to support these efforts.</p> <ul style="list-style-type: none"> • Oakland Power Plant achieved commercial operations in 1978[16] and was first designated as a RMR Unit in 1998. The Oakland Power Plant is a 110 MW liquid 	<p>The CAISO agrees that the procurement plan for such a suitable replacement has been delayed and that a procurement process should be started as soon as possible. The CAISO is not involved in long-term procurement activities however it encourages those that are (CPUC and other LRAs) to move forward with the long-term procurement process if retirement of the current Oakland resources is desired.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>fossil-fired power plant located in Oakland, California owned and operated by Vistra. The capacity of Units 1 and 3 of the Oakland Power Plant is fully committed as a Reliability Must-Run (RMR) Unit under a Legacy Local RMR Contract with the CAISO.</p> <ul style="list-style-type: none"> • Oakland Station C GT Unit 2 was released from RMR designation and retired in 2021, is no longer operational, and has been decommissioned to support future development efforts. However, Vistra cannot complete the future development until a commercial arrangement is secured to finance this effort. • CAISO's LCT Study has incorrectly reflected preferred battery resources in the generation assumption in the past years, we believe because a project called Oakland Energy Storage that was associated with the LARS agreement was shown in the 2020 LSE IRP plans. However, the LARS agreement approval was withdrawn and is no longer active. • Vistra's active battery development efforts at Oakland Substation C point of interconnection include two phases first under an executed repowering agreement (up to 55 MW) and an independent study project with an executed Interconnection Agreement (up to 55 MW CAISO queue project Q1830). Neither of these projects have commercial arrangements to support their development at this time, so should not be represented as Level 1 (existing or under-construction) or Level 2 generation (regulatory approval but not yet under construction)[17]. <p>While there are possibilities that a commercial arrangement might be feasible to support development of the battery asset to provide generation for the 2025 or 2026 requirements, we do not believe it is common or best practice to include in the generation assumption an assumption of planned resources that are not under contract for the forward years unless it comes from generic resources mapped at the substation. Neither are true.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response																																										
		<p>Instead, Vistra believes the appropriate result for the LCT Study is to identify a deficiency in the area to be clear on the LCR requirement in MW and MWh that must come from new resources in the modeled scenario assuming the jet-fueled Oakland Power Plant is fully retired. We illustrate Vistra's recommendation for Oakland.</p> <p><u>Oakland LCR Sub-area Load and non-RMR Resources Available to Support Local Needs</u></p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="width: 20%;">Load (MW)</th> <th style="width: 5%;">Generation (MW)</th> <th style="width: 10%;">Aug NQC</th> <th style="width: 10%;">At Peak</th> </tr> </thead> <tbody> <tr> <td>Gross Load</td> <td>183</td> <td>Market, Net Seller, Battery Solar</td> <td><u>0[18]</u> <u>0</u></td> </tr> <tr> <td>AAEE</td> <td>-1</td> <td>Muni</td> <td><u>0[19]</u> <u>0</u></td> </tr> <tr> <td>ATE</td> <td>10</td> <td>QF</td> <td>0 0</td> </tr> <tr> <td>Behind the Meter DG</td> <td>0</td> <td rowspan="5" style="text-align: center;">Total</td> <td rowspan="5" style="text-align: center;"><u>0[20]</u> <u>0</u></td> </tr> <tr> <td>Net Load</td> <td>192</td> </tr> <tr> <td>Transmission Losses</td> <td>0</td> </tr> <tr> <td>Pumps</td> <td>0</td> </tr> <tr> <td>Load + Losses + Pumps</td> <td>192</td> </tr> </tbody> </table> <p><u>Oakland LCR Sub-area Requirement</u></p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="width: 5%;">Year</th> <th style="width: 5%;">Limit</th> <th style="width: 5%;">Category</th> <th style="width: 10%;">Limiting Facility</th> <th style="width: 10%;">Contingency</th> <th style="width: 15%;">LCR (MW) <u>(Deficiency)[21]</u></th> <th style="width: 15%;">LCR (MWh) <u>(Deficiency) [22]</u></th> </tr> </thead> <tbody> <tr> <td>2032</td> <td>First Limit</td> <td>P2</td> <td>D-L #1 115 kV cable</td> <td>C-X #2 & #3 115 kV cables</td> <td>35 (35)</td> <td>~176 (~176)</td> </tr> </tbody> </table>	Load (MW)	Generation (MW)	Aug NQC	At Peak	Gross Load	183	Market, Net Seller, Battery Solar	<u>0[18]</u> <u>0</u>	AAEE	-1	Muni	<u>0[19]</u> <u>0</u>	ATE	10	QF	0 0	Behind the Meter DG	0	Total	<u>0[20]</u> <u>0</u>	Net Load	192	Transmission Losses	0	Pumps	0	Load + Losses + Pumps	192	Year	Limit	Category	Limiting Facility	Contingency	LCR (MW) <u>(Deficiency)[21]</u>	LCR (MWh) <u>(Deficiency) [22]</u>	2032	First Limit	P2	D-L #1 115 kV cable	C-X #2 & #3 115 kV cables	35 (35)	~176 (~176)	
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No	Submitting Organization	Comment Submitted	CAISO Response
		We urge the CAISO to make these necessary improvements to its assumptions at Oakland as soon as possible beginning with the 2032 results.	

10. Please provide your organization's comments on the Preliminary LCR study results for the South region

No	Submitting Organization	Comment Submitted	CAISO Response
10a	ACP – California	No comment	
10b	Bay Area Municipal Transmission Group (BAMx)	No comment	
10c	California Community Choice Association	See response to question 9 above	Please see response to comment 9c above.
10d	California Public Utilities Commission – Energy Division	No comment	
10e	California Public Utilities Commission - Public Advocates Office	No comment	
10f	California Western Grid Development, LLC	<p>Cal Western is also pleased that CAISO will be updating LCR studies as part of this 2022-23 TPP. We are not surprised that LCR requirements are increasing given the higher load forecast in this year's base case and sensitivity forecasts and the continued need for transmission into transmission constrained major load centers such as the LA Basin.</p> <p>In past LCR studies CAISO has quantified the cost of the LCR deficiency using an analysis of LCR procurement cost estimates specific to each transmission constrained local area and compared that local RA cost to system RA costs. The CAISO has then evaluated the benefit of potential new transmission investments based on the delta between system RA costs and Local RA costs.</p> <p>While Cal Western continues to believe this approach vastly understates the value of new transmission in meeting LCR requirements, Cal Western has three specific requests concerning the CAISO LCR studies this year:</p> <ol style="list-style-type: none"> 1. Please share with stakeholders the \$/KW costs the CAISO intends to assume in its economic evaluation of LCR requirements procurement costs for each local 	<p>Thank you for your support.</p> <p>The reference price was always retrieved from the latest available CPUC Resource Adequacy Report available here: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/resource-adequacy-homepage</p> <p>Table 9 in page 28 of the latest 2020 RA report has the appropriate capacity prices by local area. The CAISO has used the differential between the weighted average price (\$/kW-month) from an individual local area and the CAISO system. LA Basin weighted average price (\$/kW-month) is \$5.11.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>transmission constrained area, and especially the LA Basin and the source of that \$/kw estimate.</p> <p>2. Please share with stakeholders the \$/kw cost CAISO plans to assume for any System RA deficiency and the source of that \$/kw estimate.</p> <p>3. Cal Western believes that by 2030 the marginal resource for meeting CAISO system RA will be storage/batteries. Please share with stakeholders what resource category CAISO will assume to be on the margin for calculating marginal system RA for use in LCR economic analysis in this 2022-23 TPP.</p>	<p>CAISO system weighted average price (\$/kW-month) is \$4.75.</p> <p>CAISO does not use the marginal resource methodology for calculating future system RA prices.</p>
10g	California Wind Energy Association	No comment	
10h	Center for Energy Efficiency and Renewable Technologies (CEERT)	No comment	
10i	City of San Jose	No comment	
10j	Clearway Energy Group	No comment	
10k	Coalition for the Optimization of Renewable Development	No comment	
10l	Defenders of Wildlife	No comment	
10m	EDF-Renewables	No comment	
10n	Fervo Energy	No comment	
10o	Wellhead Electric Company, Inc.	No comment	
10p	Gallatin Power Partners	No comment	
10q	Golden State Clean Energy	No comment	
10r	GridLiance West	No comment	
10s	LS Power	No comment	

No	Submitting Organization	Comment Submitted	CAISO Response
10t	Large-scale Solar Association	LSA believes that the CAISO should expand its “4-hour battery” analyses to incorporate longer-duration batteries, given the CPUC’s encouragement of procurement of such resources in the Mid-Term Reliability (MTR) procurement directives. LSA has no other comments on these results.	Please see CAISO response to 9t above.
10u	New Leaf Energy, Inc.	No comment	
10v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	We respectfully request CAISO to consider the impact of the NGIV2 Project on LCR reductions. Please note the NGIV2 configuration has an interconnection at IID’s Highline 230 kV Substation, supplying an added import path for geothermal capacity additions. A similar project studied in the 2018-2019 planning cycle showed a net reduction of 865 MW in LCR that translated to \$329.6M in savings. We believe with the current base and stressed portfolio including the Aliso Canyon sensitivity, the LCR benefits afforded by the NGIV2 Project would have improved.	Thank you for your comment. The ISO is evaluating various transmission projects, including NGIV2, in policy-related study as well as other sensitivity studies.
10w	Pacific Gas & Electric	No comment	
10x	San Diego Gas & Electric	No comment	
10y	Shell Energy	No comment	
10z	Southern California Edison	The LCR requirements for certain areas, such as the LA basin are increasing as the system evolves with increasing amounts of electrification on top of planned gas-fired generation retirements, which can be cause for concern. The CAISO identified potential overlaps in the mitigations that could be necessary for an Aliso Canyon retirement scenario and addressing future LCR needs. As a result, SCE believes a more holistic approach may be necessary to analyze the overlap of multiple challenges and scenarios for the LA Basin and develop more comprehensive solutions. SCE looks forward to supporting and participating in CAISO’s ongoing efforts in this space.	Thank you for your comment and support.
10aa	Vistra Corp.	No comment	

11. Please provide your organization’s comments on the Special Study Reduced Reliance on Aliso Canyon Gas Storage

No	Submitting Organization	Comment Submitted	CAISO Response
11a	ACP – California	ACP-California appreciates CAISO’s work on the special study related to Aliso Canyon Gas Storage. Many of the potential transmission mitigation alternatives for this case include the “Diablo South Multi-Terminal HVDC VSC Line.” We encourage CAISO to continue to explore the benefits of a line of this nature in meeting needs under various futures, supporting reliability, and in addressing the AB 525 goals of 2-5 GW of offshore wind by 2030 and 25 GW by 2045.	Thank you for your comment and inputs.
11b	Bay Area Municipal Transmission Group (BAMx)	BAMx appreciates the CAISO's efforts in performing the special study that addresses reduced reliance on Aliso Canyon gas storage. BAMx notes that these studies essentially stress the transmission system by assuming no additional internal generation within the LA Basin area. These studies assume that only increasing imports into LA Basin displace the retired generation. Transmission solutions should only be one of the solutions that should be investigated to reduce reliance on Aliso Canyon Gas Storage.	Thank you for your comment and inputs. The ISO performed the informational sensitivity assessment for reduced dependence on Aliso Canyon gas storage using the resource portfolio provided by the CPUC for the current transmission planning cycle. In the future if there are further additional resources identified for the LA Basin as part of the CPUC future study portfolio, the ISO will include those assumptions for consideration of future special study assessment.
11c	California Community Choice Association	No comment	
11d	California Public Utilities Commission – Energy Division	No comment	
11e	California Public Utilities Commission - Public Advocates Office	<p>Cal Advocates supports additional cost studies for the proposed Aliso Canyon Gas Storage alternatives provided on slides 16 and 17 (presentation pages 352 and 353) comparing Alternatives 1A, 2B, 2C, 7B, and 8B. Cal Advocates supports cost-effective alternatives that also provide policy benefits through increased access to lower cost resources.</p> <p>To the extent that the North Gila – Imperial Valley 500 kV line is being considered in this study, please refer to Cal Advocates’ concerns about this project in its response to (the North Gila – Imperial Valley Section in the response to Question 5).</p>	Thank you for your comment. As mentioned at the stakeholder meeting, the ISO performed this special study for informational purpose. The ISO will consider Cal Advocates request for providing preliminary non-binding cost estimates for the various transmission alternatives for information.

No	Submitting Organization	Comment Submitted	CAISO Response
11f	California Western Grid Development, LLC	<p>Cal Western is pleased to see the CAISO is evaluating several transmission alternatives to meet the state policy objective of reducing reliance on Aliso Canyon Gas Storage facility. Several of these alternatives include a multi-terminal HVDC subsea VSC line from the Diablo Canyon area to the LA Basin and San Diego areas.</p> <p>At Slide 354 the CAISO notes it is in the process of assessing applicable dynamic models that will be required for dynamic stability analysis. Cal Western supports and applauds this effort by the CAISO. As the CAISO knows, the industry is moving toward inverter-based technologies, including HVDC transmission lines. Modeling of grid forming VSC is lagging. With the massive deployment of inverter technology underway and yet to come in California there is an urgent need for the CAISO to exert leadership in finding and promoting standard models and approaches for assessing HVDC VSC transmission in the Western United States. As the largest transmission planning and operating organization in the West, the CAISO has a critical role to play in both the context of model development for this TPP and within the broader WECC.</p> <p>Cal Western has been working with industry experts for more than a year to develop dynamic stability models for HVDC VSC lines. One of our goals has been to find modeling solutions that work in a PSLF environment. We are now able to do dynamic analysis of HVDC VSC lines using PSLF. We encourage the CAISO to look at the work we have completed, which was submitted to the CAISO on a confidential basis.</p> <p>Aside from the efforts of Cal Western, there have also been recent dynamic modelling advances elsewhere in North America and Europe. We encourage CAISO to continue its assessment of dynamic modelling tools so that modeling does not stand in the way of approving needed transmission in this 2022-23 TPP.</p>	<p>Thank you for your comments and inputs. The ISO will review the submitted models and will follow up with Cal Western if there are further questions.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
11g	California Wind Energy Association	<p>CalWEA supports the special study to reduce reliance on Aliso Canyon and expresses particular support for one of the five alternatives found to be effective – 1A, which, as noted, would also provide Path 26 congestion relief. Further, it would provide access to Morro Bay offshore wind resources for the major southern CA load centers. In addition, this subsea solution would provide important wildfire risk-reduction benefits and, by interconnecting at coastal sites, would avoid the need for new urban infrastructure which will reduce permitting and construction times.</p>	<p>Thank you for your comment and inputs.</p>
11h	Center for Energy Efficiency and Renewable Technologies (CEERT)	<p>CEERT applauds the work that the CAISO has done related to studying reduced reliance on Aliso Canyon gas storage. The analysis is very informative and highlights the opportunity to advance environmental justice issue in the LA Basin. It is clear from this study that extensive thermal overloading occurs under critical contingencies in the LA Basin and San Diego areas during summer peak load conditions when generation that is dependent on Aliso Canyon storage would be curtailed without its availability.</p> <p>We appreciate that the CAISO has modeled multiple alternative transmission scenarios to determine which can mitigate the impact of curtailment of gas generation in the LA Basin and San Diego areas. We note that there are two general sets of alternatives; one includes the development of a subsea HVDC cable from Diablo Canyon to various terminal points along the coast in the Los Angeles/Orange County/San Diego area, and the other includes the development of new transmission from Imperial County with terminal points in inland Orange County and Los Angeles area.</p> <p>Both of these sets of projects would mitigate the need for existing gas generation and would advance other state policy goals. The CAISO presentation indicates that the Imperial Valley alternative provide more support for accessing new renewable resources through the Imperial Valley substation.</p>	<p>Thank you for your comments and inputs. As we mentioned at the stakeholder meeting, the ISO performed the special study to provide preliminary results for informational purpose. As such, an economic evaluation is not performed at this time to evaluate various potential transmission alternatives, as more refined cost-related data would be needed. The ISO will work with the CPUC further in the future for further guidance on the special study.</p>

No	Submitting Organization	Comment Submitted	CAISO Response
		We request that further economic analysis of the impact of the transmission alternatives identified in the Special Study be conducted as the CAISO prepares the final Special Study Report.	
11i	City of San Jose	No comment	
11j	Clearway Energy Group	No comment	
11k	Coalition for the Optimization of Renewable Development	No comment	
11l	Defenders of Wildlife	No comment	
11m	EDF-Renewables	No comment	
11n	Fervo Energy	No comment	
11o	Wellhead Electric Company, Inc.	No comment	
11p	Gallatin Power Partners	No comment	
11q	Golden State Clean Energy	No comment	
11r	GridLiance West	No comment	
11s	LS Power	No comment	
11t	Large-scale Solar Association	No comment	
11u	New Leaf Energy, Inc.	No comment	
11v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	We respectfully request CAISO to consider the added benefits of the IID interconnection for the reasons stated above in the SCE and SCGE policy assessment sections. This interconnection is at the Highline Substation and includes the potential cost sharing with IID customers. In addition, we request CAISO to evaluate the feasibility of a double circuit AC/DC line, double circuit AC (Alternating Current) line and double circuit DC (Direct Current) line from the Imperial Valley Substation (IV) to the Sycamore Substation compared to a line from the new proposed Dunes 500 kV to the Sycamore Substation along the Salton Sea Transmission Corridor. This configuration is based on analysis stated in the policy section of the comments.	Thank you for your comment and inputs. As mentioned at the stakeholder meeting, the ISO performed the special study to provide preliminary results for informational purpose. Some of the variations of the transmission line alternatives from Imperial Valley to Sycamore Canyon were evaluated to determine the potential benefits of transmission element from Imperial Valley to San Diego load centers as presented at the meeting. Further evaluations of finer detailed variations of the transmission alternatives from Imperial Valley to San Diego load centers for the special study may be considered in future special studies.
11w	Pacific Gas & Electric	PG&E appreciates the CAISO's efforts in identifying transmission alternatives for thermal resources supported by	Thank you for your comments and inputs. As mentioned at the stakeholder meeting, the ISO performed the special study to provide

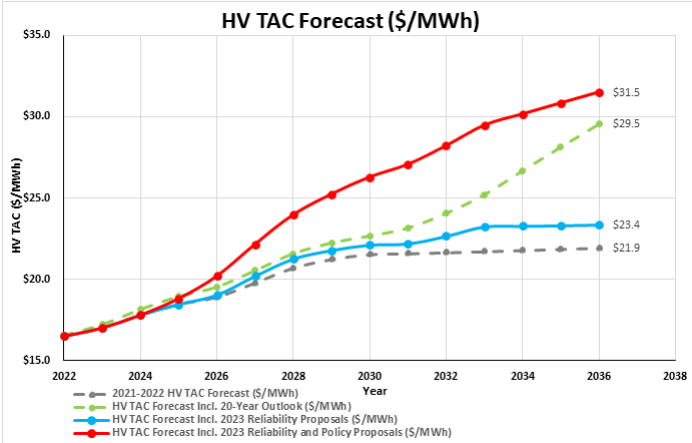
No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Aliso Canyon. As demonstrated by the CAISO's preliminary analysis, Aliso Canyon provides significant local area support. However, based on the available information, it appears the CAISO's analysis for summer peak assumes FTI Consulting's winter peak estimates of reduction in thermal capacity due to Aliso Canyon retirement. In addition, the CAISO's analysis did not address cost effective resource alternatives to transmission.</p> <p>Given the significance of Aliso Canyon for local area reliability and significant cost involved in replacing the local resources, PG&E recommends the CAISO to collaborate with the CPUC to:</p> <ol style="list-style-type: none"> 1. Develop an estimate of reduction in thermal capacity during non-winter peak months. 2. Revise the current TPP analysis for summer peak and winter peak months. 3. Consider cost effective resource alternatives in the local area to address the local capacity needs. <p>PG&E is providing a detailed process recommendation to plan for Aliso Canyon retirement in the CPUC's Aliso Canyon Order Instituting Investigation.</p>	<p>preliminary study results for informational purpose at this time. The study assumptions are based on the available publicly data from the CPUC that the ISO can obtain at this time. In the event of future availability of further detailed data from the CPUC for the conditions in which PG&E suggested here, the ISO may consider updating the special study with new assumptions.</p>
11x	San Diego Gas & Electric	No comment	
11y	Shell Energy	No comment	
11z	Southern California Edison	<p>While SCE supports the need for new transmission to maintain system reliability and to enable a carbon-free future, SCE believes tactical proposals based on the recent FTI study would be inappropriate due to outstanding comments that would affect transmission scoping. Similar to comments within the Aliso Canyon OII and upcoming IRP, SCE advocates for further sensitivity analysis into FTI study assumptions prior to inclusion of scope into the formal TPP process.</p>	<p>Thank you for your comment and inputs. The special study results are preliminary for informational purpose. As in our responses in 11w above, the study assumptions are based on the available publicly data from the CPUC that the ISO can obtain at this time. In the event of future availability of further detailed data assumptions from the CPUC for the summer high electric peak load conditions, the ISO may consider updating the special study with new assumptions.</p>
11aa	Vistra Corp.	No comment	

12. Please provide any additional comments on the November 17, 2022 stakeholder meeting

No	Submitting Organization	Comment Submitted	CAISO Response
12a	ACP – California	<p>ACP-California commends the CAISO for all the work it has performed to date on the 2022-23 TPP. We encourage CAISO to consider, as much as possible, the needs identified in the 30 MT Sensitivity case when assessing project approvals for this cycle. As stated in these comments, taking a longer-term view is imperative due to the delays in transmission permitting and construction that are being experienced. It is also crucial for CAISO to be looking at the longer-term needs of the system when making transmission approvals; the 30 MT sensitivity case is much more closely aligned with those longer-term needs than the base case in this cycle. In fact, the 30 MT Sensitivity case is expected to be very similar to the base case for next year's TPP. Anything that CAISO can do to expedite transmission approvals into this cycle should be pursued.</p> <p>We also urge CAISO to provide stakeholders with an update on anticipated public policy approvals during the January timeframe. While CAISO will not be releasing the Draft Transmission Plan until the end of March, and we recognize anything presented before that time would be preliminary, any information that CAISO can share in the January timeframe would be beneficial as customers make decisions around interconnection procedures.</p>	The comment has been noted.
12b	Bay Area Municipal Transmission Group (BAMx)	BAMx appreciates the opportunity to comment on the 2022-23 Transmission Plan Policy and Economic Assessment Results and acknowledges the significant effort of the CAISO staff to develop this material. The CAISO staff has spent significant efforts over the six months to perform the studies, identify the policy and economic transmission issues, and develop potential mitigation solutions. With the presentation of this extensive material in one stakeholder meeting and requiring responses in two weeks, stakeholders have not been able to digest this massive data and analysis and prepare complete and meaningful comments. The CAISO should consider modifying its process and providing more significant opportunities in its stakeholder engagements. BAMx intends to offer specific steps	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		required in the next transmission planning cycle for more regular stakeholder input.	
12c	California Community Choice Association	Where possible, CAISO should be leaning forward on investments in transmission. Transmission has become the largest roadblock to clean resource development—and will become even more so with the Inflation Reduction Act and state policy driving financial incentives for new generation and electrification. Even the high electrification and 30 million metric ton sensitivity portfolio used for the 2022-23 TPP is conservative when considering the projected transmission needs identified in the 20-year outlook. CAISO should consider where it makes sense to approve policy-driven projects triggered by the sensitivity portfolio and consider mitigation alternatives that provide additional margin of capability to accommodate expected increases in generation and load.	The comment has been noted.
12d	California Public Utilities Commission – Energy Division	No comment	
12e	California Public Utilities Commission - Public Advocates Office	Cal Advocates echoes the comments from two speakers at the CAISO Symposium on November 9, 2022, on the CEO Panel in response to a question regarding the biggest system planning changes and challenges in the next five years. Specifically, regarding electrification of the grid, General Manager and Chief Executive Officer of Seattle City of Light stated that new building electrification codes are both exciting and scary because mandating these changes requires providing funds for ratepayers to participate in building electrification to reduce demand. However, figuring out the funds and programs to assist with this transition to electrifying the grid is still a challenge. Demonstrating this challenge, the subsidy for California’s heat pump water heater program ran out of money earlier in 2022. Due to overwhelming demand, program funding was suspended in all territories except southern California. ^[1] We agree with Seattle City of Light’s comments, that considerations of program funding, pacing and current inflation impacts should be considered in future electrification load forecasts and project need assessments.	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Regarding the costs of the proposed transmission investments, the Los Angeles Department of Water and Power (LADWP), stated</p> <p style="padding-left: 40px;"><i>A huge infusion of federal dollars is needed to make these changes for this future... there is no way that ratepayers of the west and beyond are going to be able to withstand the rate increases needed...if this is all on their backs.[2]</i></p> <p>Cal Advocates agrees with the LADWP that it is necessary to consider other methods to finance large transmission infrastructure projects in-state and out-of-state, other than through the transmission access charge. Offshore wind transmission investments and out-of-state wind transmission investments will provide additional benefits to regions with respect to new jobs and economic growth, in addition to access to new renewable resources. For California, offshore wind is anticipated to bolster the economies of California coastal communities and increase workforce development, supply chain growth, and new renewable resources.[3]</p> <p><u>High-Voltage Transmission Access Charge Forecast Analysis</u></p> <p>To illustrate the impacts of the presented 2022-2023 TPP proposed policy mitigations, Cal Advocates updated CAISO's 2021-2022 High Voltage (HV) Transmission Access Charge (TAC) forecast (shown below) to include the combined revenue from all participating transmission owners (PTO) that submitted reliability projects and the cost estimates for policy mitigations for the 2022-2023 TPP cycle. Figure 2. is Cal Advocates' estimate of the baseline HV TAC forecast[4], as well the forecast of \$30.5 billion capital expenditures estimated in CAISO's 20-Year Transmission Outlook.[5]</p> <p>It should be noted that the HV TAC forecast presented in Figure 2. likely underestimates the cost impact to ratepayers, as the CAISO did not provide complete cost estimates for several</p>	<p>The CAISO will update the high-voltage TAC forecast including all projects recommended for approval within the 2022-2023 TPP.</p>

No	Submitting Organization	Comment Submitted	CAISO Response																																													
		<p>proposed policy mitigations in the San Diego area,[6] and failed to provide any cost estimates for the proposed policy mitigations in the PG&E area.[7]</p> <p style="text-align: center;"><u>Figure 2: HV TAC Forecast (\$/MWh)</u></p>  <table border="1" data-bbox="514 511 1201 950"> <caption>Estimated Data for Figure 2: HV TAC Forecast (\$/MWh)</caption> <thead> <tr> <th>Year</th> <th>2021-2022 HV TAC Forecast (\$/MWh)</th> <th>HV TAC Forecast Incl. 20-Year Outlook (\$/MWh)</th> <th>HV TAC Forecast Incl. 2023 Reliability Proposals (\$/MWh)</th> <th>HV TAC Forecast Incl. 2023 Reliability and Policy Proposals (\$/MWh)</th> </tr> </thead> <tbody> <tr><td>2022</td><td>16.5</td><td>16.5</td><td>16.5</td><td>16.5</td></tr> <tr><td>2024</td><td>18.0</td><td>18.0</td><td>18.0</td><td>18.0</td></tr> <tr><td>2026</td><td>19.5</td><td>19.5</td><td>19.5</td><td>20.0</td></tr> <tr><td>2028</td><td>21.0</td><td>21.5</td><td>21.0</td><td>24.0</td></tr> <tr><td>2030</td><td>21.5</td><td>22.5</td><td>22.0</td><td>26.5</td></tr> <tr><td>2032</td><td>21.8</td><td>24.0</td><td>22.5</td><td>28.5</td></tr> <tr><td>2034</td><td>21.9</td><td>26.5</td><td>23.0</td><td>30.0</td></tr> <tr><td>2036</td><td>21.9</td><td>29.5</td><td>23.4</td><td>31.5</td></tr> </tbody> </table>	Year	2021-2022 HV TAC Forecast (\$/MWh)	HV TAC Forecast Incl. 20-Year Outlook (\$/MWh)	HV TAC Forecast Incl. 2023 Reliability Proposals (\$/MWh)	HV TAC Forecast Incl. 2023 Reliability and Policy Proposals (\$/MWh)	2022	16.5	16.5	16.5	16.5	2024	18.0	18.0	18.0	18.0	2026	19.5	19.5	19.5	20.0	2028	21.0	21.5	21.0	24.0	2030	21.5	22.5	22.0	26.5	2032	21.8	24.0	22.5	28.5	2034	21.9	26.5	23.0	30.0	2036	21.9	29.5	23.4	31.5	
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12f	California Western Grid Development, LLC	<p style="text-align: center;">Comments of California Western Grid on CAISO's November 17, 2022, Transmission Planning Presentation to Stakeholders on the 2022-2023 TPP</p> <p>Three Rivers Energy Development, LLC (TRED) is an Independent Transmission Developer that is developing the proposed Pacific Transmission Expansion Project ("PTE Project" or "PTEP") on behalf of California Western Grid Development, LLC. ("California Western Grid" or "Cal Western"). The PTE Project is a 2,000 MW controllable HVDC subsea transmission cable that the California Independent System Operator ("CAISO") has found will allow new and existing supply, available to the Diablo Canyon 500 kV switchyard, or new offshore wind to be delivered to the LA Basin and Big Creek</p>	The comment has been noted, please see responses above.																																													

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Ventura and reduce local capacity requirements while also solving other issues. The PTE Project is described in Section 4.8.8 of the 2020-2021 CAISO Transmission Report issued March 24, 2021. The PTE Project is also currently being restudied by the CAISO as part of 2022-2023 CAISO Transmission Planning Process (“TPP”).</p> <p style="text-align: center;">Introduction</p> <p>California Western Grid is pleased to submit comments on the CAISO November 17, 2022 stakeholder briefing , that outlined, among other things, CAISO’s preliminary analysis of current policy, economic and deliverability driven transmission needs and solutions under consideration.[1] As an initial matter, we note that on October 14, 2022, we submitted comments on behalf of California Western Grid regarding the CAISO’s Strawman Proposal dated September 22, 2022 (“Strawman Comments”). In those comments we commended the CAISO for recognizing that changes to the TPP are needed immediately if the CAISO is going to be able to plan and approve transmission to accommodate the tripling of clean energy resources the 2021 Joint Agency Report to the Legislature found is necessary to meet “SB 100”[2] goals. We also detailed the various public policy findings embodied in SB 887[3] that new transmission is urgently needed to accommodate State public policy needs. We point out that considering SB 887, the CAISO must make considerable progress on planning and approving new transmission in the current 22-23 TPP pursuant to its FERC Tariff obligation to timely plan and approve transmission to meet State policy goals. We will not repeat those Strawman Comments but have attached them hereto as Attachment A.</p> <p>The legislature’s rare <i>unanimous</i> approval of SB 887 in both the Senate and Assembly, which the Governor of course signed, provides extraordinary policy direction on the urgent need to accelerate transmission approvals to accommodate State policy needs. It is now up to CAISO to redouble its efforts to implement the very clear State public policy guidance in SB 887. We are</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>pleased that the CAISO’s Stakeholder Presentation shows that CAISO is considering significant new transmission additions, that if approved in this 2022-23 TPP, would be a large step toward implementing both the letter and the spirit of SB 887. And, in its 20-Year Transmission Outlook the CAISO found the need for over \$30 billion of new transmission (including a line like PTEP) to accommodate SB 100 goals. It is critical that the CAISO start immediately by approving several long lead time least regrets transmission projects such as PTEP in this planning cycle.</p> <p>As we explain below, the studies the CAISO conducts for the remainder of this planning cycle should evaluate the cumulative Policy, Economic and Deliverability benefits of any major transmission solutions. This will include evaluating project benefits such as reduced local area LCR needs, reduced congestion on the bulk power system, improved deliverability of preferred resource, contributions to meeting the policy goals of SB100, along with providing grid reliability, reduced wildfire risks, reduced reliance on fossil generation, especially in disadvantage communities, and where applicable, reduced reliance on Aliso Canyon Gas Storage facility, and enabling a robust Offshore wind industry. In other words, CAISO must look at project needs holistically and abandon any silo approach where transmission solutions are designed to simply meet one objective such as deliverability needs, or simply based on project economic benefit to cost ratios. Major new transmission projects confer many economic, policy and deliverability benefits, those benefits should not be studied in isolation. We must seek transmission solutions that deliver significant cumulative benefits across a broad range of policy, economic and deliverability objectives. CAISO should approve projects that meet the most needs and provide the most comprehensive benefits across multiple objectives.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>We look forward to future updates and working with you as the 2022-23 TPP unfolds. We also appreciate the enormous work reflected in the November 17 Stakeholder Presentation.</p> <p style="text-align: center;">Conclusion</p> <p>As a final note, Cal Western would like to remind the CAISO of a passage from pages 7 and 8 of CPUC ALJ Fitch's October 6, 2022, Ruling SEEKING COMMENTS ON ELECTRICITY RESOURCE PORTFOLIOS FOR 2023-2024 TRANSMISSION PLANNING PROCESS:</p> <p style="padding-left: 40px;">” The July 1, 2022, letter recommendations were intended to encourage the CAISO to consider identifying transmission needs, not only from study of the 38 MMT base case, but also from the study of the 30 MMT sensitivity, <u>for approval within the 2022-2023 TPP</u>. Using both the base case and the sensitivity will give CAISO a broader set of information from which to consider transmission investments. And, considering that the 30 MMT High Electrification sensitivity passed to 2022-2023 TPP is very similar to the 30 MMT HE portfolio proposed above as the 2023-2024 TPP base case, <u>CAISO staff may be able to get a “head start” on identifying any associated transmission needs by considering the results of the 30 MMT High Electrification sensitivity in making transmission investment recommendations to its board in the 2022-2023 TPP cycle</u>” [emphasis added].</p> <p>This 2022-23 TPP is the opportunity for CAISO to ‘get a head start’ on the massive amount of new long -lead time transmission that the CAISO identified in its 20-Year Transmission Outlook.</p>	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>Thank you for the opportunity to comment on an impressive status report</p> <p>Respectfully submitted,</p> <p>Marty Walicki, Managing Partner</p> <p>Three Rivers Energy Development, LLC December 5, 2022</p>	
12g	California Wind Energy Association	No comment	
12h	Center for Energy Efficiency and Renewable Technologies (CEERT)	CEERT encourages further transparent consultation with LADWP and BANC to assess the impacts of transmission alternatives on the balancing areas as well as exploration of the opportunity to develop joint projects that could benefit each of the balancing area authorities.	The comment has been noted.
12i	City of San Jose	The City of San Jose sincerely appreciates the CAISO's efforts in this TPP cycle to continue to lean into the significant challenges associated with success of State policy in response to the reality of climate change. This dramatic change in posture is more important than any one single action and represents a clear understanding that the future risk for transmission planning is building "too little, too late" rather than the past risk of building "too much, too soon."	The comment has been noted.
12j	Clearway Energy Group	<ul style="list-style-type: none"> • Clearway sees a present-day opportunity to use the 2022-23 transmission planning process to meet ambitious portfolio buildout for 2023-24 TPP recently proposed by the CPUC. We encourage the CAISO to use this as an opportunity to "get ahead" of the procurement projections and approve long-lead transmission by considering the portfolio proposed for the 2023-2024 TPP and/or using the current sensitivity portfolio under study. • The CPUC has given a clear signal that the base portfolio for 2023-2024 TPP will require a much bigger 	The comment has been noted.

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>buildout than the base and sensitivity portfolio being studied under the 2022-2023 TPP. The new proposed base portfolio contains 86 GW of new resources by 2035, compared to 41 GW by 2032 in the current base portfolio. This new ambitious base portfolio, and the dramatic increase in identified resource needs over the last several TPP cycles, signals a real need to reset the ambition of the transmission planning process.</p> <ul style="list-style-type: none"> ○ Evaluating an outdated base portfolio will create additional risk of resource delays due to lack of transmission capacity. If an adequate quantity of new resources cannot be brought online over the next several years, California will not be able to get out of the cycle of emergency and short-term procurement, which leads to higher costs for ratepayers. It is critical to quickly identify and approve the transmission needed to ensure that the right mix of resources can achieve full deliverability on time. ○ In our assessment, many of the upgrades identified in the 2022-23 preliminary studies will be required to be online as early as 2028 considering high renewable and storage buildout seen in the CPUC's portfolios. As we've continued to see for already approved upgrades, many transmission upgrades risk permitting delays which act as existential hurdles to bringing strategically located queued generation online in time to meet reliability requirements and state goals. ● Clearway offers the following recommendations related to transmission enabling offshore wind: <ul style="list-style-type: none"> ○ In light of the extension of the Diablo Canyon nuclear plant's operating life, the Morro Bay loop-in should be approved in the 2022-23 TPP in order to create a valid POI for Central Coast offshore wind projects. If offshore wind 	

No	Submitting Organization	Comment Submitted	CAISO Response
		<p>resources are needed by 2032 as indicated by the CPUC’s resource portfolios, then optimal transmission infrastructure has to be approved in 2023.</p> <ul style="list-style-type: none"> ○ Now that the CEC has set California’s offshore wind target at 25 GW by 2045, CAISO needs to urgently evaluate the need and benefits of an offshore transmission network connecting Humboldt, the SF Bay Area, Moss Landing, Diablo, and Southern California. Clearway strongly recommends that CAISO embark on this evaluation without waiting for the next planning cycle. ● The policy study should ensure that Energy-Only PV resources relied upon for charging the BESS fleet are “deliverable” during high solar production hours. Policy and/or economic transmission projects need to be evaluated to ensure the BESS resource fleet has ample and unconstrained transmission capacity to deliver from the mapped renewable resources to the mapped BESS resources. ● CAISO should provide more concrete information on upgrades in critical areas such as SCE Eastern, East of Pisgah, GridLiance, Fresno and Kern that might be approved in this cycle as soon as possible – i.e., before the January 13th Initial Interconnection Financial Security (IFS) posting for Cluster 14 projects, and well before issuance of the draft Transmission Plan in March. If the CAISO wants to see appropriate queued project withdrawals, it should provide definitive information that can be used to distinguish feasible from infeasible projects. Projects aligned with new draft portfolios for 2023-2024 TPP will also benefit from this information. 	

No	Submitting Organization	Comment Submitted	CAISO Response
12k	Coalition for the Optimization of Renewable Development	No comment	
12l	Defenders of Wildlife	No comment	
12m	EDF-Renewables	No comment	
12n	Fervo Energy	No comment	
12o	Wellhead Electric Company, Inc.	No comment	
12p	Gallatin Power Partners	No comment	
12q	Golden State Clean Energy	No comment	
12r	GridLiance West	GLW appreciates the CAISO's tremendous work on this complex transmission planning cycle and appreciates the consideration of these comments.	The comment has been noted.
12s	LS Power	In order to align study cases for the 2022-2023 portfolios with the OOS transmission projects that have been proposed, it would make the most sense to model the 1062 MW if OOS wind in the base case coming from Idaho. This would allow for the modeling of the remaining portfolio amount coming from Wyoming in the sensitivity portfolio, while leaving the 1062 MW in Idaho consistent in the base case and sensitivity portfolios.	The comment has been noted.
12t	Large-scale Solar Association	No comment	
12u	New Leaf Energy, Inc.	No comment	
12v	NGIV2, LLC, Valley Power Connect, LLC, Citizens Energy, Imperial Irrigation District	<p>Transmission development is a lengthy process, and the NGIV2 Project Sponsors have been involved in this process for over 10 years. We respectfully request CAISO to consider breaking down the proposed portfolio of transmission alternatives into key 'no regrets' transmission investments that can be proposed in the 2022-2023 Plan. The NGIV2 Project has near-term cost sharing and benefits to both the IID and CAISO, as described in the Economic Study Request submitted in March 2022. Further, the NGIV2 Project provides a near-term transmission alternative for the SCE, SDGE Policy Based Assessment, and the special study on reduced reliance on Aliso Canyon Storage.</p> <p>Thank you for the opportunity to submit our comments to the 2022-2023 TPP stakeholder process.</p>	The comment has been noted.
12w	Pacific Gas & Electric	No comment	

No	Submitting Organization	Comment Submitted	CAISO Response
12x	San Diego Gas & Electric	<p>San Diego Gas & Electric Co. (“SDG&E”) appreciates the extensive amount of work undertaken by the California ISO (“CAISO”) to review the available options that are needed to support the state’s decarbonization and electrification goals as part of the 2022-2023 Transmission Planning Process.</p> <p>Current legislation (SB 887), FERC Transmission Planning Notice of Proposed Rulemaking (NOPR), load and resource forecasts, and CAISO’s own 20-Year Outlook results all unanimously point to the need for transmission to achieve the state’s goals. SDG&E encourages CAISO to consider the complete picture when potentially approving these projects. This includes cost-effectiveness, permitting challenges, and feasibility. However, this also includes the identification of nearer-term solutions that will complement longer-term solutions. With the current IRP draft plan forecasting the need to build an average of ~ 7 GW of resources over the next 10 years, it becomes increasingly important to identify long-lead transmission needs and prioritize transmission solutions that can be built early to meet system reliability and ensure zero-carbon resources can be deliverable. The past years in California have shown that inaction can result in further rolling blackouts due to the lack of resources and transmission to support these resources.</p> <p>CAISO, at this stage has all the tools needed to help the state. The transmission solutions identified by the CAISO are multi-value projects that address 1) existing and future reliability issues, 2) Local Capacity Requirements (LCR) reduction needs shown in this year’s 10-year out LCR study, 3) future policy and resource deliverability needs, and 4) potentially help with the Aliso Canyon challenges. Furthermore, some of CAISO’s identified solutions will help in the near term and will complement potential future projects that are going to be needed to reach the State’s 20-year goals. This essentially means that CAISO’s options being currently reviewed will have benefits on day one while reducing the number of RASs in the CAISO system</p>	The comment has been noted.

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		<p>and making the CAISO system more resilient and less complex to operate.</p> <p>Finally, the current CAISO TPP policy results and the current CPUC draft IRP plan show that there is no longer a question of “if” transmission will be needed, but rather “when”. There is also no longer a question on whether a “least-regrets” approach is needed. Results from both the IRP and the TPP are pointing to the need for the CAISO and the CPUC to take action, to be proactive, and to be intentional with their planning efforts in order to overcome the large volume and fast pace of resource decarbonization and load electrification ahead.</p>	
12y	Shell Energy	No comment	
12z	Southern California Edison	No comment	
12aa	Vistra Corp.	No comment	